

RATIONAL EMOTIVE BEHAVIOUR THERAPY AS A MEANS OF MANAGING
STRESS, PROMOTING SELF-DETERMINED MOTIVATION, AND PSYCHOLOGICAL
WELLBEING WITHIN BRITISH POLICING

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ABSTRACT

The aim of this thesis was to investigate the application of Rational Emotive Behaviour Therapy (REBT) to manage stress and support the motivation and psychological wellbeing of United Kingdom police personnel. REBT is a psychotherapeutic approach which aims to assist individuals in coping with adversity by assessing the extent to which they adopt irrational or rational beliefs. Reducing irrational beliefs and increasing rational beliefs is believed to promote functional and healthy responses to adversities. The detrimental effects of irrational beliefs on psychological health are established in a wide variety of contexts, yet, to date, less is understood about their antecedent effects on the experience of stress and motivation within a police context. Considering the epidemic of stress and its consequent effects on health within policing, this thesis adds to the extant literature in three ways. The first aim of this thesis was to examine the cognitive antecedents of police stress and motivation by assessing levels of irrational beliefs in a large cross-sectional study. Second, the effectiveness of an REBT stress management intervention was examined, nomothetically and idiographically to assess intervention effects at a group and individual level. Third, an autoethnographic review of the application of REBT within a U.K. police organisation is presented to offer practical insights and guidance on the application of REBT to support police personnel. The main findings of this thesis are that, first, irrational beliefs are significant antecedents of stress and poor motivation quality within a police sample. Second, REBT can be an effective intervention to reduce stress and support the motivation and psychological wellbeing of police senior leaders, but that stress, motivation, and psychological wellbeing occur in complex and unique ways for individuals. The main conclusion of this thesis is that REBT is supported as an effective approach to stress management within police wellbeing strategies and highlights frustration intolerance irrational beliefs and amotivation as particularly important. Several theoretical, research and practical implications that have emerged as a result of the investigations presented in this thesis are discussed.

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PREFACE

This thesis includes published manuscripts. The details of all outputs related to this thesis are as follows:

Jones, J. K., Turner, M. J., & Barker, J. B. (2021). The effects of a cognitive-behavioural stress intervention on the motivation and psychological wellbeing of senior U.K. police personnel. *International Journal of Stress Management*, 28(1), 46.

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N.B. As two of the studies in this thesis are published, chapters three and five have an extended literature review as would appear in an empirical article. Therefore some repetition may be present regarding the description and explanation of theory and research.

CHAPTER 1: LITERATURE REVIEW

1.1 Introduction

The role of those who work in police organisations has been described as consisting of the relentless task of enforcing the laws of society (Violanti et al., 2017). Such roles are experienced by many as stressful and detrimental to psychological wellbeing (Stinchcomb, 2004). The experience of stress by individuals in policing roles appears to be continually escalating (Black & Lumsden, 2020; Burke, 2017; Cartwright & Roach, 2021; Lockett et al., 2022) and there are ongoing calls for research to support effective approaches to managing stress and supporting psychological wellbeing in the context of policing (Demou, Hale, & Hunt, 2020; MacMillan et al., 2017; Patterson, Chung, & Swan, 2014). Given the prevalence of stress in policing, and the impact that stress can have on health it is important to explore strategies that promote reductions in stress and increases in wellbeing in this challenging context.

Stress has been identified as a causal factor in both physiological and psychological illnesses (Smyth, Zawadzki, & Gerin, 2013) and stress has been linked directly or indirectly to seven of the ten leading causes of death in developed nations (Cooper & Quick, 2017). Psychological disorders such as major depression have also been linked to stress (Smyth et al., 2013). Indeed, the cumulative science linking stress to negative health outcomes in the general population is robust (O'Connor, Thayer, & Vedhara, 2021). Such findings motivate research to understand and manage both stress and psychological wellbeing in a wide variety of contexts. Stress is a global challenge in many domains and forms a part of the human experience. For example, stress is a prevalent problem in the workplace (Sohail & Rehman, 2015) and within families (Zeng, Hu, Zhao, & Stone-MacDonald, 2020) and an ongoing challenge in a range of performance contexts such as education (Rith-Najarian, Boustani, &

Chorpita, 2019); healthcare (Ruotsalainen, Verbeek, Marine, & Serra, 2014); sport (Arnold & Fletcher, 2021); performing arts (Nordin–Bates, 2012); and business (Johari & Omar, 2019); as its prevalence impacts the mental and physical health of individuals and can be detrimental to performance (Queiros et al., 2020). For example, over twenty-five countries have assessed police officer stress in the last decade with most studies conducted in the United States of America, U.S.A. (Queiros et al., 2020). The current thesis is specifically concerned with stress in United Kingdom, U.K., policing.

To provide an empirical background to the programme of research within this thesis, the following literature review details how the concepts of stress, psychological wellbeing, and stress management interventions have emerged, and continue to emerge through scientific research, with a particular focus on the context of policing. The literature review is divided into three parts. The first part explores the concept of stress and highlights the challenge that stress presents both in the police context and more broadly in society. The second part focuses on the development of interventions which aim to resolve the detrimental effects of stress as well as enhance psychological wellbeing. Interventions are critiqued by exploring stress mechanisms and evidence-based frameworks which support psychological wellbeing. The third and final part of the literature review explores psychological interventions, specifically Rational Emotive Behaviour Therapy (REBT; Ellis, 1962), as an effective approach to managing stress and enhancing psychological wellbeing both in general and within a policing context.

1.2 PART 1 – Exploring the concept of stress and the challenge that stress presents.

1.2.1 Stress in policing.

Policing is stressful. To qualify this statement, let us consider research which documents the extent to which stress and stress-related incidents occur in police settings. Over the last 10 years, the prevalence of absence in U.K. policing has doubled due to psychological ill health, trauma, and stress and on average 56.4% of reasons for taking leave between 2008 and 2018 were stress (Cartwright & Roach, 2021). This finding, while concerning, could also be considered to be an underestimation of the prevalence of stress within policing, as many police employees may experience stress and continue to work, may have their stress absence recorded as a physical illness due to stigma, and may be suffering stress due to physical illness or injury but the stress element of their experience is not recorded.

In the most recent Police Federation of England and Wales mental health and wellbeing report, 69% of respondents reported mental health difficulties, with the most frequently reported reasons associated with heavy workloads and having a poor work/life balance (Elliot-Davies, 2021). Indeed, policing is widely acknowledged as a highly stressful occupation (Purba & Demou, 2019), with the most recent work-related stress, anxiety or depression statistics in the U.K. demonstrating an upward trend in the population's experience of these mental health challenges between the years 2001- 2021, with public administration and defence; compulsory social security employment sector, which includes policing, demonstrating a higher than average rate of stress, depression or anxiety in the period of 2018/19-2020/2022 (Health & Safety Executive, HSE, 2021). In sum, stress within policing is a significant problem that requires more research to generate potential solutions. Such research could focus on why stress is so prevalent in policing and explore possible solutions which enable police personnel to confidently perform their operational duties which

will almost definitely include exposure to negative and socially unacceptable occurrences. There appears to be a strong assumption by police personnel that police work is causal of, or exasperating of, mental health difficulties (Elliot-Davies, 2021) yet not all police personnel experience their work in this way. Police work is diverse and complex in its nature (Kelling, 1999), and so a more detailed investigation of the prevalence of stress and psychological wellbeing in police contexts is called for.

1.2.2 The cost of stress

In an economically driven world, it is puzzling that society and industry continue to overlook the high monetary cost of stress. The difficulty in defining stress, particularly in the context of medical illness, maybe one reason that stress remains a hidden cost, although many studies show that stress in the workplace is a significant issue and cost (van Stolk, 2021). Economic consequences of stress and stress-related illness include frequent and repeat engagement with healthcare services, absenteeism (i.e., any unplanned absences from work, Nunes, Richmond, Pampel, & Wood, 2017), compensation claims, litigation, grievances, accidents, errors of judgment and action, conflict and interpersonal problems, violence, service satisfaction problems, resistance to change, and loss of intellectual capital (Kalia, 2002). Models of work-related stress demonstrate that while a small percentage of the working population may be affected by stress-related illnesses the cost to society is extremely high, for example in France 1.3-1.7% of the working population were affected by work-related stress illnesses, the cost to society was estimated to be as high as 1,975 million euros which equated to 24.2% of the total spending of social security occupational illnesses and work injuries branch (Bejean & Sultan-Taieb, 2005). In the U.K., both being absent from work and being in suboptimal health while at work cause employers to lose a significant amount of productive time with stress being a major mediator (van Stolk, 2021). Again, due

to the complications in stress reporting, these figures should be seen as underestimations of the problem. The high prevalence of stress within organisations and society is expensive and yet remains largely unaddressed in terms of the application of effective and practical solutions.

The implications of experiencing chronic stress are increasingly recognised as having deleterious consequences for individuals (Russell, Koren, Rieder, & Van Uum, 2012). Such consequences include a large range of diseases, including life-threatening diseases such as cardiovascular disease, insulin insensitivity, and cancer (Cohen et al., 2007). Furthermore, there is a wide range of support to indicate that the experience of chronic life psychosocial stress will lead to adverse long-term health outcomes in most people (Rohleder, 2019). Due to exposure to critical incidents and structural demands (Anderson et al., 2002) police professionals are exposed to a high frequency of potential stressors and the constant demand for stress regulation has been shown to overstrain physiological stress systems among police officers (Allison et al., 2019; Planche et al., 2019), the resulting dysregulation may lead to vulnerability to maladaptive effects on important processes which occur in the brain, such as plasticity and metabolic, immune, and cardiovascular pathophysiology (Herman, 2013).

1.2.3 History of police stress studies

In the field of research psychology, scholars began to report that one's occupational environment causes psychological harm and indirect physical harm, through workplace-associated stress, around the 1960s (Jackson & Maslach, 1982). Employee wellbeing was not considered by industry leaders until a change in labour philosophy came about where the acceptance of suffering – materially, physically, and mentally was replaced by striving for comfort, ease, and happiness (McLean, 1966). Occupational wellbeing, or as it was known at the time, the industrial health movement, began in the nineteenth century to seek the

prevention of specific somatic affections and to seek a more global or whole system approach to increasing occupational efficiency (Burlingame, 1947). The field of applied psychology, which was first outlined in the early 20th century, began to attend to the demands of practical life concerning emerging findings in the field of experimental psychology (Munsterberg, 1913). During the same era, the field of psychiatry began to respond to concerns for occupational mental health support. One of the earliest accounts reported described the impact of unemployment on the mental health of a cohort of patients admitted for psychiatric care (Adler, 1917) and a reported follow-up which observed a 75% recovery rate following psychiatric support (Jarrett, 1920). Through these observations, it was discovered that maladjustment in motivations and attitudes of employees toward their employment situation was more costly to industry than accidents and disease (Burlingame, 1947). Such outcomes led to the emergence of the application of psychological knowledge beyond the hospital psychiatric ward and called for proactive and preventative interventions in applied settings. It is surprising to discover that calls for proactive, applied psychological interventions were made as long ago as 1913 (Munsterberg, 1913) but not acted upon or widely investigated empirically until decades later.

The observation and study of stress in policing appears to have begun around the same time as the emergence of the occupational health movement, in the mid-to-late twentieth century (Waters & Ussery, 2007). Police stress was investigated and commented on in the form of the identification of contributing factors to police stress and symptoms of police stress, and the development of police stress prevention programs (Lindemann, 1944; Maslach & Jackson, 1979; Mitchell, 1983; Waters, Irons, & Finkle, 1982). For example, Lindemann-(1944) reported observations assessing grief reactions to traumatic events from a range of perspectives including the military, however, it was not until three decades later that research began to document the specific impact of police work on police officers. For

example, in one early study of police stress, the authors explored the impact that stress had on both the officers and their families in California, U.S.A., with survey findings indicating that high burnout scores were associated with domestic strains and in some cases emotional and physical exhaustion (Maslach & Jackson, 1979). In some cases, high stress and burnout led to officers experiencing negative self-evaluation which in turn led to social isolation from their friends and family. Maladaptive coping then seems to consist of the use of alcohol, drugs, and other measures. In their study, Maslach and Jackson (1979) developed questionnaires for police officers and their partners from urban areas of California, U.S.A. and asked questions about police work satisfaction, relationships, and stress-coping techniques. Partners were asked to rate their partner's work and behaviour at home with high-stress scores associated with domestic strains. The questionnaires used in the Maslach and Jackson (1979) study were subsequently developed and empirically validated (Maslach & Jackson, 1981), however, their initial research, with police officers, was exploratory. In summary, early police stress articles appear to stem from observations of stress and burnout-related behaviours in police officers and there was a trend for anecdotal reporting of stress in policing. In response to this, exploratory research, such as the work of Maslach and Jackson (1979), began to emerge.

1.2.3a Contemporary police stress research

In contemporary research, the question of police stress has been approached and reviewed from several viewpoints. The antecedents and risk factors associated with stress in policing have been examined across various studies (Wijayanti & Fauzi, 2020; Violanti et al., 2017; Magnavita, Capitanelli, Garbarino, & Pira, 2018; Syed, Ashwick, Schlosser, Jones, Rowe, & Billings, 2020; Pruba & Demou, 2019). Police stress as a concept has been examined (Malloy & Mays, 1984; Slate, Johnson, & Colbert, 2007; Webb & Smith, 1980) along with measures of police stress (Queiros et al., 2020; Rabbing, Bjorkelo, Fostervold,

Stromme, & Lau, 2022), the outcomes of police stress (Foley & Massey, 2019; Garbarino et al., 2019; Velazquez & Hernandez, 2019), and interventions that aim to reduce stress (Blumberg, Schlosser, Papazoglou, Creighton, & Kaye 2019; Maran, Zedda, & Varetto, 2018; Patterson, Chung, & Swan, 2012; Penalba, McGuire, & Leite, 2008). In a review of police stress research, a categorisation of findings was conducted to aid the development of the sub-field by providing a clearer analysis of the research at that time (Abdollahi, 2002). Four categories of enquiry were identified, personality-related stressors, occupational stressors, organisational stressors, and the health consequences of police stress. A major criticism of research in the field was that since the first research attempts into police stress there was a lack of theoretical foundation to guide the empirical process. Presently, there still appears to be a lack of studies which adopt a theory-driven strategy to understanding the problem of stress in policing. The overall quality of research in the field is deemed to be conceptually and methodologically poor with researchers calling for the grounding of police stress research in theory (Abdollahi, 2002) and further investment in well-designed studies including randomised samples and comparable controls (Magnavita, Capitanelli, Garbarino, & Pira, 2018). The following section reviews police stress research in more detail, that is, the nuances of the reported antecedents in policing; the concept of police stress; and police stress interventions are discussed.

1.2.3b Antecedents and risk factors associated with police stress.

It appears that the primary focus of police stress and police psychological wellbeing research to date has been on identifying and evaluating the antecedents of police stress and their association with poor health-related outcomes. For example, Wijayanti & Fauzi-(2020) discuss five articles and conclude that some factors associated with police stress were individually based such as differences in characteristics, individual ability to problem solve,

ability to cope effectively with stress; environmentally - exposure to critical incidents, past trauma, or organisationally based such as role ambiguity, role conflict, role overload, discrimination at work, and lack of co-worker co-operation. Violanti et al. (2017) reviewed research on the subject of police stressors and associated health outcomes citing that occupational (e.g., traumatic events) and organisational (e.g., co-worker relations) stressors were the sources of stress in policing. Police stressors were then linked to a range of negative health outcomes such as post-traumatic stress disorder, suicide, and cardiovascular disease. Both Wijayanti et al. (2020), and Violanti et al. (2017), present key findings and future directions for research, however, both reviews lack in their critical examination of the papers which they review. Furthermore, there is no clear presentation of their conceptual stance on stress and the mechanism through which police-related stressors are associated with concerning health outcomes. In a systematic review of work-related stress as a cardiovascular risk factor in police officers Magnavita et al. (2018) revealed the inconsistency of associations between exposure to stress and cardiovascular disease and discussed this in relation to conflicting definitions, measures of stress, methodological designs and research conclusions. Finally, the first systematic review and meta-analysis of the global prevalence and risk factors for mental health problems in police personnel was recently published (Syed et al., 2020). High occupational stress, along with being female, were two of the most consistent factors for poorer mental health amongst the police sample which they state is in line with general strain theory (GST; Agnew, 1992), a theory which explains criminal and delinquent behaviour, as opposed to contemporary theories of stress.

The overall findings of the above reviews suggest that mental health issues are increasing over time and are associated with occupational stress and maladaptive coping strategies (Syed et al., 2020). Recently police organisational stressors were the subject of a systematic review of police officer mental wellbeing the findings of which support the

hypothesis that police organisational culture can create stressors through lack of support from colleagues, supervisors, and organisational departments such as Human Resources; ridicule and pranks, job demands and pressure, and long working hours (Purba & Demou, 2019). The Purba and Demou (2019) review provides evidence of associations between organisational stressors and occupational stress and poor mental wellbeing, however, there remains a lack of assessment of such associations concerning theories of stress and psychological wellbeing. It is possible that police wellbeing agendas could be superficially addressed without the assessment of research findings against evidence-based mechanisms of stress reduction and psychological wellbeing promotion.

1.2.3c The police stress hypothesis.

Close examination of the foundations of claims that policing is a uniquely stressful work environment (Miller, 2006; van Hasselt et al., 2008; Webster, 2013; Lucas, Weidner & Janisse, 2012) reveals a lack of empirical support for the case that the police officer's context is more stressful than other work contexts (Malloy & Mays, 1984). Furthermore, a focus on extremely stressful events such as assaults and other traumatic occurrences may mask the true mechanisms through which stress impacts police officers' wellbeing. Indeed, an assumption that working in policing is stressful is potentially problematic as beliefs that a context is stressful may, indeed, impact one's experience of that context as outlined in self-fulfilling prophecy (van der Velden, Rademaker, Vermetten, Portengen, Yzermans, & Grievink, 2013). Those offering commentary on the theoretical underpinnings of police stress highlight that at its inception policing was considered one of the most stressful occupations a person could perform, however, there does not appear to have been any attempt to ground police stress research in robust evidence-based frameworks of stress to date.

Stress has a broader impact than increasing vulnerability to ill health. Stress can also have an impact on one's ability to perform their duties optimally. The protective public role that police have in society would, arguably, mean that managing stress is a key performance requirement. As the stress one experiences increases there is a decline in cognitive function that can lead to errors of judgment, reduced impulse control, and poor decision-making (Gutshall, Hampton Jr., Sebetan, Stein, & Broxtermann, 2017). In one review (Di Nota & Huhta, 2019), complex behaviours such as the maintenance of situational awareness and effective decision-making, which precede and inform action, as well as perceptions of confidence are all influenced by the complex relationship between stress, learning, and memory. Considering the daily expectations of roles within policing an ability to maintain optimal performance focus while facing a broad range of complex, competing, and dynamic situations are highly desirable (Bertilsson et al., 2019). The impact that stress can have on performance further highlights the need to understand and apply effective stress management interventions. Such interventions are arguably as important to optimal performance as technical and tactical police skills. In summary, to date, there appears to be an assumption that the unique context of policing is a prerequisite for experiencing stress and poor psychological wellbeing, that all police personnel experience stress and that policing is a more stressful context than other occupational contexts, however, there is a dearth of empirical evidence which supports these hypotheses. While policing is experienced as highly stressful and detrimental to wellbeing for some, there are individual differences in such experiences (Malloy & Mays, 1984). Furthermore, as pointed out in an earlier paragraph, there is a lack of alignment of the police stress hypothesis with contemporary stress theory.

1.2.3d Police stress intervention research.

Another developing area in the field is the application of police stress management interventions. Here, while stress has been demonstrated to be a problem in policing, and a problem more broadly in society, there is limited research which guides the successful application of police stress management interventions. This is surprising given the high cost of stress to police and other organisations. In the first meta-analysis examining stress management interventions in policing, it was concluded that, at that time, interventions were largely ineffective (Patterson, Chung, & Swan, 2014). Only twelve studies were included and due to the variation in study design and intervention type, the effectiveness of interventions is difficult to interpret with accuracy, and findings suggest that more rigorous studies are needed. It is considered of high importance that future police stress management interventions aim to assess the effectiveness of stress management interventions in policing. Furthermore, high-quality mixed methods quantitative and qualitative data would be informative in terms of understanding the idiosyncratic experiences of participants who receive interventions (Patterson, Chung, & Swan, 2012; Patterson, Chung & Swan, 2014).

To summarise, in policing, stress appears to be experienced all over the world. What is of interest is that police stress research may also reflect broader society and the need for understanding and preventing the deleterious effects of stress. The current research field appears to still be in its infancy, and in the meantime, many individuals suffer from the detrimental effects of stress. For evidence-based interventions to evolve it is important to examine the theoretical concepts and mechanisms through which change is hoped to occur. This section has examined the research conducted concerning police stress specifically and has identified a lack of grounding of research in contemporary stress and psychological

wellbeing theory, in the next section the concept of stress is explored more broadly in terms of the current evidence of stress mechanisms and interventions.

1.2.4 Early studies of stress

The concept of stress has been observed early in history in eastern philosophic teachings such as the legend of Buddha on which the Buddhist religion is founded. The history of Buddhism states that approximately 2,500 years ago Siddhartha Gautama discovered that one important characteristic of human existence was *dukkha* which is traditionally translated as suffering, pain, sorrow, or disease and is a concept that appears comparable with stress (Tyson & Pongruengphant, 2007). Ancient Chinese philosophy also tackles distress in terms of relationships between a being's inner and outer environment and the relationship between the two (Chan, 1969). It seems that ancient philosophic thinking pondered the same stress-related topics that are still debated today.

Stress has also been observed in western populations for centuries and the study of stress in the west is rooted in ancient Greek philosophy (Chrousos, 2009). For example, it is argued that the general principle of balance or equilibrium of life was first proposed by pre-Socratic philosophers, such as Pythagoras, who called it "harmony" or "isonomia" as enunciated by Alkmaeon (Warren, 2007; Chrousos, Loriaux, & Gold, 1988). Other philosophers added to this train of thought, Alcmaeon of Croton named the balance of opposing forces "isonomia" as well as Empedocles of Agrigentum proposed four basic elements "rhizomata" or "racins" which were earth, water, air, and fire which were in dynamic opposition to one another and which needed to reach a balance for achieving the harmony of the cosmos (Chrousos & Gold, 1992; Kontopoulou & Marketos, 2002).

The importance of perception in human-environment interactions can find its roots in Ancient Greek Philosophy. For example, Protagoras (485-411BC) stated that "man is the

measure of all things” (Hunt, 1993, p. 16) suggesting that each perception is true for each perceiver only and implying that individuals perceive events in their unique way. Later (460-362BC) Democritus proposed that nothing is known for certain, apart from the changes that occur in our bodies in response to the environment. Hippocrates (460-377BC) and Aristotle (384-322BC) both pontificated on the human body’s requirement for internal balance. Their suggestions were that perception determined biological responses in the brain, which, in turn, regulate the body’s internal condition. From this, a general understanding of how perception could determine stress responses emerged.

The ancient Greek scholars recognised that the heart had a role to play in the interaction between the environment, mind, and body, an idea very much a part of current stress research. Epictetus (60-120AD) recognised that life’s hardships are often determined by stimulus perception, and so one could simply change one’s thoughts to shift the meaning of the stimulus to alleviate emotional disturbance. Therefore, psychological, and physical health may be determined by the view that humans take of events. A philosophy which is drawn on as a foundational principle in cognitive behavioural therapy approaches which are applied in the present day (e.g., Cognitive Behavioural Therapy; CBT; Beck, 1970; Ellis, 1962).

The term “stress” may have evolved over decades or even centuries, however, it was in the seventeenth century that the term had come to mean “hardship” and gain technical importance (Cooper & Dewe, 2004). Specifically, the work of Robert Hooke within the discipline of physics provided the basis for an engineering analogy of stress. His work, relating to a “law of elasticity” was concerned mainly with how man-made structures such as bridges could robustly withstand loads without collapse. The law referred to load - the demand placed on a structure, stress- that area affected by the demand, and strain- the change

in form that results from the interaction between load and stress (Engel, 1985; Lazarus, 1999). The influence of Hook's stress analogy remains prominent in modern times with stress relating to an external demand placed upon a bio-social-psychological system (Lazarus, 1993).

The formalised scientific study of stress began with the work of Claude Bernard who observed the *milieu interieur*, a nonspecific response of the body to any deviation from the organism's usual state (Bernard, 1865) and Walter Cannon's original charting of "the emergency response" of primarily the sympathetic nervous system which was published in 1915. Cannon's concept later became known as homeostasis (Cannon, 1926). Homeostasis remains an important concept in the study of stress to the present day. Cannon is thought to have been influenced by the work of William James and Carl Lang who were interested in emotional experiences and how they came about. Through his experimental investigations, Cannon was able to challenge early theories of emotional processing from the James-Lang stance of emotions that were physically based, that is, emotions occur because of certain bodily reactions to stressors (Robinson, 2018). Instead, along with his graduate student Philip Bard, an alternative theory, known as the Cannon-Bard theory, was proposed which suggested that emotional centres exist in the brain that organise and produce different emotional expressions (Cannon, 1927). Having noted this there is still debate among scholars in contemporary neuroscience over the role of physiology and/or emotional centres located in the brain (e.g., Damasio 1994; 2005). For the current discussion, the formulation of homeostasis and the hypothesis concerning emotion-producing centres in the brain are key developments in stress theory as when combined a proposal concerning human survival emerged.

The next important development in our understanding of the adaptive responses of human beings (or stress) is Cannon's proposal of a fight or flight response (Cannon, 1929). In Cannon's physiological experiments he discovered extreme responses to pain and major emotions which he concluded served to aid ongoing survival. Such responses included the mobilisation of glucose from the liver into the bloodstream to fuel the increased bodily demands of being able to fight or flee from a predator. The importance of this finding is that the loss of homeostatic balance needed to respond to an emergency of survival is in itself potentially harmful to wellbeing as there is a considerable challenge to the body's ability to re-establish homeostasis (Lazarus, 1999). In his research into the fight or flight response, Cannon established the emotional basis for the physiological alarm response which aids survival and was focused on discrete, transient, and acute stress responses.

Arguably the most notable contribution to the early experimental study of stress can be attributed to Hans Selye (Szabo, Tache, & Somogyi, 2012). As a physician and experimental researcher, it was Selye that connected Cannon's emergency response to a single coordinated syndrome which became known as the general adaptation syndrome (GAS) or biologic stress syndrome (Selye, 1936). Selye's work demonstrated that much more was occurring throughout an animal than the initial response to an emergency described by Cannon. Beyond the initial alarm response, if exposure to a noxious agent (which is capable of eliciting an alarm response) continues the response transitions into a phase of organismic adaptation which was known as the stage of resistance. The stage of resistance produces a different biological response which serves to allow the organism to adapt to the prolonged new status quo if it is survivable. Following further continued exposure, the newly acquired adaptation is lost again and enters a third phase of the syndrome known as the stage of exhaustion. The stage of exhaustion is an inevitable phase if the stressor is severe enough and applied sufficiently long enough. This triphasic system was the first indication that the body's

ability to adapt is subject to limitations as, under constant stress, the exhaustion phase will inevitably ensue, and it is this that is detrimental to an individual's wellbeing in specific relation to stress (Selye, 1976).

Initially, there was an emphasis on stress as a physiological and medical process, however, in later analyses of the theory, Selye also proposed that the GAS response could be a psychological and social process as well as a physical one (Selye, 1983), although Selye did not base his expanded generalisations on psychological examination (Martin, 1984). At this juncture in the evolution of stress research a branching into two categories can be observed, one category that focuses on the systemic nature of the stress response, and one that is concerned with understanding the psychological nature of stress (Krohne, 2002). There also seems to have been a growth in demand for understanding the psychological nature of stress following the growing emergence of psychiatric health concerns following two world wars (Shephard, 1999). Changes were also occurring within the discipline of psychology which saw a greater emphasis on cognition and the influence of the organism in stress responses, as opposed to the earlier emphasis on stimulus-response models of behaviour (Lazarus, 1999). While it continues to be important to examine the systemic aspects of the stress response, to develop our understanding of the systemic impact of the stress response and to understand what is physically harmful to living systems, psychological stress research is equally important as psychological processes that occur can account for the variations in reactions that occur when individuals face an adaptational demand. Psychological mechanisms such as cognitions, and motivations which lead to harmful stress responses may be readily changeable and provide much-needed solutions to the harms of a chronic stress response. In the next section, the emergence and development of psychology in the stress response are considered.

1.2.5 The role of psychology in stress

As Selye was developing his theory of stress from a medical and endocrinological stance, the discipline of psychology began to experience a paradigm shift from stimulus-response behaviourism to a greater emphasis on cognition (Lazarus, 1999). It was at this time that theories of psychological stress emerged. Theorists (e.g., Lazarus, 1966; Sarason, 1960; 1972; 1975) within the discipline of psychology were increasingly interested in the role of the individual in the stress process. There are three broad categories of defining psychological stress, the first is a definition that focuses on the stimulus or triggering event known as the stressor, the second is the psychological and physical reactions that are generated by the stressor and the third is a relational approach which considers stress to be the balance of the environmental demands and the psychological coping resources of the person to deal with the environmental demands (Lazarus, 1999). When the environmental load exceeds the individual's coping resources then a stressful relationship is created. While stimulus and response definitions of stress have been a traditional approach to stress theorising and research, they have been deemed inadequate due to their lack of ability to address individual differences in stress responses (Lazarus, 1999; Turner et al., 2021). When experiencing the same stressor such as a loss of a job for example some individuals cope proactively to secure their wellbeing while others do not and become psychologically disturbed by emotions that stem from the stressful situation.

Stimulus-response approaches to the regulation of stress can be useful as the resulting avoidance of noxious future situations or removal of oneself from dangerous current situations serve to safeguard one from danger (Turner et al., 2021). There are limitations to adopting a stimulus-response approach as this approach tends to encourage avoidance of

uncomfortable emotional responses and provides short-term gains where stressful situations are ignored or avoided. While such responses may provide immediate respite from acute stress in the long term they can be maladaptive (Sheppes & Gross, 2013). In a recent study (Turner, Chadha, & Wood, 2022) confirmatory factor analysis highlighted that when individuals believe that their emotional responses are caused by external stimuli they display lower adaptive regulation. It was further suggested that reliance on changes in the external situation and or the belief that emotions are solely the result of events might hinder effective emotion regulation.

The observation of individual differences in the experience of stress leads to the formulation of relational approaches to stress where stress is conceptualised as a person-environment interaction (Lazarus, 1966). Individual differences were seen as somewhat of a hindrance in a scientific paradigm in psychology which searches for general laws, however, the observation of individual variations in the stress experience is a clear indicator that stimulus alone, (i.e., a stressor), is insufficient to define stress. It appears more straightforward to identify a physically noxious agent, one which all beings would fail to adapt to, however, defining a psychologically noxious agent is much more complex because what is noxious for one person at one point in time can be innocuous at another point in time or to another person (Lazarus, 1999).

1.2.6 Stimulus and response theories of stress.

According to Lazarus (1999), traditionally there have been two main ways of defining psychological stress, either a focus on the stress-initiating event or the reaction generated by the initiating event. In a stimulus approach to stress, an individual experiences disturbed emotional reactions in response to changing life events. This is illustrated by the social readjustment rating scale developed by Holmes and Rahe (1967). The roots of the social

readjustment scale can be traced back to the work of Adolph Mayer (Lief, 1948) who was credited with being a progressive psychiatrist who insisted on treating patients as unique individuals using a “common sense approach” and recognised the connection between a person’s life events and their psychiatric illnesses (Karl & Holland, 2013).

While Holmes & Rahe’s (1967), research did not address stress specifically, it was, instead, concerned with the causation of a changed internal state and psychopathology. At that time there was a consensus among scholars that behavioural disorders arose from many influences categorised as biological, psychological, and social, however, there was disagreement as to the relative importance of each (Dohrenwend & Dohrenwend, 1974). An emphasis on social and cultural causation emerged (Cowen, 1973), and yet, was challenged through a cross-cultural study which could not support the hypothesis that a simple and relatively uncomplicated culture provided immunity from mental disorders (e.g., Eaton & Weil, 1955). Further challenges continue to arise in the inclusion and exclusion of different life events on inventories and a lack of consideration of the subjective interpretation of life events (Dohrenwend, Link, Kern, Shrout, & Markowitz, 2021). Stress can also be defined as an adverse reaction to a stressful stimulus (Lazarus, 1999). Though popular and common parlance, a response approach to the concept of stress fails to identify any form of a mechanism through which stress occurs (Lazarus, 1991).

1.2.7 The Cognitive Appraisal Theory of Stress and Coping.

As an alternative to stimulus and response theories of stress, the cognitive theory of stress and coping (CAT; Lazarus & Folkman, 1984) emerged. It is recognised, within the cognitive theory, that the stress process is transactional and occurs because of the dynamic, mutually reciprocal, bidirectional relationship between a person and their environment (Folkman, Lazarus, Gruen, & DeLongis, 1986). The theory is grounded by a frame of

reference which is epistemological, ontological, and theoretical. An emphasis is placed on individual differences and the processes through which the stress response emerges in contrast to stable factors such as personality traits (Lazarus, 2000). There are two critical motivational-cognitive constructs which are thought to mediate the stress response (Lazarus, 1998). These are cognitive appraisal and coping.

Cognitive appraisal is the process through which a person evaluates whether an encounter with the external environment is relevant to their wellbeing and, if so, in what way (Lazarus & Folkman, 1984). Proximal and distal dimensions exist in the formulation of psychological meaning (Jessor, 1981), with proximal meaning referring to the personal significance of the event, and distal meaning referring to large social categories to which one feels they belong. Lazarus implicated personal meaning, which consisted of individual differences in goals, beliefs, motivations, and relational analysis in the stress process many times in his early work (Lazarus & Baker, 1956a; Lazarus & Baker, 1956b; Lazarus, Deese & Osier, 1952) and such meaning-making was first referred to as appraisal as the theory evolved (Lazarus, 1964) and became central to the theory of psychological stress (Lazarus, 1966). Other researchers also began to implicate the centrality of appraisal in the stress process. For example, Arnold (1960) greatly influenced the importance of appraisal in the stress response (Lazarus, 1964). Appraisal suggests that there is a process of evaluation taking place which relates to the personal significance of what is happening (Lazarus, 1999).

Coping is defined as efforts, through cognitions and behaviour, to direct specific external and internal demands that are appraised as burdensome or beyond the person's resources (Lazarus & Folkman, 1984). Traditional coping theories emerged from animal studies and the psychoanalytic field of psychology. The animal model focused on the concept of drive and coping referred to the lowering of drives such as escape or avoidance behaviour.

In psychoanalytical psychology, cognition was the focus and hierarchical coping styles and traits emerged. Although popular there are limitations to these approaches which impact their usefulness. For example, trait measures of coping tend to underestimate the complexity and variability of the coping that takes place. Coping can be confounded with positive and negative outcomes. For example, through repetition coping can become unconscious habitual behaviour that requires little or no effort, and coping can be thought of as mastering or problem-solving stressful conditions when sometimes stressful conditions are not able to be solved or mastered. To illustrate, Lazarus and Folkman's (1984) definition of coping, noted above, addresses the limitations of the aforementioned traditional approaches as it is process-oriented, distinguishes between coping and automatized adaptive behaviour, and cannot be confused with outcomes as it relates to the full range of efforts used to manage a situation; and does not relate to problem-solving or mastery as coping includes minimising, avoiding, tolerating, and accepting stressful conditions as well as mastering the environment. When an emphasis is placed on the psychological processes of appraisal and coping it appears possible to move towards solutions which are pragmatic in terms of processing live events.

1.2.8 Definition of stress, discussion and defining stress for this thesis.

As demonstrated in the discussion about the history of the stress concept above, stress research is ubiquitous (Smyth, Zawadzki, & Gerin, 2013), giving rise to a range of definitions of stress (Seegerstrom & Miller, 2004) and there are ongoing debates that question the continuing abstraction of what defines stress (Kagan, 2016). Stress is also pervasive in modern society and the use of the term "stressful" or "stressed" is informally used to describe a vast range of negative experiences, from daily hassles to significant life events (Robinson, 2018). It is therefore important to set a clear position from which this thesis approaches the concept and, in turn, a clear rationale for the application of approaches that aim to manage

stress, since developing accurate solutions is underpinned by a clear conceptual understanding of the problem (Ellis, Gordon, Neenan, & Palmer, 2001). While some scholars call for the abandonment of the term stress in scientific enquiry due to an inability to accurately define the concept, (e.g., Kagan, 2016), its colloquial and frequent use in modern society and association with negative life experiences leaves applied practitioners with an ethical duty to develop interventions that offer stress-relief.

In this thesis, stress is therefore conceptualised as an interaction between a person and their environment which is appraised as being noxious or beyond the coping resources that a person possesses and therefore a danger to his or her wellbeing (Lazarus & Folkman, 1984). While stressors do play a role in the stress response the existence of individual differences means that a stimulus alone cannot define stress and, in some situations, the stressors may be ever-present, as they are within a police operational context. To generate a stress reaction, a perceived or experienced stressful stimulus condition and an individual with vulnerabilities to experiencing a stress reaction, are required.

1.3 PART 2 – The aim of stress management interventions.

1.3.1 Stress Response mechanisms and focusing on the aim of stress management interventions.

To formulate effective stress-management interventions an understanding of the mechanisms which account for the stress response is desirable. The stress response impacts the human nervous system in a complex and comprehensive way. The brain is the main mediator of adaption when an individual encounters changes in the social or physical environment through the autonomic, neuroendocrine, immune systems, and behavioural responses, e.g., fight or flight (McEwen, 2016). The adaptation process can also produce health-promoting as well as health-damaging responses. Perceiving and adapting to stressors

occurs predominantly in the brain at a cellular level where the main result of stress produces changes in the architecture of neurones (McEwen, Bowles, Gray, Hill, Hunter, Karatsoreos, & Nasca, 2015). The neuronal remodelling that occurs through the adaptive response may be a sign of successful adaptation, while when such changes persist after the stressful event ends may indicate maladaptive adaptation. Adaptation to events that are perceived as stressful is an active process that involves the products of mediators, (e.g., neurotransmitters and modulators, many hormones, and cytokines and chemokines of the immune system, McEwen, 2016). The goal of adaptation is to maintain homeostasis and promote survival. Adaptation, however, produces what is thought to be inevitable wear and tear on the body and the brain. Wear and tear can be worsened when there are many stressful events and if stress mediators are dysregulated by not acting when needed or acting when not needed. The key point is that the stress response is a complex and comprehensive process which is, mainly but not entirely, mediated in the brain.

The physiological stress response involves activation of the autonomic nervous system and the hypothalamo-pituitary-adrenal (HPA) axis, which leads to increased blood and tissue levels of catecholamines and glucocorticoids. This physiological response can have both protective and damaging effects on the body (including the brain). It is thought that the two most important features of the stress response are, first, how the response is turned on in amounts that are adequate to adapt to the challenge and second, how the response is turned off when it is no longer needed (McEwen, 1998). It is the physiological mediators of the stress response that initiate the cellular events that promote adaptive changes in cells and tissues throughout the body. Too much stress or inefficient operation of the acute stress response can cause a degradation of the physical structures involved in the stress response and, in turn, compound disease processes (McEwen, 2016). In summary, when physiological

responses occur to a stimulus some changes occur throughout the body which can result in cellular changes that can lead to ill health.

The psychological contributors to the stress response are excessive and maladaptive anticipation and worry (Schulkin, McEwen, & Gold, 1994), maladaptive psychological (cognitive and behavioural) coping strategies (Anshel, 2000), engagement in health-damaging behaviours, such as smoking, excessive alcohol intake, excess calorie intake, and poor or limited sleep, rest, and recovery (Winwood & Lushington, 2006). For individuals, the complex nature of stress-related neuroendocrine action emphasises understanding and applying interventions that involve integrated central nervous system activity, which are often referred to as top-down approaches (Taylor, Goehler, Galper, Innes, & Bourguignon, 2010). Such approaches include cognitive behavioural approaches; mindfulness-based stress reduction; physical activity; and social interactions that give meaning and purpose to life (Brief, Butcher, George, & Link, 1993). The aim, therefore, of stress management interventions is to promote a healthy response and adaptation of individuals to the ever-changing demands of life.

1.3.2 Stress and psychological wellbeing, the satisfaction of basic psychological needs perspective.

Through exploring and defining the stress concept there is a clear link between stress, health, and wellbeing but to understand the impact of mediators on wellbeing outcomes it seems important to ground research in evidence-based theories of wellbeing as well as stress. There is a lack of intervention research that focuses on the management of stress which is grounded in psychological wellbeing frameworks. In general, stress interventions define stress as a hindrance to health, wellbeing, motivation, and performance (Ellis et al., 2001) yet there is little evidence to ground such definitions in testable theoretical frameworks. One

theory that would provide a testable framework for such claims is Self Determination Theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2000). With an emphasis on empirical methods, SDT facilitates the development of evidence-supported interventions (Ryan & Deci, 2017).

Wellbeing, from an SDT perspective, is defined as a multifaceted and complex state which goes beyond the individual's subjective experience of positive emotions or amelioration of negative or uncomfortable emotions (Ryan, Deci, & Vansteenkiste, 2016). Wellbeing is representative of a psychological state of awareness, psychological flexibility, and integration as opposed to a state of depletion, defensiveness, psychological rigidity, and compartmentalisation (Deci & Ryan, 2008; Ryan, Deci, Grolnick, & LaGuardia, 2006). There is a strong rationale for grounding this thesis in SDT. This is because SDT is an evidence-based framework for the study of motivation and wellbeing (Weinstein & Ryan, 2011). The theory examines psychological growth, engagement, and wellbeing as a function of biological, social, and cultural conditions (Ryan & Deci, 2017). SDT takes an organismic perspective, and approaches psychological growth, integrity, and wellbeing as a life science, as such, it assumes that human beings have natural tendencies to be curious, physically active, and social in their behaviour. Human development is said to be demonstrated by proactive engagement, assimilation of information and behavioural regulations, and integration within social groups (Deci & Vansteenkiste, 2003).

The active readiness of human beings for intrinsic motivation, internalisation, and social integration is thought to be grounded in specific phenomenal satisfactions. These satisfactions are known as basic psychological needs (BPNs, Deci & Ryan, 2000). There are three BPNs, autonomy, competence, and relatedness. Satisfaction in experiencing competence, autonomy, and relatedness reflects the core of human thriving and can predict a broad range of indicators of psychological wellbeing (Ryan & Deci, 2017). Competence

refers to the perception that a person can influence the environment in desirable ways; relatedness refers to experiencing reciprocal closeness and connections with others; and autonomy refers to the perception that a person's behaviour is self-congruent and volitional (Ryan, 1995). Such active tendencies described concerning human thriving are akin to theories in mammalian psychological development and theoretical biology which reflect the general principle of organisation. Organisation refers to the innate tendency of living organisms, under supportive conditions, to expand and elaborate themselves in the direction of organised complexity and integrated functioning (Jacob, 1973; Kauffman, 2000; Maturana & Varela, 1992; Mayr, 1982). It is thought that through adaptations in perceptions of causality and integrative repertoire the ability to self-organise remains the central goal of healthy functioning throughout the life span (Cicchetti, 2006; Ryan, Kuhl, & Deci, 1997; Vansteenkiste & Ryan, 2013). Through its six mini theories, SDT examines the perceptions, attributions, affective experiences, patterns of behaviour, and mechanistic underpinnings that are characteristic of optimal self-organisation (Ryan & Deci, 2017). SDT provides a basis on which the psychological processes involved in fostering wellbeing can be assessed by examining the extent to which BPNs are satisfied.

The SDT framework has been conceptually applied to the process of stress (Weinstein & Ryan, 2011). From an SDT perspective, people are at risk of experiencing stress and responding in maladaptive ways to stress when there is a perception of consistent deprivation of basic psychological needs in their environment. The role of need satisfaction in stress regulation has been demonstrated in several studies with patterns of need satisfaction demonstrating a complex set of relationships between antecedents and basic need satisfaction (Van den Broek, Ferris, Chang, & Rosen, 2016). For example, in a meta-analysis of BPNs at work (Van den Broek et al., 2016), all three BPNs related negatively to role stressors, work-family conflict, and job insecurity. With job demands of workload and emotional demands

relating negatively to autonomy and competence, and cognitive demands relating positively to competence and relatedness (Van den Broek, Ferris, Chang, & Rosen, 2016). It has been proposed that the perception of basic psychological need satisfaction acts as a buffer in times of stress by reducing both initial appraisal of stress and encouraging adaptive coping in the face of stress-related events (Weinstein & Ryan, 2011).

Weinstein and Ryan (2011) also highlight that an important characteristic of effective adaptation to a stress response is in the extent to which individuals appraise their experiences as need supportive, either consciously or subconsciously. There is little research, to date, which examines the role of the individual and their appraisals in the process of satisfaction of BPNs and stress outcomes. One study with athletes reported that cognitive stress appraisals mediated the relationship between organisational stressors and psychological need experiences and concluded interventions which aim to promote appraisals that increase the satisfaction of BPNs along with developing need-supportive environments were important practical implications of their findings (Bartholomew, Arnold, Hampson, & Fletcher, 2017). While the satisfaction of BPNs is proposed to be fundamental to the experience of psychological health, wellbeing, and remedial for maladaptive stress there appear to be few studies that test the impact of interventions which may target the promotion of the satisfaction of BPNs. The few studies that do target the promotion of the satisfaction of BPNs have been conducted in the field of education. In a recent review of the empirical evidence addressing the association of BPNs with motivation, wellbeing, engagement and academic achievement poor methodological quality of the few studies that examined BPNs and wellbeing resulted in a lack of support for this association and calls for a more methodologically robust examination of the associations between these constructs (Conesa, Onandia-Hinchado, Dunabeitia, & Moreno, 2022).

Having noted its strengths SDT is not a metatheory without limitation. Although it is thought of as a robust evidence-based theory there is ongoing debate regarding its key constructs and gaps within its findings (Ryan & Deci, 2019). For example, there are ongoing debates about the identification of only three BPNs with some researchers calling for the inclusion of other discrete needs, such as security (Vansteenkiste, Ryan, & Soenens, 2020). In terms of research gaps there are few published papers which investigate the mechanistic processes through which the process of integration occurs; how autonomy and control differ in terms of their psychological mechanisms and there is little understanding of the costs of need frustration in relation to performance and health (Ryan & Deci, 2019). Furthermore, the nuanced influence of political systems, such as those found in policing contexts, has yet to be explored in relation to need satisfaction.

1.3.3 Stress and motivation, the organismic integration theory perspective.

In this section, a specific element of SDT is discussed in the context of how stress might emerge through interactions with external stimuli. From an SDT perspective, human beings manifest intrinsic tendencies to take interest in, deeply learn about and gain mastery of their inner and outer world through intrinsic motivation and active internalisation and integration (Ryan & Deci, 2017). Intrinsic motivation involves the essential expression of growth-oriented tendencies of the human psyche. This expression of growth-oriented tendencies is demonstrated through enacting behaviours that are of interest, stimulating, limit-testing, and through making sense of what might be novel. In contrast to intrinsic motivation, in life, people engage in behaviours that may not be intrinsically motivating (e.g., chores; work; duties; rituals; and exercising self-restraint). Such practices are often adopted as there are social expectations to do so. Of interest, concerning the concept of stress, is the motivations that lie behind individuals' engagement in behaviours and practices that are not

deemed to have intrinsic value. Arguably extrinsic motivations and stressors can be thought of as closely connected. Extrinsically motivated behaviours do not need to be experienced as controlled and it is possible that, through effective social and interpersonal supports, that effective and autonomous integration can take place. Extrinsic motivation (EM) is represented by behaviours that are not intrinsically interesting or enjoyable but that are goals or practices that are deemed valuable by external social groups such as families, or work environments and also how people refrain from behaviours that may interest them or may be perceived as enjoyable but are seen as wrong or problematic socially (Ryan & Deci, 2017).

Extrinsic motivation (EM) is not a unitary construct and the variation in EM is structured through the concept of internalisation. Internalisation is defined as the process of taking in values, beliefs, or behavioural regulations from external sources and reorganising them as one's own (Ryan, Connell, & Deci, 1985). Internalisation is an internal psychological process that corresponds externally with the process of socialisation. While internalisation can lead to undisturbed and more effective functioning the process can occur in dysfunctional ways which can lead to self-dictatorship and internal conflict as individuals try to meet dogmatically internalised and poorly integrated standards or values (Ryan & Deci, 2017) and could be stress-inducing.

A mini theory within the meta theory of SDT, organismic integration theory (OIT; Vansteenkiste, Niemiec, & Soenens, 2010) is specifically concerned with individual's tendencies to assimilate and integrate social regulations and the factors in social and interpersonal contexts that represent supports or thwarts of this integration tendency. OIT specifies a framework in the form of a self-determination continuum which categorises four types of general regulatory styles, external regulation, introjected regulation, identified regulation, and integrated regulation, which each represents how external values, beliefs, or

behavioural regulations can be internalised in different ways (Deci & Ryan, 1985; Ryan et al., 1985). Amotivation is a further category of regulation of note which lies outside the self-determination continuum but is potentially highly relevant to the experience of stress and psychological wellbeing.

Each regulatory style is discussed individually, however, it is thought that each style can coexist within any given sphere of behaviour and multiple regulations can operate as motivations within one activity (Ryan & Deci, 2017). This view appears to be important to the experience of stress. It is also an assumption of OIT that internalisation forms a continuum from controlled regulation to relatively autonomous regulation.

External regulation is the experience or perception that one is behaving because of an external contingency and relies on external controls. A behaviour occurs about an outcome, is controlled and regardless of its valence, externally regulated behaviours can have a detrimental effect on autonomy. External regulation is a powerful motivator and is effective in mobilising behaviour, however, long-term maintenance and integration are often not achieved through external motivation (Deci & Ryan, 1985; Ryan & Deci, 2008). The experience of external regulation through control can be experienced as stressful and diminish wellbeing (Fernet & Austin, 2014). Furthermore, non-flexible controlled motivation can also lead to overinvestment in work tasks and compulsive engagement in work which risks exhaustion (Van den Broeck, Schreurs et al., 2011).

Introjected regulation is the experience or perception that involves partially adopting a regulation or value. An introject is experienced as an internal demanding or controlling force which often results in anxiety and self-depreciation. It is based on external controls involving affective and self-esteem contingencies. Introjects are internal forces which act on the self through a sense that one “should” or “must” do something or face detrimental consequences

which involve self-disparagement. Self-compliance, when accomplished leads to contingent self-esteem, and positive (yet perhaps unhealthy) forms of pride about oneself. As an intrapersonal form of regulation introjection has greater endurance than external regulation. This is because it is based on affective and evaluative contingencies. As introjected regulation is not fully integrated and less volitional it requires more energy than its autonomous counterparts (Nix, Ryan, Manly, & Deci, 1999; Ryan & Deci, 2008). The affective nature and energy depletion involved in introjects could be synonymous with the experience of stress making introjected regulation seem an important predictor of stress.

Identified regulation is the experience or perception of a conscious endorsement of values and regulations. It describes external motivation which has been accepted as valued and important to the individual. It is not, however, deemed to be fully integrated as individuals may not necessarily have examined the relation of that action to other aspects of their identity. The relation between a new identification and other internalised values and goals is a vital component of moving beyond identification. Compartmentalisation can play an important role in preventing further integration. The active and defensive nature of compartmentalisation may be associated with stress to a certain extent as compartmentalisation through defence does not prepare an individual for future exposure to the same or a similar stressor (Lazarus & Folkman, 1984). The detrimental effects of identified regulation are both theoretical and anecdotal (Ryan & Deci, 2017). The process of identified regulation in coping with stressful events is also under-researched, although a case can be made for merging coping and motivation theory (Ntoumanis, Edmunds, & Duda, 2009).

Integrated regulation is the fullest type of internalisation and is the basis for the most autonomous form of external motivation. Through active and transformational processes

(typically requiring self-reflection and reciprocal assimilation) a value or regulation is brought into congruence with other personal aspects. It describes extrinsic motivation which is fully self-endorsed and effectively assimilated with other important identifications, values, and needs. Integrated regulation is a highly stable form of self-regulation that allows for flexible guidance of a person's action and is representative of a fully autonomous form of extrinsic motivation. The more fully integrated a value or goal is, the more the person is effective in self-regulation.

Amotivation is a state in which an individual either is not motivated to behave or a state where an individual behaves without intention. This occurs when an individual perceives no value, reward, or meaning in an act. As with motivational types, SDT argues that amotivation is not a unitary concept which potentially results from two central causes. The first cause lies in an individual holding the perception of a lack of competence and in turn an external locus of control (Rotter, 1954). Perceptions of lack of competence also have two forms. The first is a perceived behaviour-outcome independence where it is believed that acting will not bring about the desired outcome. With this form of amotivation individuals learn to become universally helpless (Abramson, Seligman, & Teasdale, 1978). The second form is a perception of incompetence in enacting the requested behaviour. With this form of amotivation the individual accepts the connection between behaviour and outcome but believes that they are incompetent to perform the behaviour and they are therefore personally helpless (Abramson et al., 1978; Bandura, 1966). The second cause of amotivation is thought to occur due to a perceived lack of value or interest in behaviour. There is an indifference to the activity or its relevant outcomes. It is possible for this second cause of amotivation to be autonomous (Vansteenkiste, Lens, De Witte, De Witte, & Deci, 2004) as well as other sources such as non-exposure to the potential value of the behaviour and or outcome (Ryan & Deci, 2017). Amotivated employees are theoretically predicted to experience the most

extreme stress response and diminished wellbeing according to a proposed model of job stress which draws on employee motivation and SDT (Fernet & Austin, 2014). Amotivation at work has been associated with negative psychological and physical implications such as anxiety and burnout (Blais et al., 1993). Fernet and Austin (2014), point out that amotivation appears to be the most stress-enhancing type of motivation and that to their knowledge no studies have attempted to explore the association between amotivation and stress. This apparent gap in the research appears to be still unaddressed.

Each regulatory style varies in process and the perceived locus of causality. This means that some styles are perceived as controlled (e.g., it is perceived that behaviour is initiated by external or internal demands, and external events are perceived as pressuring). Other styles are perceived as being more autonomous (i.e., their behaviour is initiated by their emerging interests and self-endorsed values, they interpret events as informational and as a result regulate their behaviour autonomously). It has been proposed that an individual's causality orientation has implications for their experience of stress (Weinstein & Ryan, 2011). This proposal has some empirical support (Deci & Ryan, 1985; Neighbors & Vietor, 2001; Weinstein & Hodgins, 2009). Some mechanisms through which autonomous orientations impact stress have been proposed including fuller emotional processing; a non-defensive response to stressors; curiosity in one's own experiences; and pursuing life goals that induce less stress (Weinstein & Ryan, 2011). There is also a third type of causality orientation known as the impersonal orientation where behaviour (or lack of behaviour) is initiated through the perception that life experiences are beyond personal control and correspondingly those who are high on the impersonal orientation are prone to pervasive feelings of helplessness, ineffectiveness, and passivity (Vansteenkiste, Niemiec, & Soenens, 2010). The impersonal orientation appears to be congruent with an amotivated regulation.

Internalisation and integration occur in service of psychological need satisfaction and as such are facilitated by perceptions of environmental support for the satisfaction of basic psychological needs. This occurs differently in each of the forms of regulation within OIT. External regulation requires at least a minimal sense of competence to act; indeed, all regulations require some sense of competence. Along with a perception of competence, introjected regulations individuals also care about what people think as performing prescribed behaviours impacts a sense of self-worth and therefore, depends on both competence and relatedness. Finally in identified and integrated regulation an individual can “take ownership” of external values or practices through the perception of satisfaction of all three BPNs. As BPNs are defined as nutrients that are essential for wellbeing it is inferred that fuller internalisation of behavioural regulations is associated with greater wellbeing, particularly for behaviours that are central to a person's life and a considerable amount of research supports this inference (e.g. Ryan et al., 1993; Vallerand & O’Conner, 1989; Deci, Hodges, Pierson, & Tomassone, 1992) and thus provides a robust evidence-based framework to examine the impact of applying interventions that aim to support and enhance psychological wellbeing.

1.3.4 Merging stress theory and SDT

Stress is an adaptation process which is relational in nature and distress or unhealthy stress signals wear and tear or malfunctioning of the adaptation process (McEwen, 2005). Sometimes what is referred to as stress may be a functional and healthy response to the changing environment, one that is perhaps novel. It is also possible that stress is a result of the experience of integration processes when there is resistance to extrinsic factors. As with stress, the process of integration is relational and is dependent on an individual effectively accommodating and assimilating the changing environment. As the process is supported through BPN satisfaction, and BPN satisfaction is conducive to psychological wellbeing it

could be proposed that more controlled motivation, poorer quality integration, and a lack of support for BPNs and frustration of BPN support may predict stress. This is a proposition that, to our knowledge, has not yet been tested empirically.

1.4 PART 3 – Exploring a solution to the maladaptive stress response.

1.4.1 Possible approaches to managing maladaptive stress.

Through examining the problem (maladaptive stress) and examining the goal (reduced maladaptive stress and enhanced/robust psychological wellbeing) possible solutions can now be discussed. Understanding the stress concept and physiological processes that mediate the stress response illustrates the complexity of interacting actions that can produce acute and chronic maladaptive stress responses (e.g., poor performance, ill health).

Furthermore, understanding the range of motivation regulations that may contribute to psychological stress and the nutrients required for psychological wellbeing presents a challenge for intervention development (McEwen, 2016). When developing interventions, it is important to remain focused on which mediators we expect to be acting upon to bring about change. A range of interventions have emerged that are associated with positively impacting the stress experience such as behaviour-based interventions (e.g., pleasurable activities, social interaction, social support, friendship, love, healthy communication, arts and creativity, pacing; cognitive behavioural therapy, motivational and positive psychology), physical activity interventions (exercise, and sport participation), relaxation interventions (including meditation, spirituality/belief, sleep hygiene), and nutrition based interventions (Esch & Stefano, 2010) all of which impact the neurobiology of the individual.

From an organisational perspective, the focus of interventions can also be on several areas and many models of occupational stress have been proposed (Cooper, 1998). For example, the theory of preventive stress management (TPSM; Quick, Quick, & Nelson,

1998). In the TPSM primary interventions focus on reducing specific stressors, secondary interventions focus on moderating the stress response and tertiary interventions are aimed at moderating the outcomes associated with distress (Hargrove, Quick, Nelson, & Quick, 2011). Primary interventions which aim to reduce or eliminate environmental sources of stress, such as job re-design and organisational change are reported as representing the preferred approach to stress management but such interventions are often perceived as being more costly than other types of interventions and require changes to be made at an organisational level (Hurrell & Murphy, 1996). In a systematic review of police stress interventions Patterson, Chung, & Swan (2014) provide the example of increasing participation in decision-making processes as a primary intervention which can reduce stress and note that organisational changes are required for workers to be given opportunities for greater participation. Such organisational changes are thought to be less feasible to implement than secondary or tertiary interventions. Alternatively, it is possible that when the right sample is targeted (e.g., senior leaders, policymakers) and the changes in organisational systems are not seen as overwhelming and more costly than maintaining the status quo in the long term (e.g. through an adaptive, strategic mindset) then system changes are possible. To be successful over time primary interventions require that the environment is held in a constantly ideal state and, therefore, are a limited approach in high-risk occupations, such as policing, which involve facing potentially stressful and traumatic events daily (NICE, 2022). Secondary interventions may also have an important role to play in the adoption of mindsets which are prepared to tackle more apparently challenging barriers in the environment. A leader that has received a secondary stress management intervention may, as a result, feel more empowered to face such challenges.

A review of the impact that stress management interventions had on employee stress and wellbeing, demonstrated that there is convincing evidence that secondary interventions,

which aim to proactively prepare individuals for the challenges that their occupations may present, are effective in reducing stress and promoting wellbeing (Holman, Johnson, & O’Conner, 2018). Several approaches to stress management are reported, with cognitive behavioural therapy (CBT; Beck, 1970) interventions having comparatively larger effect sizes. Earlier meta-analyses also support the effectiveness of secondary intervention (Richardson & Rothstein, 2008; van der Klink et al., 2001). The emphasis on different approaches and models of occupational stress may stem from the diversity of academic domains in which the field is rooted (Beehr & Franz, 1987). Medicine, clinical psychology, health promotion, engineering psychology, and organisational psychology interpret stress differently which impacts the substance of occupational stress theories and approaches to interventions. To this end, Holman, Johnson, and O’Conner (2018) call for more robust designs, a better understanding of individuals and contexts, and an understanding of how intervention implementation affects outcomes to strengthen the evidence base when investigating stress management interventions in the workplace. In summary, while there are several approaches to stress management emerging from a broad range of research disciplines, proactive CBT approaches are emerging as effective in the workplace.

1.4.2 Taking a performance psychology perspective.

Another field of psychology which can address the challenges of occupational stress is performance psychology. To date, the domain of performance psychology appears as a hybrid and emerging branch of psychology that draws on evidence from broad and overlapping areas of the discipline such as sport psychology, psychotherapy, coaching psychology, human factors, and organisational psychology. Of the disciplines that provide a foundation for performance psychology, sport psychology is arguably at the forefront of research on the principles and practices of achieving and maintaining performance excellence

(Hays & Brown, 2004). Indeed, sport psychology appears to be the most developed branch of psychology which is concerned with the interaction of the performer with their environment and understanding the psychological components of performing through challenging and adverse conditions. Individual psychological and contextual factors are also an important area of concern for performance psychologists (Matthews, Davies, Westerman, & Stammers, 2000). For example, of specific importance for this thesis is the impact of performance tasks (i.e., working in policing) on the experience of stress and psychological wellbeing.

While sports professionals invest a great deal of effort in understanding the principles and practices that promote the best results the context in which sport occurs usually carries limited risk. For example, in the face of what might be experienced as an extremely stressful and threatening situation, an athlete can choose to step out of the performance arena. In other performance contexts “performers” are expected to face a high risk of life-or-death situations (Hays & Brown, 2004). Such contexts include the medical profession, the fire and rescue service, the military, and the police. High-risk professions, where human life can be at risk regularly appear to be less familiar with the application of performance psychology principles as proactive, facilitative tools in the field and there is a clear lack of research which examines facets of performers in high-risk professions, and thus, little context-specific evidence on which practitioners can ground their intervention approaches. Of interest in the current thesis is the application of performance psychology-grounded interventions within the high-risk context of policing.

Some might question the applicability of sport psychology principles beyond the confines of athletic performance; however, sport and policing are often thought of as uniquely high-stress contexts. It is possible to draw comparisons between the elite sport and police contexts and doing so can assist in the formulation of effective interventions. As early

as 1984 prominent sport psychologists were highlighting the similarities between athletes and police officers in terms of the psychology of performance under stress (Rotella, 1984). Both athletes, coaches, police officers, and their managers have been observed to encounter potentially stressful events regularly. Not only do this group have to encounter and adapt to potential stressors, but they also have to perform a variety of complex psychological, and motor tasks to ensure they deliver the performances that are expected of them in their roles. Both sports professionals and police personnel encounter scrutiny from the media and are vulnerable to abuse from the public who can observe and evaluate their actions continuously. The preparation of individuals to perform through stressful conditions is highly complex and challenging, and it is posited that strategies developed in the field of sport psychology can have relevance in helping police personnel (Aoyagi et al., 2012; Hayes & Brown, 2013; Rotella, 1984).

It is also important to recognise and adapt to the contrasts between elite sport and policing to further inform the application of psychological principles. Police personnel belong to a sub-group within performance psychology known as “high-risk professions”, where the risk during performance can be the risk of loss of human life (Hayes & Brown, 2013). A major contrast between an athlete and a police officer may be the risks taken in their performance. It is important to note that clear categorisation of “high-risk” is difficult as some sports involve risk to life (e.g., motorsports). The main difference between athletic performance and police performance is often the omnipresence of the risk of death or harm, the regular exposure to socially rejected, unlawful acts and the ever-present requirement to perform. Having noted this, research shows that the most prevalent stressors in policing are organisational and political factors (Houdmont, 2016). In sport stress is often connected to the ability to perform optimally at an elite level, however, organisational, and political issues may also have a large impact on the lives of professional athletes (Fletcher & Arnold, 2016;

Jones, 2002). It seems athletes and police personnel may have more in common in terms of their stress experience than might otherwise be assumed.

There appears to be little research that supports the application of performance psychology-grounded support within occupational settings and more specifically within policing. Having noted this, psychologists working in the police context have called for skills that would encompass some of the principles of performance psychology such as mental attitude preparation and stress counselling (Aumiller & Corey, 2007). Many scholars have called for mental preparedness training programs to become the bedrock of police education (Andersen et al., 2015; Arnetz et al., 2013; Arnetz et al., 2009; Papazoglou & Andersen, 2014), however, there is a lack of such programs embedded in police contexts (Andersen, Papazoglou, Nyman, Koskelainen, & Gustafsberg, 2015). A lack of mental preparedness leaves police personnel vulnerable to the maladaptive impact of stress and trauma exposure putting their mental and physical wellbeing at risk (Sapolsky, 2004), as well as their capacity to perform their duties optimally (Conrad & Kellar- Guenther, 2006; Norvell et al., 1998; Wright & Saylor, 1991). In summary, to address stress management effectively in policing proactive stress and wellbeing interventions that focus both on the individual and the context have been called for. Adopting a performance psychology approach appears to be a fruitful avenue to explore empirically as to date no research has been conducted using a performance psychology approach in policing.

1.4.3 Cognitive change interventions

Cognitive change interventions, in the form of Cognitive Behaviour Therapy (CBT; Beck, 1970; Ellis, 1962), are empirically supported interventions which can aid the prevention of common mental illnesses as well as recovery from depression and anxiety (Joyce et al., 2016) and therefore can be thought of as proactive preparatory interventions as

well as outcome focused interventions. In terms of general stress management, meta-analyses have consistently found CBT approaches were the most effective interventions when examined within occupational stress programs and that in general, the efficacy of CBT interventions was strong (Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012). CBT, however, is identified as an umbrella term for a range of approaches (Turner et al. 2020) and so it is difficult to know which specific elements of CBT were applied and were effective. Findings in a meta-analysis of occupational stress management interventions point to the effectiveness of single-mode (CBT only), rather than multi-mode (CBT with additional interventions such as relaxation training), however, a lack of assessment of the long-term effects of interventions is highlighted as a limitation (Richardson & Rothstein, 2008). Beyond enhanced stress management, outcomes also included increases in perceived quality of work life (van der Kink, Blonk, Schene, & van Dijk, 2001). Research is needed to address the ambiguity in understanding which approaches within CBT interventions are effective in terms of preparing for and managing stress.

1.4.4 Introduction of Rational Emotive Behaviour Therapy

One cognitive-behavioural framework which can be used to regulate the stress response via cognitive change, which is receiving growing attention in applied sport and performance, is Rational Emotive Behavioural Therapy (REBT; Ellis, 1957). Largely neglected and under-researched, (Ellis, 2003; Still, 2001) recent findings demonstrate both its efficiency and effectiveness when applied to performance contexts (Jordana et al., 2020). Furthermore, REBT appears to be effective across an extensive range of populations including clinical and non-clinical populations (David, Lyn, & Ellis, 2010); cross-culturally (Lega & Ellis, 2001); and age ranges (Gonzalez, Nelson, Gutkin, Saunders, Galloway &

Shwery, 2004) and is regarded as a comprehensive psychotherapeutic approach (Ellis et al. 2001).

The historical underpinnings of REBT begin with Epictetus's (60-120AD) quote that “men are disturbed not by things, but by the views which they take of things” (Ellis 1993). This phrase is somewhat of a motto of REBT (Still & Dryden, 2012) cited regularly as an introductory statement towards the nature of its philosophy. Albert Ellis often referred to his interest in a range of philosophic schools (Ellis, 1993). From the age of sixteen, he researched the perspectives of both Greek and Roman Stoic philosophers such as Zeno of Citium, Chrysippus, Panaetius, Cicero, Seneca, Epictetus, and Marcus Aurelius (Still & Dryden, 2012) as well as ancient Asian philosophers, Gautama Buddha, Lao Tsu and Confucius (Ellis & Rovira, 2015) and existentialism (Najafi & Lea- Baranovich, 2014). REBT is influenced by two central Stoic ideas. Namely that it is our belief about our situation that is responsible for our resulting psychological state and that we do what we can, but if a situation is beyond our control, then it is best to accept it (Najafi & Lea- Baranovich, 2014). It is an important element of REBT theory that our beliefs, attitudes and philosophy of life remain within our control and this gives individuals the ability to choose how they view adverse events.

In their study of the philosophic foundations of CBT Murguia and Diaz (2014) discuss the unique reasoning ability humans have in maintaining control over the actions of their minds, be they thoughts, behaviours and emotional reactions. Humans are also seen as part of nature itself within stoic schools of thought. Nature and human nature are inseparable as both are guided by reason. In this respect, Stoic philosophy states that both human beings and the universe are rational in their evolution. The rational progression of events is a central part of stoicism and those who adopt a stoic philosophy of life accept that events, regardless

of their implications, take place for the greater overall good. Just as nature has optimal states of being so too do human beings.

REBT emerged in the 1950s (Ellis, 1957) as a psychotherapeutic approach to the treatment of emotional disturbances. The approach is effective for a wide range of presenting concerns and its theory and practice are taught and practised internationally (MacLaren, Doyle & Diguseppe, 2016). REBT gives individuals a philosophical approach to life which is grounded in acknowledgement and acceptance of reality and is communicated using REBT's GABCDE model. The GABCDE model illustrates that activating events or adversities (A) which are undesirable to the achievement of a goal (G) are mostly caused by the irrational belief system (B). It is the irrational beliefs that cause many of the detrimental emotional, behavioural, and cognitive consequences (C) and not the activating event or adversity (A). With this perspective in mind, a more efficient approach to evaluate activating events or adversities (A) is to employ the alternate rational belief system (B) and in doing so the emotional behavioural and cognitive consequences (C) are functional and offer therapeutic relief to otherwise disturbed individuals. During the therapeutic process, practitioners guide individuals through a process of disputation (D) in which the employment of the irrational belief system is demonstrated to them and compared with the rational alternative. Disputation involves challenging the identified IB in several ways, e.g., philosophical persuasion, didactic presentation, Socratic dialogue, and vicarious experiences (DiGiuseppe, Doyle, Dryden, & Backx, 2014). Clients are shown that a rational approach is more consistent with reality, efficient (E), and adaptive, and in turn, this has a functional (but not always positive) impact on their emotional and behavioural consequences (C), (David, Szentagotai, Eva, & Macavei, 2005a).

The core aspects of REBT theory are that first, cognition is the most important determinant of human emotion and emotional disturbance. Second, irrational beliefs are a major determinant of emotional and behavioural distress or disturbance. Third, the most effective way to change dysfunctional disturbed emotions and behaviours begins with the analysis of thoughts. Fourth, that multiple factors are antecedents to creating and holding irrational beliefs. Fifth, that healthy negative emotions are a crucial human experience (REBT distinguishes between two different types of negative emotions: healthy negative emotions and unhealthy negative emotions). Finally, there is an emphasis on present influences of beliefs on emotions and behaviour rather than historical influences and that belief can be changed; however, this change is not easy (MacLaren, Doyle, & Diguiuseppe, 2016).

The process of REBT involves the collaboration of client and practitioner to discover the client's core beliefs that have led to dysfunctional reactions be they cognitive, behavioural, or emotional (MacLaren, Doyle & Diguiuseppe, 2016). Once identified there is a process of disputation which leads to client insight into their ability to view events from one of two belief systems, these are the irrational belief system and the rational belief system. It is thought that the irrational belief system predictably leads to emotional disturbance and that the rational belief system leads to functional approach-based systems (David, Montgomery, Macavei, & Bovbjerg, 2005). Viewing events through the rational belief system is thought to lead to more efficient, adaptive cognitions, emotions, and behaviours.

Although REBT in its most basic format uses the simple GABCDE model, its underpinning theoretical approach offers a complex perspective of events, which is grounded in stoic philosophy, predominantly the view that it is not events that directly cause emotions and behaviours. Rather, it is one's beliefs about events that lead to emotional and behavioural

reactivity (MacLaren, Doyle, & Digiuseppe, 2016; Turner, 2016). The practical strengths of REBT's model line-up theoretically with cognitive appraisal theory (David, Shnur, & Belloiu, 2002). In the generation of emotion, REBT deliberately utilises a simplistic framework to enable clients to efficiently make sense of their thoughts, feelings and behaviours (Turner, 2016). The central mindset that REBT teaches is that individuals realise that activating events (A) are only partially responsible for dysfunctional reactions (C). The predominant (and controllable) responsibility of such reactions lies in the belief system that they choose to engage in to make sense of events (Turner, 2016). This perspective enables individuals to understand that they control their responses to adverse events because they can have control over their beliefs.

In cognitive therapy (Beck, 1964) the adversity or activating event (A) is often presented to clients from a range of alternative perspectives and this offers therapeutic relief very quickly but can also lead to maladaptive rationalising and avoidance behaviour. Changing A is easier for individuals in many cases but may foster avoidance of adversity. In REBT, in working with clients, A is assumed to be true, and the range of scenarios based on this truth are explored to reveal the innate appraisals that people make. Using a range of disputation methods which importantly target specific outcome goals helps individuals explore unknown potential from within themselves. In contrast, changing the A can remove responsibility from the individual to control their situation and may also reduce the ability to view the full range of "realities" that the A presents. Hot cognitions are evaluative thoughts. REBT removes evaluations removing the "heat" from such cognitions. Without evaluations being "hot" or being free from personally important judgments individuals can make autonomous choices about their circumstances and know that they are not avoiding but are making progress towards their personal goals.

When Ellis (1994) wrote of the beginnings of REBT he highlighted the limitations of methods used to help people overcome relational issues with others. He stated that, during psychotherapeutic sessions, while he was often able to help people improve the quality of their relationships, people needed to be taught how to live peacefully with themselves (Ellis, 1994). He noted that the then-orthodox methods of psychotherapy often led clients to insights regarding their dysfunctional emotions or behaviours, however, insight alone did not prevent emotional disturbance or improve behaviours. Ellis compared orthodox methods which were grounded in behavioural psychology and noted that while humans can be rewarded or punished by their sensations (burned by fire) and can conclude experiencing sensations they can also be rewarded or punished in many other ways and by all kinds of symbolic processes (e.g. smiles, critical phrases, medals) which have little connection with the process of sensation. Humans can also be rewarded or punished by their cognitions even when such cognitions are not connected in any way to outside reinforcements or penalties.

1.4.5 REBT as a stress and psychological wellbeing intervention.

Stress conceptualised from an REBT perspective refers to the personal perception, interpretation, and evaluation of environmental and other kinds of stressors (Ellis et al. 2001). Stressors and stressful conditions rarely exist alone but only occur with the quality of personal perceptions and cognitions of those who are reacting to the stressors and stressful conditions (Ellis, 1994). To illustrate, Ellis's (1994) stance on stress appears to integrate with the cognitive appraisal theory of stress (Lazarus, 1991). As noted in the definition of stress for this thesis earlier, when the relationship between the person and the environment is appraised as taxing, beyond one's resources and threatening to one's wellbeing a stress response is experienced. Appraisal and coping processes are deemed to be critical in the mediation of the stress response (Lazarus & Folkman, 1984). Understanding the qualitative

nature of the appraisal and coping processes may provide meaningful avenues for successful adaptation to potential stressors and further ground stress management in robust theoretical foundations.

Theoretically, REBT provides a mechanism through which adaptive appraisal and effective coping can be achieved. This theoretical contention is beginning to be supported empirically (Chadha, Turner, & Slater, 2019; David et al., 2002, David et al., 2005c). Both REBT and CAT point to the long tradition in western thought, evidenced through the writing of stoic philosopher Epictetus (60-120AD) discussed earlier in the chapter, that it is the meaning that individuals make of events that shape emotional and behavioural responses, with Ellis (1993) highlighting the belief system as the critical mediator and Lazarus and Folkman (1984), highlighting cognitive appraisal as one of two critical mediators, the other being coping. Appraisal has been categorised into primary and secondary appraisal with primary appraisal referring to the identification of whether one's wellbeing is at stake during an encounter, and secondary appraisal referring to an evaluation of what can be done to overcome or prevent harm or improve one's prospects of benefiting in terms of wellbeing (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). An important comparison with REBT is that of the multifaceted nature of appraisals. In CAT primary stress appraisals are categorised into harm/loss, threat, and challenge. Challenge appraisals mobilise coping efforts as do harm/loss and threat appraisals; however, challenge appraisals focus on the potential for growth or gain and appear to be functional in their nature (Lazarus & Folkman, 1984). In REBT theory rational beliefs also focus on growth and gain particularly concerning personally relevant goals and are thought of as functional, whereas irrational beliefs result in dysfunctional responses (Ellis, 1993).

Both CAT and REBT theories posit that the qualitative nature of cognition mediates the qualitative nature of stress and emotional response. A poor-quality response can impact psychological health. Recent research has demonstrated that levels of irrational beliefs were an important part of the appraisal process (Chadha, Turner, & Slater, 2019). Irrational beliefs mediated emotion reactivity in a study which examined pre-performance anxiety among golfers. For example, Chadha et al.'s (2019) findings suggest that when the content of cognitive appraisal is less positive and irrational beliefs are high, their participants exhibited a threat state and that this led to higher anxiety. The research highlighted the potential impact that reducing irrational beliefs can have on debilitating emotional reactivity. Such findings add to earlier work which demonstrated the strong associations of irrational beliefs with cognitive appraisal and dysfunctional emotions (David et al., 2002; David, Ghinea, McAvei, & Kallay, 2005a).

As noted earlier, the removal of debilitating distress is not the sole aim of performance psychological interventions. This thesis is also grounded in SDT. The extent to which REBT can support self-determined motivation and the satisfaction of basic psychological needs is of great interest. Theoretically, REBT theory and SDT appear to integrate in many ways. Most fundamentally, and as with CAT of stress, SDT places an emphasis on the meaning one creates when encountering their environment (Ryan & Deci, 2017). Also, there seems to be congruence in the type of motivated cognitions that emerge because of holding irrational beliefs. For example, in OIT one can experience amotivation which can consist, in part, of global helplessness beliefs and in introjected regulation where motivated cognitions are associated with an internal demanding and controlling force (Vansteenkiste, Lens, De Witte, De Witte, & Deci, 2004). In REBT both global evaluations and demandingness are irrational beliefs and causal of psychological distress, therefore,

higher levels of irrational beliefs may be associated with amotivation, introjected regulation and poorer psychological wellbeing.

In recent times there has been an emergence of research which explores SDT and REBT connections. Specifically, researchers in the field of sport psychology have been interested in the impact that the application of REBT can have on self-determined motivation and have demonstrated that reductions in irrational beliefs and increases in self-determined motivation are associated (Chrysidis, Turner, & Wood, 2020; Davis & Turner, 2020; Turner & Davis, 2019; Wood, Mack, & Turner, 2020). Furthermore, basic psychological needs, although not explicitly measured, appear to be supported through the reduction of irrational beliefs. For example, Davis & Turner (2020) demonstrated that reductions in irrational beliefs were also associated with increased vitality and sleep quality, both are wellbeing markers, Chrysidis et al. (2020) demonstrated improvements in self-efficacy which is a construct closely associated with competence, and Wood et al. (2020) demonstrated improved performance which, theoretically, can also be associated with improved competence satisfaction. In the workplace, a study on the association of workaholism and irrational beliefs comparisons between introjected regulation and irrational beliefs were discussed although SDT measures were not used, furthermore, the impact of workaholic behavioural patterns was discussed in relation to the impact that such patterns have on a person's relationships, sense of choice, and sense of competence which aligns with basic psychological needs theory (Wijhe, Peters, & Schaufeli, 2013). Having noted these examples, to date, there is no empirical evidence which has examined the association of irrational beliefs, self-determined motivation, and the satisfaction of basic psychological needs.

In a meta-analysis that plots 50 years of research REBT was found to be a sound psychological intervention which has positively impacted a wide range of outcomes (David,

Cotet, Matu, & Mogoase, 2017). In another meta-analytical review psychological distress including general distress, depression, anxiety, anger, and guilt were found to be moderately connected to irrational beliefs (Visla, Fluckiger, Holtforth, & David, 2015). In contrast, not all individuals benefit from cognitive behavioural interventions, such as REBT, and examining interventions with broader psychological theory may assist in developing further effectiveness of interventions (David & Szentagotai, 2006). Furthermore, a history of a lack of collaboration between researcher and practitioner may have hindered the development of effective interventions (Lazarus, 2000). While CAT and SDT have amassed a broad evidence base there are few intervention studies which explore the complexities and nuances of the application of theory. In the case of REBT, there is support for the effectiveness of the intervention, yet a lack of grounding of the approach in robust psychological theory. For the current thesis, specifically, there is little research that tests the theoretical role of irrational beliefs in the stress response and, none which examines the impact of irrational beliefs, and REBT interventions on motivation and psychological wellbeing through the satisfaction of basic psychological needs.

1.5 Summary and Aims of Thesis.

The above literature review highlights that stress and psychological wellbeing are of great concern in policing and that there are potential solutions which are yet to be empirically tested. A particularly important missing aspect of police stress research is the lack of grounding research in empirically supported contemporary theory which not only provides sound rationale for chosen approaches to manage stress but goes further by providing rationale and confidence in the chosen processes for supporting the psychological wellbeing of police personnel over the course of their careers. This is surprising given the acute challenges faced by police organisations in relation to absenteeism and stress in the U.K.

(Cartwright & Roach, 2021). REBT is a robustly supported intervention which has demonstrated positive effects on psychological health and its core construct, irrational beliefs, are established as being significantly associated with psychological distress in both clinical and non-clinical populations (Lyons & Woods, 1991; Visla et al., 2016). There is little research that has explored the role of irrational beliefs in the stress process and psychological wellbeing processes as proposed by SDT in the general population, and none which specifically explores a police population. Thus, the aims of the current program of research are (1) to understand the role of irrational beliefs, in the stress and psychological wellbeing process of police personnel; (2) to examine the effectiveness of an REBT intervention on the psychophysiological stress and psychological wellbeing of police officers at two different levels of analysis (at group level and idiosyncratically); and (3) to offer practical insights and guidance on the application of an REBT-informed stress management interventions within policing.

Before the aims of this thesis are addressed the author felt that it was important to offer an insight into their research paradigm and to explain their role and expertise as the psychological practitioner in the thesis. It is hoped that by doing this clarity is brought to the chosen means of addressing the thesis aims. To do this what follows is a short section which is presented in two parts. First, the research paradigm is explained, and then an understanding of the practitioner psychologist's philosophical approach to their role is discussed.

1.6 Research paradigm and an overview of the program of research.

1.6.1 *Research paradigm.* This thesis is situated in a pragmatic research philosophy (Fishman, 1999). A pragmatic philosophical approach to research, with origins in the work of Dewey (1931), James (1907), and Peirce (1984), emphasises practical solutions to applied research questions and the consequences of enquiry (Rosiek, 2013). Critics of an extreme

positivist approach to applied psychology research recognise that the reality of experience is influenced by socio-cultural conditions and subjective biases (Giacobbi, Poczwardowski, & Hagar, 2005). Pragmatism is an approach to research that attempts to explore and evaluate the practical value of knowledge as a tool for helping people cope and thrive within their specific context, as opposed to striving to reflect an underlying reality (Rorty, 1999). Pragmatic knowledge consists of the usefulness of research findings in terms of problem-solving and achieving goals in the context in which practitioners operate (Fishman & Messer, 2013).

In this thesis, the program of research is set out to respond pragmatically to the aims and objectives stated above. That is, the researcher aims to produce knowledge that is socially useful (Feizler, 2010), and in this thesis, this occurs in relation to stress and psychological wellbeing in policing. A pragmatic philosophy allows for the recognition of the measurable world as occurring with a range of elements, some of which are objective, some of which are subjective and some of which are a combination of both objective and subjective elements (Dewey, 1925). There is also an emphasis placed on aiming for utility as an ethical motivation for conducting research (Rorty, 1999). The utility can then give rise to a reflexive research practice demonstrating a clear direction in terms of who and what a program of research is for as well as ensuring that the program of research responds meaningfully to the researcher's values (Feilzer, 2010). This program of research is intended for scholars and applied practitioners whose primary interest is in supporting the long-term wellbeing and effectiveness of police personnel. The author of this thesis, as a practising applied psychologist, holds values which have influenced the formulation of this program of research. These include a humanistic stance on applied practice and the importance of recognising the uniqueness of human beings.

Using a range of research methods concurrently this program of research offers a broad and detailed exploration of psychological theory, namely REBT theory and its possible impact on stress and psychological wellbeing. Adopting a range of methods is common within pragmatic epistemological approaches so that a range of perspectives can be considered when responding to problems (Feilzer, 2010). This program of research starts with a quantitative cross-sectional study which aims to identify the psychological antecedents of stress and self-determined motivation in policing. Following this, a large-scale intervention study is presented which begins to integrate quantitative (through an objective biomarker of stress) and qualitative (social validation data) findings. Then, in chapter four the balance between quantitative and qualitative approaches is reversed through the presentation of idiographic, single-case research findings and finally, in chapter five, a qualitative, autoethnographic account of applying REBT in a U.K. policing context is presented. Ultimately, the findings of each study are integrated to assess their utility in relation to the problem of high-stress and vulnerabilities to ill-being in policing.

1.6.2 The practitioner. Performance psychology is a sphere in which researchers and practitioners describe, explain, and predict human behaviour (Raab, 2020). Effective performance is denoted by an optimal mindset that keeps the performer focused on the task at hand at the expense of other competing stimuli (Cotterill, 2017) and seeks to understand the cognitions and behaviours initiated when working towards competent performance (Matthews et al., 2000). The general tasks of performance psychology are likely to be the description, explanation, prediction, and psychological optimisation of performance-orientated activities (Cotterill, 2017). Performance psychology is also especially concerned with contextual factors and their impact on performance as well as the impact that performance has on those contextual factors. For example, the external environment or

emotional state of a performer is considered in terms of the quality of performance as well as the impact of performance tasks on wellbeing, and long-term performance (Matthews et al., 2000).

The performance psychologist is aligned with a humanistic theoretical paradigm, identified with a science-practitioner epistemology (Lane & Corrie, 2007) and a counselling/human development model of practice (Danish & Hale, 1981). Using the classification for consulting philosophies proposed by Keegan (2010) the performance psychologist identifies with the following elements of practice. They take the stance of a flexible guide in the consultation process by being predominantly client-led. They emphasise optimising performance within a framework that is mindful of and promotes psychological wellbeing. They pursue the aims of consultancy through the detailed exploration of the salient subjects raised by the client. They view their role as collegial and place importance on scientific theory and recognise the complexity of human nature and the challenges that come with the application of theory in real-world settings. They also see the utility in the use of subjective and objective monitoring of client progress as a tool to inform both the client and the practitioner of progress towards selected goals. The practitioner is an independent performance psychology practitioner, and a chartered sport and exercise psychologist with the British Psychological Society.

In this chapter, the aims of this thesis and their rationale have been discussed along with a contextual understanding of the research paradigm and the practice philosophy of the author. In the next chapter, a broad and traditional empirical approach will be used to identify the cognitive antecedents of stress across a police organisation. Then, in chapter three a group-level intervention study will begin to focus on understanding the application of REBT of senior police leaders and group patterns will be explored through quantitative statistical analysis and qualitative statistical analysis. Following this, in chapter 4, to move towards the detail of the intervention, a single-case experimental approach will be taken to examine a

selection of cases from the experimental sample in chapter three which will allow for a more granular exploration of the application of REBT in policing. In chapter five, the final aim of the thesis will be addressed by adopting an autoethnographic approach to reflect on the application of REBT in policing over four years.

CHAPTER 2: TOLERATING THE PRESSURE: INVESTIGATING THE ANTECEDENTS OF STRESS IN POLICING

2.1 Introduction

In the previous chapter, the prevalence of stress in policing was discussed. In this chapter, the first aim of this thesis, which is to understand the role of irrational beliefs in the stress and psychological wellbeing process of police personnel, is addressed. In a police organisation of more than 5000 police employees, where does one start with the provision of stress management? It is well documented that although stress is a predictable part of a career in policing (Queiros et al., 2020), it nonetheless has a detrimental effect on the health of some police officers (Hartley, Burchfiel, Fekedulegn, Andrew, & Violanti, 2011). Many popular psychological interventions claim to positively impact experiences of stress and wellbeing (Holman, Johnson, & O'Connor, 2018), however, little empirical research supports the theoretical propositions on which such claims are made. Furthermore, the specific applicability of said psychological interventions to the policing context has not been extensively tested (Patterson, Chung, & Swan, 2014). This is in part because there is still little understanding about what psychological factors may determine police stress, and thus, it is unclear as to what psychological interventions should focus on in attempting to help police manage stress (Cartwright & Roach, 2021). Therefore, the current study examines such psychological factors to gain a better understanding of stress in policing, and to inform the development of stress management interventions within the police.

The theories that underpin stress management are complex and multi-faceted, and as such, it is a challenge to develop stress-management solutions for the police. However, the exploration of psychological factors that may determine police stress may indicate more acute areas of focus for intervention development. Indeed, organisational stress management

interventions can be targeted at several levels: the individual level, the organisational level, or both. Across these levels, a variety of approaches can be taken, such as relaxation training, time management, and cognitive-behavioural therapy (Giga, Noblet, Faragher, & Cooper, 2003). While researchers continue to call for greater rigour in research designs such as randomised control trials and improved transparency in reporting (Wild, El-Salahi, & Esposti, 2020, Holman, Johnson, & Connor, 2018), a further limitation in this area is a lack of exploration of the theoretical tenets on which popular stress management interventions are based. There is very little empirical evidence that demonstrates support for the relationships between the variables that are thought to be predictive of stress (e.g., stress and irrational beliefs), leading to assumptions that stress management initiatives are adequate and accurate. Research in policing has identified several proposed determinants of stress. For example, the stress in policing has been predicted by exposure to human suffering and death (Violanti et al., 2017), sleep problems (Garbarino & Magnavita, 2019), family-work conflicts, organisational and operational factors (Li, Cheung, & Sun, 2018), elements of danger, bureaucracy, and lack of peer support (McCarthy, Schuck, Skogan, & Rosenbaum, 2011). A lack of trust in co-workers has also been highlighted as predictive of stress, burnout, and poorer health (McCarthy et al., 2011). Having noted that police work consistently comprises a broad range of events, challenges, and problems not all police personnel exhibit high stress. To understand this variation in stress experiences an investigation of individual differences at the psychological level, i.e., personal beliefs, perceptions, and motives are warranted.

Several psychological elements have been noted as relating positively to stress outcomes in policing. The ability to cope effectively with the common stressors associated with police work (e.g., acknowledging the effect of stressors, and confronting thoughts and feelings that are a by-product of some aspects of police work) has been demonstrated to impact stress levels more than the stressors themselves (Aaron, 2000). Those that employ

such strategies can expect healthier outcomes. A common form of avoidant psychological stress coping is dissociation (adaptive or maladaptive; Lyn, 2005), which is the splitting off from awareness of stressful events. Aaron (2000) found that stress was not directly associated with psychological adjustment, i.e., the totality of psychiatric symptomology measured with the global severity scale (SCL-90-R; Derogatis, 1977) which encompassed the frequency and severity of stressors, but that increased stress predicted increased dissociation. The level of dissociation, and not the level of stress, was associated with poorer coping and recovery ability, suggesting that the manner of coping with the stressor, rather than the stressor itself, was what determined psychological adjustment.

There is also contemporary support for a focus on coping strategies as key to stress-management in the police. Constructive coping seemed to alleviate stress and increase work engagement in one recent study (Li, Cheung, & Sun, 2018) and adopting a functional mindset towards stress predicted lower perceived stress levels as well as greater physical and psychological wellbeing in another (Keech, Cole, Hagger, & Hamilton, 2020). Promotion of satisfaction with life, interpersonal support, and gratitude may also be of benefit in the routine exposure to stressful life events as a means of increasing post-traumatic growth in police officers (Leppma et al., 2018).

While Li, Cheung, and Sun (2018), provide a cross-sectional overview of the impact of a range of factors on stress and engagement in their article, constructive coping strategies were not measured by using a validated psychometric tool and were not drawn from any specific explicitly mentioned theory of coping. The coping strategies which were found to alleviate stress in the study indicate that active processes (e.g., exercise, praying) predict lower stress and higher work engagement but further investigation is required to understand the basis on which a coping strategy is stress relieving, as opposed to stress-inducing.

Furthermore, an individual's engagement in police work may be motivated by several factors, and it may be important to understand how these motives underpin police stress. Indeed, given that an important genesis of psychological stress is the perceived importance or personal relevance of a situation (or stimulus; Lazarus, 1999), then to reduce stress one could argue that we should encourage police to care less about their endeavours. This is an oversimplified and sub-optimal solution because motivation is not a unidimensional and simple construct that is measured from low to high but is multidimensional and complex. There may be some motives that sensitise police to higher stress, for instance. Furthermore, an evaluative stress mindset discussed by Keech, Cole, Hagger, and Hamilton (2020) supports proactive coping behaviour as a potential way to manage stress and wellbeing in policing. They propose that adopting a stress mindset be distinct from stressor appraisal as the focus is not on the appraisal of the stressful event as found in the transactional model of stress theory (Lazarus & Folkman, 1984) but on the appraisal of stress as enhancing or debilitating.

Away from police-specific stress management, many interventions aim to help individuals cope with stress. In recent times interventions that focus on resilience have become popular regardless of a lack of empirical support for the proposed theoretical associations between these concepts and their impact on police officer health (Janssens, van der Velden, Taris, & Veldhoven, 2018). This highlights the importance of first elucidating, and then testing theories on which stress management interventions are based. One theory that has recently been applied in policing (Nwokeoma et al., 2019; Onyishi, Ede, Ossai, & Ugwuanyi, 2021) leverages a cognitive-behavioural approach known as rational emotive behavioural therapy (REBT; Ellis, 1956) which has been introduced in chapter one. Many of the core theoretical assumptions of REBT have yet to be tested in a policing context. Specifically for this research, there is no empirical evidence that the nature of a person's

beliefs (i.e., the extent to which a person holds irrational beliefs) and job motives (i.e., the reasons for engaging in policing), in part or fully, determine stress in the police.

Whilst REBT theory points to irrational beliefs as underpinning stress, there is not a broad range of evidence within the context of policing, however, a relatively recent meta-analysis of irrational beliefs and psychological distress, within non-policing populations, reported a positive association between various types of distress with irrational beliefs (Visla et al., 2016). Furthermore, in a test of the association between irrational beliefs and posttraumatic stress responses within a sample of emergency service workers, structural equation modelling results indicated that the presence of general irrational beliefs had an indirect impact on dysfunctional post-traumatic stress responses and that general-level irrational beliefs held within an individual's cognitive structure represent a vulnerability factor for the development of maladaptive posttraumatic stress reactions (Hyland, Shevlin, Adamson, & Boduszek, 2015). From an occupational stress perspective, there is some evidence to suggest that under stress conditions (e.g., high workload, unfairness at work) irrational beliefs become cognitive vulnerabilities to dysfunctional, clinically relevant emotions and behavioural patterns (Popov, Majstorovic, Matanovic, Jelic, & Rakovic, 2016; Popov & Novovic, 2007; Tovilovic, 2004; Bridges & Roig, 1997; Kombos, Fournes, & Edtes, 1989; Monti, Zwick & Warzak, 1986). More recently irrational beliefs were shown to predict stress even when the effects of stressors and coping strategies were controlled for, indicating the utility of the theory in organisational contexts (Popov & Popov, 2013). In other words, it is possible to affect the stress responses of Serbian private and public sector employees by adjusting their appraisal perspectives. It is these appraisal perspectives that are at the core of REBT (David et al., 2002; Ellis, 1994).

REBT theory also predicts that irrational beliefs lead to dysfunctional tendencies to act (David, Lynn, & Ellis, 2010) and psychological ill-health (Visla et al., 2016). The absence of psychological ill-health is not thought to be an adequate aim of psychological interventions and there is broad support for the contention that psychological wellbeing calls for more than just the absence of ill health (Deci & Ryan, 2008; Ryan, Deci, Grolnick, & La Guardia, 2006). Having a purpose in life, potentially articulated through work engagement, is a source of psychological wellbeing, and as such, studying motives to engage in work might be worthy of exploration in police personnel. Human beings are goal-directed organisms and the motivation to engage in life endeavours is multidimensional. Within any context, including work, engagement can be underpinned by various motives. One prominent theory that explains the complexity of the many competing motives experienced by individuals and their impact on wellbeing is Self-Determination Theory (SDT; Ryan & Deci, 2000) which was introduced in chapter one.

SDT research suggests that reduced experiences of stress and better coping with stressful events are associated with greater autonomy satisfaction, greater self and contextual awareness, more interest-taking in internal events, and a focus on intrinsic goals (Weinstein & Ryan, 2011). SDT provides a broad structured framework that begins to illustrate how REBT theory can be thought of as a mechanism for managing stress. Findings to date in sports contexts indicate a relationship between irrational beliefs and self-determined motivation, such that decreases in irrational beliefs via REBT are met with increases in more self-determined, autonomous, motivation regulation (Davis & Turner, 2020; Chrysidis et al., 2020). However, rather than establish associations between irrational beliefs and motivation regulation per se, they apply REBT to irrational beliefs and measure changes in consequent motivation regulation. Whether and to what extent irrational beliefs are indeed related to

motivation regulation is still unclear, and to date, no research has addressed this issue within police settings.

In SDT, the maintenance of psychological wellbeing is assumed to occur in a dialectical process between the external environment and the internal individual (Ryan & Deci, 2017). The adoption of fewer or less frequent irrational beliefs may enhance the individual's internal capacity to interact within this dialectic, tolerate external environmental changes, recognise the contrast between their intrinsic goals and external contextual values, and facilitates the process of organismic integration through effective and efficient regulatory processes and through supporting the satisfaction of BPNs. In REBT theory there is an important connection between the critical environmental activating events (A) which we propose are represented in SDT by the perception and interpretation of external environmental conditions; and the beliefs that individuals hold about such events (B) (David, Freeman, & Digiuseppe, 2010). The quality of the connection, which is whether the individual holds rational or irrational beliefs at point B in response to point A results in predictable emotional consequences at point C, i.e. stress. Although not originally a part of the ABC model popularised by REBT theory, individual goals and values (GV) are proposed to be an important part of the equation (Ellis, 1994). It is, perhaps, that psychological stress can occur when the individual's internal map of goals and values is irrationally at odds with the territory of external reality and contextual goals and values.

Although REBT theory has been proposed as an effective approach to stress-management and the promotion of psychological wellbeing in the police context (Dick, 2000; Nwokeoma et al., 2019; Onyishi et al., 2021), a major criticism of the application of REBT is its ongoing lack of empirical support for the theoretical framework on which such proposals stand (Wessler, 1996). To build on these recent findings the primary objective of

the current study, therefore, was to identify determinants of stress in a police sample to inform the formulation of stress management strategies within policing. To do this, the associations between irrational beliefs, BPNs, and motivation regulation, will be investigated and how the convergence of these constructs predicts police stress alongside demographic variables will be explored. Additionally, this study will compare the test sample to published norms, and explore how irrational beliefs, BPNs, motivation regulation, and stress vary across demographic characteristics. In carrying out the objectives set out in this study, it is first hypothesised that lower irrational beliefs, greater BPNs, and more self-determined motivation regulation would be associated with less stress when accounting for the predictive effects of demographic characteristics. Second, it is hypothesised that irrational beliefs and BPNs would be associated with motivation regulation, such that lower irrational beliefs and greater BPNs would be related to more self-determined (autonomous) motivation regulation.

2.2 Method

2.2.1 Sample size calculation

The sample size was selected to achieve adequate power (Cohen's d ; Cohen, 1988) as outlined in the literature (Tanaka, 1987; Tanaka & Huba, 1985; Wolf, Harrington, Clark, & Miller, 2013). The required sample size (n) for hierarchical linear regression was calculated using the G*Power (v. 3) software (Faul, Erdfelder, Lang, & Buchner, 2007). The a priori test ($1 - \beta = 0.95$, small-medium effect size (f^2)=.06, α =.05, with twelve predictors (satisfaction of autonomy, relatedness, and competence; intrinsic motivation, identified regulation, introjected regulation, external regulation, and amotivation; demandingness, FI, awfulizing, and depreciation), and four tested predictors (IBs) revealed that the required minimum sample size was 315.

2.2.2 Participants

A total of 356 participants took part in the study (Male= 167, Female= 189; Mage= 43.4 \pm 8.6). The sample consisted of 114 police staff (police employees not warranted with police powers) and 242 police officers (police employees who are warranted officers). To protect confidentiality minimal demographic information was mandatory, hence the difference in reporting of years of service. Of those that reported their years of service (n = 318) the mean years of service of the participants was 16.2 years \pm 7.4. No incentive was offered to the participants for taking part in the research. Ethical approval was granted from a university ethics committee and individual informed consent was obtained before data collection. The participants were recruited through emails sent through the corporate communications team within the police organisation. In relation to police-specific stress, irrational beliefs, and the satisfaction of basic psychological needs at work, 356 (Male= 167; Female= 189; Police Staff= 114; Police Officer= 242; Mage= 43.39, *SD*age=8.64; min age 22- max 65 of 218 reported) police personnel completed the study. In addition, 288 police personnel also completed the measures of self-determined motivation. See Table A2.1 for all Means and SDs.

2.2.3 Design

The current study adopted a cross-sectional design.

2.2.4 Measures

A demographic questionnaire was used to determine the participants' sex, years of service, and role category (police officer or police staff). Then the following battery of psychometric tests was used.

Police Stress. Police stress was assessed with the operational police stress questionnaire (PSQ-Op) and the organisational police stress questionnaire (PSQ-Org) developed by McCreary & Thompson (2006). Operational police stress refers to stress responses that are triggered by the operational context such as chasing an assailant or dealing with a road-traffic accident, while organisational police stress refers to stress responses that are triggered by organisational tasks such as navigating line management or dealing with administrative red-tape. The PSQ-Op contains 20 items (e.g. traumatic events), and the PSQ-Org contains 19 items (e.g. excessive administrative duties). Participants were asked to determine how stressful each item has been for them recently, using a 7-point Likert scale ranging from “not at all stressful” to “very stressful”. The police stress questionnaires assesses subjective stress by asking participants to respond to how typical stressors in the police context have affected their subjective experience of stress over the last month. Responses to the PSQ-Op and PSQ-Org were averaged into separate scores for operational and organisational stress and a composite of both scores was also calculated to indicate an overall stress score. Higher scores indicate a greater degree of perceived stress. In the current study, internal consistency for the police stress scale was excellent with a Cronbach’s alpha for the PSQ-Op scale of $\alpha = 0.94$ and the PSQ-Occ of also $\alpha = 0.94$.

Irrational Beliefs. The irrational performance beliefs inventory (iPBI; Turner et al., 2016) was used in this study. This inventory has 28 items for which participants are asked to indicate the extent to which they agreed with each of the 28 statements (e.g., I can’t stand not reaching my goals) on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate stronger beliefs. The iPBI is currently the only scale that specifically measures performance-related beliefs. The iPBI has indications of good criterion, construct, concurrent and predictive validity in professional working environments (Turner et

al., 2016). In the current study, Cronbach's alpha for each subscale is as follows, for FI $\alpha=0.85$; depreciation beliefs $\alpha=0.92$; demand beliefs $\alpha=0.79$; awfulizing beliefs $\alpha=0.84$.

Basic Psychological Needs. The basic psychological need satisfaction at work scale (BNSW; Deci et al., 2001) measures the general need satisfaction one experiences at work. The scale consists of 21 items and 3 subscales that correspond to the degree to which the participant experiences the satisfaction of the need for autonomy (e.g. I am free to express my ideas and opinions on the job), competence (e.g. I do not feel very competent when I am at work.), and relatedness (e.g. I get along with people at work.) at work. Participants were asked to what extent the scale items were true to them using a 7-point Likert scale ranging from 1 (*not true at all*) to 7 (*very true*). Higher scores indicate greater need satisfaction. The reported internal consistency for the subscale ranges from acceptable to good. For competence $\alpha = 0.71$, relatedness $\alpha = 0.82$, and for autonomy $\alpha = 0.77$.

Occupational Motivation. An adapted version of the Sport Motivation Scale (SMS; Pelletier, Tuson, Fortier, Vallerand, Briere, & Blais, 1995) was used to measure the motivation of the participants in their work. The SMS consists of seven subscales of four items each, that measure intrinsic motivation (to know, to accomplish things, and to experience stimulation), extrinsic motivation (identified, introjected, and external), and amotivation. The scale was adapted for use in a police context by changing the items that referred to sport participation to work participation. The SMS has adequate psychometric properties including fair levels of construct validity and test-retest reliability. Participants are asked to indicate to what extent each scale item (e.g. I used to have good reasons for doing this job, but now I am asking myself if I should continue doing it) corresponds to the reasons for which they currently perform their work roles. Each item is rated on a 7-point Likert scale between 1 (*does not correspond at all*) and 7 (*corresponds exactly*). The range of reported

internal consistency for the subscales ranges from acceptable to very good. For intrinsic motivation-stimulation $\alpha = 0.74$, intrinsic motivation- accomplishment $\alpha = 0.80$, intrinsic motivation- to know $\alpha = 0.80$, identified regulation $\alpha = 0.63$, introjected regulation $\alpha = 0.74$, external regulation $\alpha = 0.77$, amotivation $\alpha = 0.75$. Subscales can be used in combination to form a summary score, specifically, the intrinsic motivation subscales were combined to produce an overall measure of intrinsic motivation as in previous research (Otis & Pelletier, 2005).

2.2.5 Procedure

An online survey was developed using Qualtrics computer software. The survey required the participants to complete the four measures which took approximately 20 minutes. Participants were able to complete the questionnaire during working hours.

2.2.6 Analytic strategy

Before main analyses, data were first examined for missing values. Little's MCAR test revealed that three data points were missing completely at random for autonomy ($\chi^2 = 16.7$, $df=18$, $p = > .05$), and nine data points were missing completely at random for relatedness ($\chi^2 = 28.75$, $df=34$, $p = > .05$). Expectation maximisation (EM) was used to estimate missing values, providing a complete data set for analyses. Data were then screened for outliers and examined for normality to ensure data met the necessary assumptions for parametric testing. Shapiro Wilks tests were performed and if the presence of significant ($p < .05$) outliers was indicated then z scores for the significant outliers were assessed. Data points with z scores greater than two ($n = 1429$, 3.3% of the dataset) were windsorised (Smith, 2011).

Main data analyses were completed in five stages. First, for the variables for which normative data were available in published research (police operational and organisational stress, irrational performance beliefs, and BPNs), data from the current study were compared with existing norms using a single-sample *t*-test. Second, an exploration of the distribution of scores was conducted in relation to extreme stress scores. This was achieved by categorising the operational and occupational stress scores into percentiles. The lowest 10% of scores were categorised as low stress and the highest 10% of scores were categorised as high stress. Then the corresponding data points in the predictor variables were graphed to enable visual inspection of relationships between stress groups and levels of predictor variables. The rationale for including this graphical representation of the data was to add clarity in terms of which variables were more prominent in high and low-stress participants. The ability to view a graphical representation aided the ability to visualise the patterns in the data.

Third, differences across the demographic variables of sex and role category were tested using MANCOVA, and a non-linear regression analysis was carried out for years of service. The fourth, correlational analysis explored the relationships between variables, and finally, hierarchical linear regression analysis was conducted to test the hypothesised predictions.

2.3 Results

2.3.1 Normative comparisons

A series of one-sample *t*-tests were conducted to statistically compare police stress scores, irrational beliefs, and BPNs in the recruited participants to published norms (see table A2.2). Compared with norm levels (McCreary, Fong, & Groll, 2017), police operational stress was significantly lower, and police occupational stress was significantly higher. All

irrational beliefs were significantly higher than published non-police norms (Turner et al., 2016). The satisfaction of autonomy and relatedness were significantly higher than those published norms in SDT research, and there was no significant difference in competence satisfaction (Brien et al., 2012).

2.3.2 Extreme stress

Following data cleaning and screening the data was approximately normally distributed (see Table A 2.3), with skewness between -2 to +2 and kurtosis between -7 to +7 (Byrne, 2010). To examine extreme scores in operational and organisational stress, the top 10% and bottom 10% of operational and occupational stress were inspected (see Table A2.4). The extreme scorers were grouped into a 'low stress' and a 'high stress' group and plotted against irrational performance beliefs scores, BPNs scores, and motivation regulation scores (see Figure A2.1) to aid visual inspection (Clark-Carter, 2018). Compared to the low-stress group, those in the high-stress group reported greater irrational beliefs (particularly depreciation), and lower self-determined motivation, but no marked differences can be seen in BPNs between groups, although relatedness is higher in the low-stress group for occupational stress. Amotivation demonstrated the most marked difference between groups, with the high-stress group reporting much greater amotivation.

2.3.3 The role of job type, sex, and years of service

To explore differences in irrational beliefs, BPNs, motivation regulation, and stress between job types, and males and females, four three-way MANCOVAs were conducted. Across all tests, there were no significant main effects for job type and sex on irrational beliefs ($F = 1.02$ (12, 815.2) $p = 0.43$), BPNs ($F = 0.38$ (3,289) $p = 0.79$), motivation regulation ($F = 0.80$ (20, 694) $p = 0.71$), and stress ($F = 0.156$ (2,312) $p = 0.86$).

To explore the effect of years of service on stress, two non-linear regression analyses were conducted (e.g., Aiken, West, & Reno, 1991). A quadratic effect emerged for occupational stress, $F(2, 315) = 7.058, p = .001$, and for operational stress, $F(2, 315) = 3.841, p = .02$, indicating non-linear, inverted U, associations between years of service and stress (see Figures A2.2 & A2.3). Participants with 10-15 years of service reported the greatest stress levels.

2.3.4 Predicting motivation

Intrinsic motivation. Hierarchical regression analysis (Table A2.5a) revealed that gender, role category, and years of service (step 1) did not predict intrinsic motivation ($\Delta R^2 = .02$). BPNs (step 2) explained a significant proportion of variance ($\Delta R^2 = .1, R^2 \text{ change} = 0.97, F_{\text{change}} = 7.83(3, 212), p < .001$), but irrational beliefs did not ($\Delta R^2 = .11, R^2 \text{ change} = 0.25, F_{\text{change}} = 1.54(4, 208), p = .19$). In the final model standardised coefficients revealed a significant positive association between intrinsic motivation, irrational beliefs and BPNs ($R^2(10, 208) = .151, p < .001$), relatedness was positively related to intrinsic motivation ($\beta = .30, p < .001$), and frustration intolerance (FI) was positively related to intrinsic motivation ($\beta = .21, p = .03$). In sum, those who reported a greater satisfaction of the need for relatedness and greater FI also reported greater intrinsic motivation.

Identified Regulation. Hierarchical regression analysis (Table A2.5b) revealed that gender, role category, and years of service (step 1) explained significant variance in predicting identified regulation ($\Delta R^2 = .034$). BPNs (step 2) explained a significant proportion of the variance ($\Delta R^2 = .13, R^2 \text{ change} = 0.1, F_{\text{change}}(3, 212), p < .001$), but irrational beliefs did not ($\Delta R^2 = .09, R^2 \text{ change} = 0.21, F_{\text{change}}(4, 208), p = 0.93$). In the final model ($R^2(10, 208) = .13, p = .001$), there was a significant positive relationship between the need for relatedness and identified regulation ($\beta = .21, p = .005$) as well as significant associations

between identified regulation and role ($\beta = .017, p = .02$) and identified regulation and gender ($\beta = .18, p = .01$). In sum, those who reported greater satisfaction of the need for relatedness also reported greater identified regulation. There are also significant differences in levels of identified regulation depending on gender and role type with officers reporting higher identified regulation than staff and females reporting higher identified regulation than males.

Introjected Regulation. Hierarchical regression analysis (Table A2.5c) revealed that gender, role category, and years of service (step 1) did not predict levels of introjected regulation ($\Delta R^2 = -.009$). BPNs (step 2) explained 1.2% of the variance in introjected regulation ($\Delta R^2 = .01, R^2 \text{ change} = .34, F \text{ change} = 2.51(3,212), p = .06$). Irrational beliefs explained 12.8% of the change in the variance at step 3 ($\Delta R^2 = .13, R^2 \text{ change} = .13, F \text{ change} = 8.01(4,208), p < .001$). In the final model ($R^2(10,208) = .168, p < .001$). In sum, higher levels of IBs were significantly associated with introjected regulation.

External Regulation. Hierarchical regression analysis (Table A2.5d) revealed that gender, role category, and years of service (step 1) did not predict identified regulation ($\Delta R^2 = -.001$). BPNs (step 2) explained a significant proportion of the variance, ($\Delta R^2 = .05, R^2 \text{ change} = .063, F \text{ change} = 4.83(3,212), p = .003$), but irrational beliefs did not, ($\Delta R^2 = .05, R^2 \text{ change} = .19, F \text{ change} = 1.11(4,208), p = .35$). In the final model ($R^2(10,208) = .95, p = .02$). There was a significant positive relationship between the need for relatedness and external regulation ($\beta = .25, p = .001$). In sum, those who reported greater satisfaction of the need for relatedness also reported greater external regulation.

Amotivation. Hierarchical regression analysis (Table A2.5e) revealed that gender, role category, and years of service (step 1) did not predict amotivation ($\Delta R^2 = -.002$). BPNs (step 2) explained a significant proportion of variance, ($\Delta R^2 = .21, R^2 \text{ change} = .22, F \text{ change} =$

19.69 (3,212), $p < .001$) and irrational beliefs at step 3, ($\Delta R^2 = .24$, R^2 change = .05, F change = 3.26 (4,208), $p = .01$). In the final model ($R^2(10,208) = .273$, $p < .001$) there was a significant positive relationship for the need for competence ($\beta = .20$, $p = .002$) with amotivation, a significant negative relationship with relatedness ($\beta = -.36$, $p < .001$) and amotivation and the irrational belief, depreciation was significantly and positively related to amotivation ($\beta = .18$, $p = .02$). In sum, those who reported greater satisfaction of the need for competence, lower satisfaction for the need for relatedness and greater depreciation beliefs also reported higher amotivation.

2.3.5 Predicting Stress

Operational Stress. Hierarchical regression analysis (Table A2.6a) revealed that gender, role category, and years of service (Step 1) explained 5% of the variance in operational stress ($\Delta R^2 = .04$, R^2 change = .05, F change = 3.78 (3,215), $p = .01$). BPNs (step 2) explained a significant proportion of variance ($\Delta R^2 = .12$, R^2 change = .09, F change = 7.66 (3,212), $p < .001$). Motivation (step 3) explained a significant proportion of the variance ($\Delta R^2 = .19$, R^2 change = .09, F change = 4.82 (5,207) $p < .001$), and a significant proportion of the variance was explained by irrational beliefs ($\Delta R^2 = .26$, R^2 change = 0.082, F change = 6.1 (4,203), $p < .001$). In the final model ($R^2(15,203) = .315$ $p < .001$), there was a significant positive relationship for role category ($\beta = .26$, $p < .001$), amotivation ($\beta = .26$, $p = .001$), and FI ($\beta = .26$, $p = .003$). There was a significant negative relationship for autonomy ($\beta = -.15$, $p = .02$). In sum, those in police officer roles, with greater years of service, who reported greater amotivation, greater FI and lower satisfaction of the need for autonomy, reported greater operational stress.

Organisational Stress. Hierarchical regression analysis (Table A2.6b) revealed that, at step 1, there was no significant variance in organisational stress according to gender, role

category, and years of service ($\Delta R^2 = .006$). At step 2 BPNs explained a significant proportion of the variance ($\Delta R^2 = .15$, R^2 change = 0.17, F change = 12.64 (3,212), $p < .001$). At step 3 motivation regulation also explained a significant proportion of the variance ($\Delta R^2 = .28$, R^2 change = .15, F change = 8.88 (5,207), $p < .001$). Finally, irrational beliefs explained a significant proportion of the variance also ($\Delta R^2 = .39$, R^2 change = 0.11, F change = 10.17 (4,203), $p < .001$). In the final model ($R^2(15,203) = .43$ $p < .001$), there was a significant positive relationship for role category ($\beta = .15$, $p = .013$), years of service ($\beta = .13$, $p = .02$), amotivation ($\beta = .34$, $p < .001$), and FI ($\beta = .39$, $p < .001$). There was a significant negative relationship for the satisfaction of the need for relatedness ($\beta = -.17$, $p = .009$). In sum those in police officer roles, with greater years of service, who reported greater amotivation, greater FI, less satisfaction of the need for relatedness, reported greater organisational stress.

2.4 Discussion

The main aim of the present study was to identify determinants of stress in a police sample to inform the formulation of stress management strategies. Specifically, we investigated the associations between irrational beliefs, BPNs, and motivation regulation, and examined how these constructs co-occur to predict police stress and motivation alongside demographic variables. Additionally, this study compared the test sample to published norms and explored how irrational beliefs, BPNs, motivation regulation, and stress vary across demographic characteristics. The current study adds to research which counters the major criticism that there is a lack of empirical support for the theoretical framework on which REBT theory stands (Wessler, 1996). The current study has identified determinants of stress in a police sample and can inform the formulation of stress management strategies within policing.

2.4.1 Predicting Stress

The primary hypothesis in the present study was that lower irrational beliefs, greater satisfaction of BPNs, and more self-determined motivation regulation would be associated with lower stress. The data support this hypothesis in two main ways (fig. 2.1). First, greater FI was associated with greater operational and organisational stress. Second, visual inspection of data shows that those reporting extreme stress also report concurrent higher IBs, higher introjected regulation and amotivation and marginally lower satisfaction of BPNs. In line with REBT theory, undesirable activating events (in the form of operational and organisational police stressors) were experienced as significantly stressful when merged with irrational beliefs (David & Cramer, 2010).

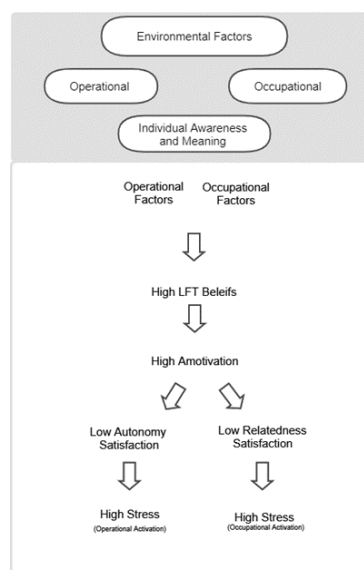


Figure 2.1. Summary of significant predictors of stress in policing.

The finding that higher FI is related to greater stress is in line with previous findings (e.g., Visla et al., 2016), and indicates that personnel who hold stronger beliefs that they cannot tolerate adversity are more likely to experience greater stress. FI was the only IB significantly associated with stress in the current study, and therefore, could help to inform stress management interventions through, for example, specifically focusing on exploring

experiences of FI beliefs in psycho-education programs. Accounting for current evidence that high FI is associated with low emotion-focused coping, and psychological adjustment and the current findings that FI is strongly associated with police stress is important for the formulation of REBT interventions that aim to support stress management in policing.

As noted, FI, along with amotivation, is one of the two strongest predictors of stress in police occupational stress and is slightly less of a strong predictor of operational stress. One might assume that FI may be, at least, as predictive of stress in an operational context compared with an occupational context, particularly given the theoretical central role of FI in post-traumatic responses (Ellis, 1994). The difference in the strength of association could be explained by the possible expectation, and therefore a rational acceptance, of the operational context (e.g., a police officer expects to face challenges when arresting a suspect), however, in the organisational context the expectation may be less consistent with reality, and therefore irrational, e.g. an officer expects that there are adequate resources for them to perform their role when in reality their resources are lacking. It may be easier for people to tolerate situations in which their expectations align more closely with external events (e.g., witnessing potentially traumatic incidents in the operational context) and more challenging to tolerate situations in which their expectations are, unexpectedly, contradicted by external events. A mindset of contradiction of expectations would be conducive to healthier functioning.

When considering the FI findings, it is important to caveat that it should perhaps be thought of as a multi-dimensional construct comprising demandingness, entitlement, emotional intolerance, discomfort intolerance, achievement frustration, fairness, and gratification (Harrington, 2007). Therefore, examining FI as a single construct, as in this study, may be limiting (Harrington, 2007) and a broadening of the concept may more

accurately pinpoint the specific emotional responses that are reported as highly stressful and lead to more robust stress management approaches. Indeed, REBT's reliance on global measures of irrational beliefs has been highlighted as a major weakness of the theory (Kendall et al., 1995). To extend the current findings a multidimensional model of FI beliefs would enable a more detailed formulation of IBs that predict stress.

In the current findings, organisational and operational stress are predicted by high FI, high amotivation, and low satisfaction of autonomy (in operational stress) or low satisfaction of relatedness (in organisational stress). The concept of amotivation is used to describe the extent to which intention plays a part in motivation, to describe levels of passivity, ineffectiveness, or actions that are interpreted as purposeless (Ryan & Deci, 2017) and as an absence of desire to exert effort (Howard, Gagne, Morin, & Van de Broeck, 2016). It is a state in which individuals do not associate a particular behaviour or course of action with a subsequent outcome and in such cases, behaviours are executed without reasonable rationale or not at all (Deci & Ryan, 1985). When individuals experience amotivation they are incapable of foreseeing the consequences of their behaviour and so cannot perceive the motives underlying it. This leads to constant doubt in their actions and eventually giving up. This set of perceptions has been referred to as global helplessness beliefs (Pelletier, Dion, Tuson, & Green-Demers, 1999). Within SDT amotivation can take several forms (Pelletier et al., 1999; Vansteenkiste, Lens, De Witte, & Feather, 2005).

In the first form people do not act because they feel they are not able to effectively attain outcomes, occurring as a result of a person's perception that outcomes are not humanly possible or because the person perceives that they are not able to effectively perform the required actions. In either case, a lack of perceived competence is thought to be a causal factor in this type of amotivation. In the second form, there is a lack of interest, relevance or

value even in the face of having the efficacy to act. The third form of amotivation is associated with resistance to influence or motivated inaction (Van Petegem, Soenens, Vansteenkiste, & Beyers, 2015). Each different type of amotivation may have a different impact on stress (Ryan & Deci, 2017). While amotivation is discussed readily as a key factor in psychological ill-health (Baily & Phillips, 2015) until now, there appears to be little research that examines the association of amotivation with stress. Amotivation was found to have a direct and positive relationship with stress in a sample of students in a recent study (Yoo & Marshall, 2021). Amotivation and stress are concerning indicators of psychological and physical ill health (Calabrese et al., 2014; Ishikawa & Furuyashiki, 2022). Such findings further highlight the importance of understanding the relationship between stress and amotivation. Building on the emergence of the stress and amotivation association, the results of those reporting high stress and low stress seem to be aligned with theory, that is, those experiencing high stress reported higher irrational beliefs and lower self-determined motivation. In the current study, those who were reporting extremely high stress also reported high amotivation.

Understanding why amotivation is related to stress is not a well-researched area, however, one possible theoretical proposal has been made. In the self-determination model of job stress (Fernet & Austin, 2014) it is proposed that motivational processes play a pivotal and multifunctional role in how individuals adapt to the demands of their workplace, a proposal which the current study would agree with. However, while the authors identify that motivation regulation is not determined solely by environmental factors, their model focuses on environmental factors as causal in the stress response. Their view is that environmental stressors “act on an individual’s psychological energy” (p.326) and influence the regulation type experienced, with either a controlled or amotivated regulation leading to a greater stress response and greater ill-being. They further propose that the effect of stressors on the level of

stress response would be most amplified by those individuals who were amotivated. They theorise that such individuals would be prone to experiencing relative powerlessness in the face of external motivators and would perceive such motivators as insurmountable burdens leading to prolonged activation of the stress response and detrimental effects on psychological wellbeing, a proposal that the results of the current study would support. While the model offers theoretical explanations that may predict stress and highlights that motivation regulation is malleable and not exclusively determined by environmental factors it places an emphasis on a stimulus-response model of stress with motivation regulation stemming from environmental “stressors” and ignores appraisal as a central determinant of the stress response.

In line with the transactional theory of stress and REBT theory, perception and appraisal of events are an essential and extensive part of the mechanism through which amotivation predicts stress (Lazarus, 1966; Ellis, 1994), therefore, an exploration of the possible perceptions and cognitive structures that result in amotivation to predict stress is called for. Amotivated behaviours are non-regulated and non-intentional (Baker, 2004), such behaviours are thought to arise from several perceptions. For example, perceptions of not being able to complete an activity successfully, performing tasks without a perception that one is competent to perform them (Bandura, 1986); believing that it is impossible to achieve goals, or not expecting an activity to yield a desired outcome (Seligman, 1972); and not valuing a particular activity or failure to perceive that behaviours are meaningful (Ryan, 1995). Such behaviours may be experienced as stress through failure to accommodate, and assimilate changes in one’s expectations, e.g., the goals in one’s police role may not be achievable due to a range of factors such as conflicting organisational priorities, lack of experience, and lack of resources, yet there may still be a desire to achieve goals as the

presence of amotivation may occur concurrently with other regulation types (Ryan & Deci, 2017), furthermore, individuals may hold expectations about what meaningful police work is.

Alternatively, one might have had the view that there was a meaningful purpose in a policing career at one time, but changes over time, such as starting a family or a change of operational role, may have altered the strength of meaning that policing once held. In the face of such experiences, stress responses could occur as one is continuously exposed to their current environment but fails to adjust to it, instead, there is no perceived expectation that events will change over time, which results in increasing feelings of incompetence and uncontrollability (Baker, 2004). The emotional consequences of cognitions associated with amotivation lead to stress in that the environment presents an individual with an adaptive requirement and the individual's cognitions cause a failure to adapt. It is the ongoing conflict between the two that maintains the stress response.

Assessing the cognitions associated with amotivation and FI it is clear that the concepts overlap and that when combined would be predictive of stress. In REBT theory Ellis (2003a; 2003b) proposed that humans have beliefs concerning how much frustration and discomfort they can or are willing to tolerate. It is further understood as an expectation of one's strength, and ability to sustain effort, survive, or strive in the face of frustration, discomfort, or pain. The emotional consequences of such beliefs are described as discomfort anxiety and imply that one cannot physically tolerate a situation that they perceive as being frustrating, or that they do not have the endurance to survive in its presence (DiGiuseppe et al. 2014). There is an underestimation by the individual of the survivability of a particular situation.

FI beliefs are triggered by negative emotional experiences which become activating events increasing the discomfort of a negative emotional experience, the new heightened

emotional experience also becomes a further activating event thereby creating a secondary disturbance which entails experiencing emotions about emotions, and emotions about thoughts (Ellis, 1987). The cognitive antecedents of stress have been highlighted as playing a significant role in psychological distress through failures to accept emotional discomfort, and catastrophising about the undesirable experience (Raimy, 1975). In the current context, an individual can believe that they cannot tolerate their emotional stress response when they are amotivated. Their demotivating perceptions of lack of meaning, lack of competence, and impossible to achieve goals are compounded with beliefs that they cannot tolerate the uncomfortable experience of stress that demotivating cognitions bring. When demotivating beliefs are combined with FI beliefs about both the situation and the emotional disturbance it is possible that ever-increasing stress will occur leading to emotional exhaustion and burnout as has been demonstrated in sport (Turner & Moore, 2016) and teaching (Huk, Terjesen, & Cherkasova, 2019). The amotivated beliefs may initiate the stress response and the FI beliefs serve to maintain and increase the stress response.

Stress may also be the result of approach-avoidance conflict where positive attraction to a situation (intrinsic motivation) occurs along with a desire to avoid certain negative aspects which may be encountered in the process (Dollard & Millar, 1950). Cognitions associated with amotivation, such as global helplessness beliefs along with FI beliefs may exasperate a failure to integrate such psychological conflict through denial when avoidance coping is employed and pangs of strong emotion which can be difficult to tolerate when approach coping is employed (Horowitz, 1993). Cognitions associated with amotivation such as those associated with global helplessness coupled with FI beliefs, such as those associated with an inability to tolerate the situation or how the situation feels can lead to higher stress because such cognitions are interpreted as indicative of a serious threat or harm to the individual (David et al., 2002). Furthermore, approach-avoidance conflict may serve to

prolong the stress response as the individual stays committed to their role (e.g., helping people in the community) as the positive elements may outweigh the negative elements (e.g., lack of resources). It is important to recognise that, while the environment may be experienced as stressful, there are complex psychological dynamics which might prevent a person from removing themselves from that situation. Assessing the conceptualisation of amotivation as stemming from “global helplessness beliefs” (Pelletier, Dion, Tuson, & Green-Dem, 1999) appears to be congruent with REBT’s definition of irrational beliefs. Specifically, FI and global evaluation beliefs consist of a lack of psychological acceptance or acknowledgement of the requirements of goal-directed tasks leading to unhealthy negative emotional responses (DiGiuseppe et al., 2014). REBT theory could be extended here to explore global helplessness beliefs as irrational beliefs and the impact that their congruent rational alternative might have on amotivation.

The results of the current study also revealed that lower satisfaction of BPNs plays a significant role in predicting stress. In operational stress lower reported satisfaction of autonomy significantly predicted stress and in organisational stress lower satisfaction of relatedness significantly predicted stress. The context in which stress occurs appears to impact the satisfaction of BPNs differently, a finding that supports current views in SDT. This is because different BPNs can be significantly associated with outcomes depending on the context (Ryan & Deci, 2017).

The reason why lower autonomy satisfaction is the only one of the three BPNs that is associated with operational stress in the current study is unclear. It could be that in a police operational context behaviours, for some, are experienced as being incongruent with one’s authentic self or that external forces are not readily integrated due to a lack of awareness, ability, opportunity, or avoidance of the application of reflection and reason following

exposure to operational events such as traumatic incidents, dealing with time constraints or adapting to organisational change programs. As autonomy satisfaction is associated with self-endorsement of valued goal pursuits it seems logical that it emerges as the lead BPN associated with stress in a police operational context as, in general, operational policing is centred on upholding societal values of service, and protection. Autonomy satisfaction may be challenging to foster for some in a profession where individuals are continuously exposed to environments in which repeated violation of important values is witnessed (and not actively integrated) when attending to criminal behaviour or responding to calls for emergency assistance. Autonomy satisfaction can be further diminished through experiencing pressure, which may come from a range of sources, e.g., leaders within the organisation, the media, politicians, family or one's expectations.

A deeper explanation of the finding that low autonomy satisfaction in a police operational context is significantly associated with stress may be due to employee chronic exposure to mortality cues. Exposure to chronic mortality cues (e.g., dealing with death, or threats to life daily) is an important part of operational policing and there is some research which explores the way that death awareness impacts those in the workplace (Arena, MacCann, Moreton, Menzies, & Tiliopoulos, 2022). In a study of funeral workers, exposure to mortality cues supported autonomous motivation and wellbeing (Arena, MacCann, Moreton, Menzie, & Tiliopoulos, 2022). Death awareness is a psychological state triggered by external events in which people become conscious of their mortality (Chaplin, John, & Goldberg, 1988), which has been categorised into death anxiety and death reflection (Grant & Wade-Benzoni, 2009). Death anxiety, an emotional state of death awareness in which individuals experience fear, panic, and dread about their mortality (Cozzolino, Staples, Meyers, & Samoceti., 2004; Russac, Gatliff, Reece, & Spottswood, 2007), leads to a self-protective defensive orientation and is related to stress (Grant & Wade-Benzoni, 2009). Death anxiety is

thought to occur more readily when a person's mortality is primed subtly or subconsciously (Arena, MacCann, Moreton, Menzies, & Tiliopoulos, 2022), which may occur in operational policing (e.g. through reviewing police crime recording figures) and in more direct and personal ways (e.g. when a police officer attends to the death of an individual and supports those involved). As policing is a fast-paced, demanding context, where officers attend to multiple incidents which involve dealing with death or threats to life, it may be that mortality cues are less conscious.

The healthy alternative to death anxiety is death reflection which is a cognitive state of death awareness where life is contextualised by individuals and its meaning and purpose are explored in the context of internal control (Metcalf & Mischel, 1999) and results in generative behaviours (Grant & Wade-Benzoni, 2009). The processing of death awareness occurs as a result of intentionally controlled cognitive reflection and rationalisation which appears congruent with experiencing cognitions about death which are founded on rational beliefs. For example, it could be that death anxiety, through lack of reflective processing, is the result of holding irrational beliefs about death or traumatic events, and death reflection, through reflective rationalisation may generate a healthy, yet negative emotional response to the exposure that police personnel experience.

In the organisational context, lower relatedness satisfaction was the only one of the three BPNs that was significantly associated with higher stress. Relatedness satisfaction involves experiencing a sense of belonging and of being significant or mattering in the eyes of others. There is a requisite of feeling responded to, respected, and important, to avoid rejection, insignificance, and disconnectedness (Ryan & Deci, 2017). Factors such as inconsistent leadership styles, feeling that different rules apply to different people, or negotiating bureaucratic red tape are experienced as stressful when individuals feel that they

are not responded to, are insignificant and disconnected from their organisation. Stress is the result, in part, of a failure in the social context (i.e., a combination of the environment and the perceiver's interpretation of the environment) to satisfy the need for relatedness. The findings in this study suggest that the experience of stress in the police organisational context is typically a response to circumstances that are interpreted as threats or diminishment of the relatedness need (Ryan & Deci, 2000). For example, a feeling that different rules apply to different people can be interpreted as a personal rejection and therefore threatening or diminishing relatedness satisfaction.

The concept of relatedness satisfaction can be viewed from the perspective of social support also. Increased social support is associated with lower stress and a range of positive mental health outcomes (Reis & Franks, 1994). Social support in police research has been associated with reduced work-related stress (Cullen, Lemming, Link, & Wozniak, 1985; Graf, 1986; Patterson, 2003). It is thought that the elements of social support that enhance psychological wellbeing are autonomy support and involvement (Ryan & Solky, 1996). It may be that those who are experiencing stress also experience a lack of connection, value, and care in their organisational relationships and that there is a lack of involvement from co-workers, such as the dedication of time or resources within working relationships.

Furthermore, if provided, social support may vary in its effectiveness. Specifically, the source and type of social support can impact its effectiveness (Patterson, 2003), for example, when sources of support are also seen as the sources of stress, negative effects on wellbeing can be exasperated (Kaufmann & Beehr, 1989). In relation to the stress response, social support has been conceptualised as a form of coping which can be problem (offering tangible information that aids resolution of the stressful event) or emotion (emotional support is used to regulate emotional response arising from the stress related event) focused in its

nature (Lazarus & Folkman, 1984). Problem-focused social support can worsen the stress response when emotion-focused strategies are required. In policing problem-focused coping may be ineffective in the face of “unsolvable” problems and continued attempts to problem-solve in such cases can lead to increases in stress (Patterson, 2003), when such impasses are reached emotion-focused coping strategies would be best placed to resolve the stress response.

The present findings appear to support previous research which proposes the importance of addressing BPNs in relation to stress (Weinstein, Khabbaz, & Legate, 2016), although there is a lack of evidence that examines BPNs as a multidimensional concept consisting of three separate components. Having noted this it is theorised that an autonomous motivation orientation is thought to reduce negative stress responses through several channels (Weinstein & Ryan, 2011). These include downregulating perceived stress, encouraging fewer defensive responses to stress, facilitating a functional willingness to take an interest in one’s own emotions, and directing people toward lifestyle choices that support need fulfilment.

Changes in BPN satisfaction have been demonstrated to contribute to changes in stress in a student sample facing stressful exams and in turn disrupted the quality of sleep (Campbell, Soenens, Beyers, & Vansteenkiste, 2018). In contrast, within a policing context, the nature of police activity may mean that there is no time for recovery from stressful events due to the continuous nature of police demand which may mean those police officers and staff face chronic thwarting of BPNs leading to chronic stress and its subsequent physical and mental health vulnerabilities. When basic needs are thought to be threatened, stress becomes a dominating experience and will vary depending on the extent of the perceived threat and the individual's coping resources (Ryan & Deci, 2000).

It appears that the current study is the first to explore the associations between police stress, motivation regulation, the satisfaction of BPNs, and levels of performance IBs. This makes comparisons with previous findings difficult. Some research investigates related variables. For example, in police stress research the application of REBT theory has been advocated for promoting resilience and improving health outcomes among police officers (Papazoglou & Andersen, 2014), a contention that the findings of the current study support, however, there is scant evidence to date that examines the application of REBT in police settings. The little evidence that does exist focuses on the application of REBT in police settings (Onyishi et al., 2021) and similar high-risk occupations such as fire and rescue settings (Wood et al., 2021). The current evidence shows promise for the effective application of REBT in police and similar settings and also assumes that REBT theory is both accurate and effective in terms of its proposed mechanisms of change. The current study is the first to empirically examine the impact that levels of irrational performance beliefs have on levels of motivation and police-specific stress. The results of which provide evidence that FI beliefs and amotivation are significantly associated with stress in the current context.

The current study begins to recognise the importance of different types of irrational beliefs in the stress response with FI beliefs emerging as, perhaps, being more available in terms of conscious processing and perhaps the initial focus in stress management interventions may be on challenging one's ability to emotionally tolerate their stressful activating events. Once tolerated individuals can then go on to pragmatic problem-solving. There is, however, some evidence that indirectly explores irrational beliefs and stress. In particular, there is evidence that those who score high on an intolerance of uncertainty scale experience higher stress and lower mental health, furthermore, intolerance of uncertainty appears to magnify the adverse effects of stressors on depression, anxiety, and

hopelessness (Ciarrochi, Said, & Deane, 2005). These findings tend to be in line with the findings of the current study which point to FI as a significant mediator of stress.

2.4.2 Predicting Motivation

The secondary hypothesis of this study was that irrational beliefs and BPNs would be associated with motivation regulation, such that lower irrational beliefs and greater BPNs would be related to more self-determined (autonomous) motivation regulation. The results indicate partial support for the hypothesis and also illuminate the complexity of patterns of motivation regulation. In all cases, there was a significant association between IBs and BPNs for motivation regulation type. There were also some significant associations of demographic variables for some of the regulation types. Each regulation type is discussed in turn.

Intrinsic motivation - BPN satisfaction significantly predicted intrinsic motivation and the addition of IBs did not significantly change the variance in the final model, however, the final model was significant, and relatedness emerged as a strong predictor of intrinsic motivation along with high FI which was a significant unique predictor of intrinsic motivation. The combination of relatedness satisfaction and high levels of FI beliefs is surprising and may be important. While it might be reasonable to assume that low IBs relate to intrinsic motivation it could be that voicing one's intolerances in the form of "I can't stand not reaching my goals" could be countered and emotionally processed by sense-making through social support, making intrinsic motivation possible.

Identified regulation – BPN satisfaction significantly predicted identified regulation and the addition of IBs did not significantly change the variance in the final model. The final model was, however, significant with relatedness again emerging and a strong significant unique predictor of identified regulation. Relatedness satisfaction's strong association with intrinsic motivation supports contemporary findings in SDT research (Van den Broeck,

Ferris, Chang, & Rosen, 2016) which counter past SDT theory which placed less emphasis on its importance (Deci & Ryan, 2000).

Introjected regulation- In the final model, the addition of IBs significantly strengthened the predictive power of the model indicating that IBs play an important part in this type of motivation regulation. This finding is not surprising given the theoretical similarities between the concepts of irrational beliefs and introjects (Ryan & Deci, 2008).

External regulation- Levels of BPN satisfaction significantly predicted external regulation, however, the addition of IBs did not significantly impact the model. This finding indicates the importance of considering the environmental supports in place regardless of IBs which is a contradictory finding to REBT theory. Relatedness satisfaction was again a unique predictor in the model, highlighting its importance in fostering intrinsic motivation and its associated outcomes (Grant, 2007; Parker, 2014).

Amotivation- BPNs satisfaction significantly predicted amotivation and the addition of IBs in the final model was also significantly predictive of amotivation, however, the association was weaker. The correlations revealed a significant and interesting pattern of relationships with low levels of relatedness and autonomy, and high levels of competence were significantly associated with amotivation. The IBs were all significantly associated with amotivation. In the final regression model, BPN satisfaction and levels of IBs significantly predicted amotivation. The significant unique predictors of amotivation were high levels of competence, low levels of relatedness satisfaction, and high levels of depreciation beliefs. The pattern of uniquely associated variables tends to be congruent with both SDT and REBT theory.

Previous research in the organisational domain supports the theory that controlled motivation and amotivation would be predicted by lower satisfaction of BPNs and that self-

determined motivation would be predicted by higher satisfaction of BPNs and highlights the satisfaction of BPNs as the critical change mechanism which should be targeted to facilitate integration (Olafsen, Deci, & Halvari, 2018). The current findings suggest that IBs also play an important role in the integration process, specifically FI beliefs. Indeed, the integrative processes on which OIT is based signal that the meaning one places on external events is important as there is a biological tendency towards their synthesis with an individual's intrinsic nature (Ryan & Deci, 2017). FI beliefs tend to support the theory that the construction and integration of over-estimations of the potential threat or harm in a given context and so prevent the uncomfortable process of psychological adaptation (Ellis, 1994). Ironically, when FI beliefs are high and are chronically triggered, they seem to create a higher level of chronic discomfort and threat to wellbeing through the experience of stress. The results of the current study should be interpreted with the policing context in mind also.

In many work contexts, it could be argued that employees are not intrinsically motivated for their jobs, and so a great deal of need support would be required to facilitate autonomous motivation (Olafsen, Deci, & Halvari, 2018). It is possible that an overcommitment to the job could be detrimental to wellbeing. In the present study, intrinsic motivation is predicted by high perceived relatedness and high FI in the police context. This finding could be interpreted as an extreme commitment to the goals and values of policing and so creates a vulnerability to stress and psychological ill health if and when policing goals and values are not met.

2.4.3 Demographic differences in stress and motivation.

The influence of individual factors such as sex, years of service, and role type on stress, irrational beliefs, motivation regulation, and basic need satisfaction also provide evidence that might challenge assumptions. There were no significant sex differences in the

findings indicating that regardless of inequalities that may exist in policing, females are no more stressed than males. Also, the ratio of males to females seeking help in policing demonstrates that males are less likely to seek support (Lane et al., 2021) which may give a false impression of male officers and staff coping abilities. Stigma may exist in terms of recognising stress which could lead to under-reporting. The years of service data revealed that there is a greater amount of stress at around 10-15 years of service. Such findings point to the accumulation of traumatic and stressful experiences over time and also perhaps highlight increasing responsibilities with experience which come with navigating red tape and occupational issues alongside the operational tasks of policing.

Previous research has explored a variety of demographic variables in policing (Brown & Campbell, 1990; Evans, Coman & Stanley, 1992; Kaufmann & Beehr, 1980; Ortega, Brenner, & Leather, 2006). However, in empirical research, police support staff (i.e., those in police roles who are not warranted officers) are not identified as a separate demographic group with most research focusing on police officers. To our knowledge, this is the first research to examine group differences between police officers and police staff and our findings suggest that there is no significant difference in stress, levels of IBs, BPN satisfaction, and motivation regulation between these groups. This is an important finding as there may be an assumption that stress management initiatives and policies are focused solely on police officers and largely ignore the wellbeing of support staff. Within policing more staff roles expose police staff to the full range of operational and occupational stressors and it may be pertinent to broaden stress management and wellbeing initiatives to all members of police organisations.

2.4.4 Limitations and future research

Several limitations need to be highlighted in the current study and there is an extensive agenda for future research which can build on the current findings. Those deemed of the highest priority are reported here.

First, there are some methodological limitations to discuss. The current study used an atemporal cross-sectional design, therefore, our findings are limited to associative interpretation. Future researchers could collect temporal data to build on the findings of the current study. There are some sources of potential bias within the study. These may include the representativeness of the sample, as convenience sampling was relied upon to gather data, also as the data was the result of self-reporting and there may be a tendency for respondents to answer questionnaires in a socially desirable way or respond in a disengaged way to quickly complete the task through inconsistent responding (McGrath, Mitchell, Kim, & Hough, 2010). Indeed, a lack of social desirability measure is also a potential limitation. Future research could adopt a more representative approach to sampling and mitigate inconsistent responding further if possible. While cross-sectional quantitative research methods are a popular approach to testing theory it has been argued that capturing IBs accurately is difficult through psychometric means (Ellis, 1996), this is because IBs are often held subconsciously and are only recognisable through examination of the consequences of certain cognitive, emotive, and behavioural patterns. Future research could explore alternative research approaches to examine the relationship between IBs and stress more fully. It is also important to note that with multiple comparisons, as made in the current study, there is an increased possibility of the occurrence of a type I error.

Second, there are some limitations to explore in terms of the concept of IBs. As the current study indicates that FI is significantly associated with stress, and FI has been

conceptualised as a multifaceted concept (Harrington, 2007), there is little research that examines FI in detail. In line with this proposal, it may be of interest to explore the conceptualisation of global helplessness beliefs as irrational beliefs. Future research could consider this thereby addressing a major weakness in REBT theory. Levels of rational beliefs have not been considered in the current study and the relations between rational and irrational beliefs may be very complex (Bernard, 1998; David, 2003). As noted by other REBT scholars the potential interactions between levels of rational and irrational beliefs could be taken into account by future researchers (Ellis, David, & Lynn, 2010). An assessment of the strength of rational beliefs held by an individual, as well as irrational beliefs may be indicative of their experience of stress (Balkis & Duru, 2018). Future research priorities could be to broaden the scope beyond the assessment of performance beliefs specifically as stress encompasses a broad range of experiences that cannot be demarcated by performance alone. It seems logical that irrational beliefs regarding stressors would be more associated with stress and in this study, irrational performance beliefs alone were assessed. For example, assessing wellbeing and stress in terms of equality and inclusion, and work and life balance may be important to add depth to our understanding.

Third, there are some limitations to discuss regarding SDT research. The findings of the current study agree with the recommendations made as a result of a meta-analysis on BPNs at work which advocates the investigation of both need satisfaction and need frustration concerning positive and negative psychological wellbeing outcomes (Van den Broeck, Ferris, Chang, & Rosen, 2016). Relatedness appeared to be an important predictor of stress and motivation regulation in the policing context. Future research could build on this novel finding by focusing more directly on the relationship between relatedness and stress. The type of measure used to assess both BPN satisfaction and motivation regulation can impact research findings (Van den Broeck, Ferris, Chang, & Rosen, 2016). Future research

could seek to develop more context-specific psychometric measures of BPNs and motivation regulation in policing.

Finally, there are some contextual points to consider. It has been noted that variation in cross-sectional results across different police organisations is a facet of idiosyncratic organisational culture (Queiros et al., 2020). Individuals may benefit from the satisfaction of those needs that are valued in their culture (Van den Broek, Ferris, Chang, & Rosen, 2016). Future research could aim to identify such cultural idiosyncrasies so that stress management interventions can be further explored and understood from a research formulation and organisational intervention implementation perspective. The findings of this study indicate that for this police organisation assessing factors such as red tape, competence to role alignment (i.e., being overly competent for the tasks required), autonomy-support, fostering strong relatedness, and focusing on developing tolerance beliefs may reduce the stress experienced by personnel and support a healthy means of motivation regulation.

2.4.5 Practical implications.

The theoretical and practical implications of this research are that those who seek to manage stress and support psychological health in policing may recognise the complex and bespoke nature of the stress and motivation process. Stress is a combination of vulnerabilities that can have some patterned similarities in people but is a very unique response and therefore is best managed as such. Considering all of the results the current study adds to growing evidence (Queiros et al., 2020) that programs that increase psychological strength such as resilience programs and stress-management programs are of particular importance in policing. The current study supports the integration of irrational beliefs as an associated factor in the stress experienced in policing. From an applied practice and clinical perspective, the current study reveals the nuanced experience of stress within policing with a combination

of variables contributing to the extent to which the current sample experiences stress. This is important for those who develop and deliver stress management interventions.

Specific areas for practitioners and researchers to note are:

1, A deeper understanding of the FI and stress relationship would be beneficial by examining the multi-dimensional nature of FI as outlined by Harrington (2007). Doing so might enable the more effective identification of the demandingness beliefs that may underlie FI. In stress management interventions it seems important to begin with focusing on and disputing FI beliefs so that individuals can begin to reduce their stress response enough to then focus on more underlying challenges.

2, A surprising finding was the association of stress and amotivation, which on deeper theoretical investigation revealed the global and personal helplessness that highly stressed individuals experience in the police environment and the internal conflict that this signifies. The most obvious alignment of REBT theory and OIT has been introjected regulation, however, the current findings suggest that amotivation is a stronger predictor of stress. More research is needed to understand the complexities of amotivation further and interventions can focus on the alignment of amotivation-associated beliefs and irrational global evaluations as REBT offers a framework which enables the re-assessment of such beliefs to form a personally facilitative alternative perspective.

3, As hypothesised, levels of BPN satisfaction were significantly associated with stress in the police context. A lack of autonomy satisfaction and a lack of relatedness satisfaction were highlighted as significantly associated with stress in policing. A lack of autonomy support in the operational context could be related to the meaning individuals make in the face of often traumatic and morbid police work, or it could be the result of the constraints experienced by individuals when dealing with operational matters, (e.g., lack of resources). A lack of

relatedness satisfaction related to occupational stress revealed a lack of experienced social support which was significantly stressful. Future research is needed to understand the sources of reduced autonomy and relatedness satisfaction so that policing policy can be informed. Interventions could focus on understanding autonomy and relatedness satisfaction for those experiencing stress. Such intervention could provide opportunities for individuals to understand the importance of recognising the extent to which their autonomy and relatedness needs are satisfied and create ways in which their BPN satisfaction is fostered. Furthermore, interventions which help those in a position to receive and provide social support could explore both the type and source of social support as a function of its effectiveness and explore ways to enhance social support which satisfies BPNs more readily.

4, Finally, the reason it is important to satisfy one's BPNs is so that effective organismic integration can take place (Ryan & Deci, 2017). REBT theory may provide a framework on which effective integration of external and stress-triggering events can occur. Future research and practice could focus on exploring REBT and other frameworks such as reasoning and reflective practice skills concerning organismic integration. Future stress management education programs could explicitly promote the process of integration as the pathway to maintained and enhanced psychological wellbeing and psychological skills, police environments, and policing policy can be designed with this specific goal in mind so that police personal may be given the confidence to experience their work in healthy and functional ways.

2.5 Conclusion.

This study examined the association between police stress, the satisfaction of basic psychological needs, motivation regulation, and irrational beliefs. In summary, results supported the hypotheses that levels of irrational beliefs, the extent to which BPNs were

satisfied, and how motivation was regulated were significantly associated with police stress. Specifically, it was found that FI beliefs and lack of relatedness satisfaction were linked with higher levels of both operational and occupational stress and that higher levels of competence satisfaction, lower levels of relatedness satisfaction, and higher levels of depreciation beliefs were significantly associated with amotivation. The findings highlight that practitioners, police administrators and policymakers need to be aware of the implications that levels of irrational beliefs and the satisfaction of basic psychological needs have on stress and motivation in policing roles and that wellbeing programs and organisational systems facilitate a better application of this knowledge.

This chapter has addressed the first aim of this thesis which was to understand the role of irrational beliefs, in the stress and psychological wellbeing process of police personnel. In the next chapter, an extensive REBT intervention study with police senior leaders is presented to begin to address the second aim of this thesis. The second aim of this thesis is to examine the effectiveness of an REBT intervention on the psychophysiological stress and psychological wellbeing of police personnel.

**CHAPTER 3: THE EFFECTS OF RATIONAL EMOTIVE BEHAVIOUR THERAPY
STRESS MANAGEMENT INTERVENTION ON A CHRONIC STRESS
BIOMARKER, SELF-DETERMINED MOTIVATION AND PSYCHOLOGICAL
WELLBEING OF SENIOR U.K. POLICE PERSONNEL.**

3.1 Introduction

In the previous chapter, the psychological antecedents of stress were researched using REBT theory as a guiding framework. The results began to reveal the complexity of stress responses experienced in the police context. The program of research presented in this thesis consists, in part, of two studies which ran concurrently. This means that the findings reported in Chapter two could not be incorporated into the design of the study reported in this chapter. In the previous chapter, the atemporal cross-sectional study results began to reveal the complex nature of stress and motivation within a police context. In this chapter these complex processes are also an important factor. In this chapter, the effectiveness of an REBT intervention is tested. As has been discussed in chapter one stress has major implications for physical and mental health (Cooper & Quick, 2017). The United Kingdom Health and Safety Executive (HSE) reported that in 2017, 12.5 million working days were lost due to work-related stress, depression or anxiety with 526,000 workers reported to be suffering (HSE, 2018). Of those suffering, there is a higher prevalence of stress in public service industries such as policing. Stress in policing can affect occupational performance, and the personal lives of employees (Burke, 1993; Finn & Tomz, 1997; Wilson, Tinker, Becker, & Logan, 2001) and is of global concern (Andersen, Papazoglou, & Collins, 2016). Within U.K. policing, stress and psychological wellbeing have recently been highlighted as an area of ongoing concern, with 80% of the Police Federation Survey respondents admitting to

experiencing stress, low mood, anxiety, or other mental health and wellbeing difficulties (Elliot-Davies, 2019). Due to economic austerity conditions in recent years, policing within the U.K. has been faced with a program of organisational change which has seen decreases in the numbers of employees and programs of organisational change to tackle increasingly complex criminal activity (Hesketh, Cooper, & Ivy, 2016) such as child sexual exploitation, modern slavery, and cybercrime (National Crime Agency, NCA, 2019), which predictably leads to stressful working environments. Specific stressors reported by senior police professionals include a lack of supervisor and co-worker support; psychological and physical job demands; role insecurity; and excessive administrative work (Violanti, Ma, Mnatsakanova, & Andrew, 2019).

As a result of rising concerns for the psychological wellbeing of police personnel, there are growing calls to provide evidence-based psychological wellbeing interventions in policing (Hesketh, Cooper, & Ivy, 2016). Further, researchers highlight the need for training which develops effective coping skills to enable warranted officers (e.g., police constables; detectives) and non-warranted staff (e.g., police staff investigators; forensic specialists) to meet the demands of the roles they undertake (Andersen, Papazoglou, Nyman, Koskelarnen, & Gustafsberg, 2015). It is thought that being mentally prepared, by learning to adopt effective psychological coping skills, will reduce debilitating stress, increase psychological wellbeing (Hesketh et al., 2016), and improve performance in key areas such as critical decision-making (Andersen et al., 2015). Despite the recognised need for wellbeing programs in policing, there is a dearth of applied research examining the effectiveness of stress management interventions in policing (Hesketh et al., 2016). The purpose of the current study is to evaluate a stress management coaching program within a British police organisation and provide a foundation for evidence-based programs that proactively support the development

of psychological wellbeing, through the satisfaction of basic psychological needs, in public service organisations.

One approach to psychological wellbeing training that is under-researched in policing is one-to-one cognitive behavioural therapy (CBT; Beck, 1976; Ellis, 1956) used in non-clinical populations (Kearns, Forbes, & Gardiner, 2007). CBT in the form of REBT has been successfully used in various performance domains such as sport (Turner, 2019), business (Turner & Barker, 2015) and more recently in policing (Onyishi et al., 2021). For example, Davis and Turner (2020), conducted a group-level intervention with triathletes, applying REBT, helping athletes to reduce their irrational beliefs and become more self-determined in their motivation regulation. In a study concerning the redundancy of blue-chip professionals, Turner and Barker (2015) reported that a two-session REBT psychoeducational group intervention resulted in reductions in irrational beliefs, with participants becoming more motivated and better able to control their emotions following the intervention. In a police setting, Onyishi et al. (2021) reported that a similarly REBT-underpinned approach (Rational Emotive Occupational Health Coaching; REOHC) significantly improved the subjective wellbeing and workability of patrol and surveillance police officers. Onyishi et al. (2021) conducted a pre-test/post-test randomised control trial experimental design with 153 police officers in Nigeria. They selected patrol and surveillance police officers citing that, as this cohort worked “around the clock” following a shift pattern, that they were the most stressed among other police personnel. Although there is no evidence that supports this assumption. Onyishi et al. (2021) designed a structured and extensive REBT group-based intervention which they delivered in two-hour sessions, once per week over sixteen weeks. While Onyishi et al. (2021) provide evidence that their intervention significantly increased police officer's subjective wellbeing and workability they did not examine the REBT mechanism through which this might have occurred, furthermore, as stress was also not assessed it is not clear if

the participants in the study experienced changes in their experience of stress during and following the intervention. The study provides strong preliminary evidence that an REBT-based group intervention could impact positively on levels of subjective wellbeing, however, the study is limited as it is impossible to pinpoint where change occurs, which within REBT theory is proposed to be the identification and reduction of irrational beliefs, and the construction of healthy alternative beliefs. Furthermore, the study assumes that their sample is experiencing the highest levels of stress due to their shift patterns and may have overlooked the subjective wellbeing of the broader organisation, such as detectives, scientific services, and police leaders, to name a few.

In the sparsely reported application of REBT to the management of workplace psychological health, other study results have also shown promise. In a recent review of workplace interventions, a small number of papers suggest that cognitive behavioural stress management interventions appear to be the most effective (Joyce, et al., 2016). There is strong evidence that CBT interventions carried out in the workplace are effective in reducing common mental health disorders such as anxiety and depression (NICE, 2004). In their systematic meta-review, Joyce et al. (2016) suggest that CBT can lead to significant improvements in anxiety and depression symptomology. However, within the police population, there is a dearth of evidence available which can inform effective interventions. Results of a recent meta-analysis of stress management interventions for police officers included only twelve primary research articles, concluding that future researchers should focus on the development of stress management interventions (Patterson, Chung, & Swan, 2014). Patterson et al. (2014) called for more rigorous studies concerning the efficacy of stress management interventions among police employees.

REBT and its key constructs have been outlined in chapter one. From an REBT perspective stress is governed by how events are perceived, interpreted, and managed (Ellis et al., 2001), aligning with Lazarusian (Lazarus, 1999) Cognitive Appraisal Theory (David, Montgomery, Macavei, & Bovbjerg, 2005). The chief aim of REBT is to reduce irrational beliefs and increase rational beliefs to enhance wellbeing (DiGiuseppe et al., 2014). There is an emerging need to understand the effects of REBT on psychosocial and wellbeing markers in occupational contexts, and the application of one-to-one REBT in policing has not been reported to our knowledge, however, the exploration of irrational beliefs has been highlighted as an important stage in promoting wellbeing outcomes in policing (Papazoglou & Andersen, 2014). Therefore, in the present study, we examine the effects of REBT on the wellbeing of police employees, using self-report measures of the satisfaction of basic psychological needs and a hormonal marker of stress.

Wellbeing has been conceptualised in many ways (Ryan & Deci, 2001), so to ground the current study in strong theoretical foundations, we define wellbeing using the humanistic framework of self-determination theory (SDT; Ryan & Deci, 2000). SDT is a meta-theory concerning the social conditions that enable or prevent human flourishing (Ryan & Deci, 2017). SDT proposes that wellbeing is more than the subjective experience of positive versus negative affect. Wellbeing represents a state in which people are aware, psychologically flexible, and integrated as opposed to depleted, defensive, psychologically rigid, or compartmentalised (Deci & Ryan, 2008; Ryan, Deci, Grolnick, & La Guardia, 2006).

By examining SDT's representation of wellbeing (Ryan & Deci, 2000) and comparing this with the theoretical components of REBT (DiGiuseppe et al., 2014), there appear to be some important conceptual similarities. First, both SDT and REBT theories agree that negative affect alone is not a sign of psychological ill-being. Second, psychological

flexibility is promoted as a state that fosters wellbeing, and third, both SDT and REBT theories promote non-defensive approaches to life's adversities and individuals' self-concept. Finally, SDT and REBT both value the notion that behaviour change occurs through a process of integration as opposed to compartmentalisation (Davis & Turner, 2020).

In SDT, the maintenance of psychological wellbeing is assumed to occur in a dialectic process between the environment and the human being (Ryan & Deci, 2017). In the current study, it is proposed that when individuals adopt fewer irrational beliefs the human-environment dialectic is enhanced, and the process of organismic integration is facilitated. REBT's GABC (DE) model can be thought of as a model of general human functioning (David, Lynn, & Ellis, 2010). Irrational beliefs are thought to be important causal mechanisms in psychopathology while their alternative, rational beliefs, are important in the promotion of wellbeing due to the functional, healthy, appropriate, yet often negative responses, which arise from them when individuals experience stress. In REBT there is an emphasis on the connection between the critical environmental activating event and the beliefs that individuals hold about such events (David, Freeman, & DiGiuseppe, 2010). Holding fewer irrational beliefs and adopting rational beliefs as an alternative perspective positively impacts psychological wellbeing as individuals experience qualitatively different emotional responses and associated behaviours, such as problem-solving flexibility (DiGiuseppe et al., 2014), thus opening broader communication channels between individuals, the dynamic environment and the adverse events that humans encounter. When individuals hold irrational beliefs, they are not in the most effective position to interact with either the environment or the adversity that they face. For example, a person who exhibits extreme, dogmatic, demands such as "life must be fair" prevents effective, optimal interactions with their unfolding environment and may hinder optimal functioning by adopting debilitating and goal-hindering behaviours such as giving up, or refusing to engage

with goal-directed actions (DiGiuseppe et al., 2014). Under these circumstances, it is less possible for an individual to develop personal competence, exercise autonomy over their endeavours, and meaningfully connect with others.

To further explain, SDT employs the central concept of innate basic psychological needs theory (BPNT; Ryan & Deci, 2017) and the satisfaction of basic psychological needs (BPNs) as a foundation for the integration of developing behaviours. BPNT proposes that satisfaction of three BPNs, autonomy (the experience of behaviour as choiceful and self-endorsed at a high level of reflection, rather than pressured or coerced; de Charms, 1968), competence (the experience of behaviour as effective and masterful; White, 1959), and relatedness (the experience of mutual connection with and care for important others; Baumeister & Leary, 1995). The satisfaction of these BPNs is essential to optimal human development, integrity, and wellbeing. Psychological need satisfaction is a necessary condition for human thriving and flourishing, and need frustration is harmful to wellbeing. SDT assumes that all people are affected by the satisfaction of BPNs and an SDT approach is concerned with the difference in the degree of satisfaction and frustration of these needs (Chen et al., 2015). Of importance for the current study, is that individuals can differ regarding their perception of how salient the satisfaction of BPNs is, or how critically the satisfaction of BPNs is represented in their personal goals and lifestyles. The assumption that, in general, people's feelings, beliefs, motives, goals, and perception of the environment lead to their behaviour (Ryan & Deci, 2008), is a further conceptual similarity between SDT and REBT theory. REBT theory mirrors the view stated above as it is concerned with how individuals perceive events, the content of their goals and how those perceptions and goals impact the quality of resulting emotions, beliefs, motives, and lived experiences (DiGiuseppe et al., 2014).

SDT takes a unique approach to the concept of goal-directed behaviour as it differentiates the content of goals or outcomes and it differentiates the regulatory processes through which goal outcomes are pursued (Deci & Ryan, 2000). This process is outlined by SDT's organismic integration theory (OIT; Deci & Ryan, 1985; Ryan & Connell, 1989) which has already been outlined in chapter one. Relevant to the present study, the direction of movement along the continuum, from less to more self-determined motivation can be captured by using the Self Determination Index (SDI; Gillet, Vallerand, Amourab, & Baldesb, 2010), which is a weighted aggregate of the OIT categories of motivation.

It is of fundamental importance to consider the process of integration when attempting to understand healthy psychological development and the application of effective behaviour change interventions (Ryan & Deci, 2008). But there is little research exploring interventions which may facilitate the integration of new behaviour which reduce stress and impact psychological wellbeing positively, although, it has been proposed that stress appraisals will be shaped by the type of motivation individuals experience during a stressful encounter (Ntoumanis, Edmunds, & Duda, 2009; Amiot et al., 2004; Skinner & Edge, 2002). Specifically, no research has investigated the possible impact that a person's internal belief system (e.g., irrational beliefs) and consequent emotions and actions have on the satisfaction of BPNs and the process of integration.

The OIT and BPNT have been selected as targets for change in the current study in part due to conceptual similarities with REBT (Turner & Davis, 2019). To explain, because irrational beliefs reflect self-pressure (e.g., "I should always succeed") and contingent self-worth (e.g., "I am worthless if I fail"), it is possible to predict that higher irrational beliefs will be associated with lower levels of self-determined motivation, and introjected regulation in particular (see Turner, 2016). When motivation is regulated through introjection the

direction for action is controlled by self-imposed sanctions such as to avoid feelings of guilt or shame or to attain ego enhancement such as pride (Ryan & Deci, 2001). That irrational belief might relate to motivation regulation is especially important in the workplace as more controlling forms of motivation have been found to predict poorer physical and psychological wellbeing, greater health risk behaviours, burnout at work, low organisational commitment, less turnover intention, greater work-family conflict, and overall poorer work performance (Fernet, Guay, & Senecal, 2004; Kuvaas, Buch, Weibel, Dysvik, & Nerstad, 2017; Patrick & William, 2012). In addition, in REBT a client's self-control procedures are developed and refined, and as a result, clients are encouraged to seek and gain greater autonomy over their emotions and behaviours (e.g., Ellis, 1982). There is a conceptual link between the core principles of REBT and the satisfaction of BPNs that promote psychological wellbeing, and the integration of new behaviours into one's identity.

While numerous studies support the role of BPN satisfaction as a central determinant of psychological health (Deci, Olafsen, & Ryan 2017; Gagne & Blanchard, 2007), and conceptual models that link SDT to theories of stress and coping (Ntoumanis, Edmunds, & Duda, 2009), there is little research which has considered the impact of cognitive behavioural interventions on the satisfaction of BPNs and self-determined motivation. Furthermore, research that examines stress as a process that leads to occupational ill health has received minimal attention; although, SDT has been described as a fruitful lens through which stress at work could be viewed (Olafsen, Niemiec, Halvari, Deci, & Williams, 2017).

Research evidence that considers wellbeing from an SDT perspective places the satisfaction or frustration of BPNs as central mediators between stress and wellbeing (Aldrup, Klusmann, & Ludtke, 2017; Deci, Olafsen, & Ryan, 2017). Gillet et al. (2012) investigated the satisfaction and frustration of BPNs of organisational employees and concluded that

satisfaction of the three needs led to greater wellbeing and that frustration of BPNs led to lower wellbeing. In an extensive study of employees, Vander Elst et al. (2012) also found that the frustration of BPNs predicted poorer work-related wellbeing. In organisational research, there is an emphasis on using SDT to guide the creation of policies, practices, and environments that promote wellbeing (Deci, Olafsen, & Ryan, 2017) and less emphasis on how interventions can aid the self-development of need-satisfying perspectives when faced with unchangeable policies, practices and environments. The current study counters this imbalance by emphasizing the latter.

The present study aims to report the effects of REBT on the irrational beliefs, self-determined motivation, satisfaction of BPNs, and endocrinological stress, of senior police personnel. We adopt a within- and between-groups experimental design where changes in target variables at pre- and post-REBT are compared between an intervention group and a control group. To mark endocrinological stress we collect hair cortisol (Rickard & Vella-Brodick, 2013), given that the biological stress response has been defined by the secretion of a range of hormones, of which cortisol is considered the most salient. The measurement of chronic stress via analysis of hair cortisol samples at given time intervals is a reliable biological marker of stress and is an emerging biomarker of chronic stress (Russell, Gideon, Rieder, & Van Uum, 2012). There is some evidence that REBT can influence physiological markers of stress (e.g., blood pressure; Wood, Barker, Turner, & Sheffield, 2018), but researchers are yet to examine the longitudinal effects of REBT on physiological markers of stress such as cortisol.

Cortisol was selected as a marker of stress so that the objective and psychophysiological effects of the REBT intervention could be examined. Changes in cortisol secretion are reliably related to perceived stress (Goldstein, 1995), however, selecting

an objective bio-marker of stress allowed for more experimental control as subjective measures are often criticised for their limitations, e.g. response bias. Cortisol can be measured in several ways, e.g. through blood and saliva sampling, however, hair cortisol provides an assessment of cortisol secretion over time and is therefore thought to be more indicative of the experience of chronic stress (Russell, Koren, Rieder, & Van Uum, 2012). Furthermore, hair cortisol has some pragmatic advantages. For example, fewer samples are required, it is easy to store and is less invasive than taking blood or saliva samples which typically are required daily for a robust measure of chronic stress to be achieved. Less sampling is also less expensive which is also an important pragmatic consideration. Based on existing literature (Burnard, Ralph, Hynd, Hocking Edwards, & Tilbrook, 2016; Dickerson et al., 2004) it is hypothesised that a reduction in hair cortisol will be observed following the REBT intervention, as a reduction in cortisol secretion is associated with reduced activation of the hypothalamo-pituitary-adrenal (HPA) axis in healthy individuals. Having noted this, there are large inter-individual differences in the cortisol response to stress (Pulpulos, Baeken, & De Raedt, 2020) which may indicate that there will be a non-uniform reduction in HPA axis activation. That is, healthy individuals will experience a range of activation levels of the HPA axis in response to adversities. It is, therefore, expected that a reduction from pre to post-intervention in hair cortisol concentration is indicative of a reduction in the experience of stress.

This study expands the extant literature in several ways. First, by reporting the first robust (experimental) study of one-to-one REBT in an occupational setting. Compared to past research, the present study recruits a comparatively large sample of participants and applies a higher dose of REBT than is typically observed. This is important because past REBT studies are limited by their short duration and brief participant contact (Lyons & Woods, 1991). Second, for the first time in research, the effects of REBT on SDT-related variables and hair

cortisol are examined. This builds on some initial evidence from sport literature that REBT can aid SDT outcomes (Turner & Davis, 2019), and that REBT can influence biological stress (Wood et al., 2017). Based on conceptual underpinnings (e.g., Turner, 2016) it was hypothesised that an eight-session one-to-one REBT program would decrease irrational beliefs, increase BPNs and self-determined motivation, and reduce cortisol levels (biological stress) in senior police personnel. It was also hypothesised that participants in the control condition would show no change in target variables.

3.2 Method

3.2.1 Participants

To determine a suitable sample size, we used past research with a similar design (Turner, Slater, & Barker, 2014) as a basis for a prospective power analysis (Clark-Carter, 2004; Evans, 2007). To achieve statistical power (0.8) for between-subjects analyses to detect medium-large effects, a sample of $n = 50$ participants ($n = 25$ per group) was required. Therefore, we recruited 60 members of a United Kingdom County police organisation (24 staff; 36 officers; male = 30; female = 30). With support from senior staff within the police organisation, officers and staff of a senior rank were invited to participate via email correspondence, in which a brief outline of the project was included. Participation was voluntary. Senior personnel were selected via the remit of the organisation. There was an identified need for a stress-management intervention by the organisation that those of Chief Inspector rank and above, including police staff of equivalent rank, would be of particular interest as, currently there were no interventions that targeted this group, while less senior groups were receiving targeted support. Thirteen participants withdrew from the study due to competing time commitments. Therefore, the final sample consisted of 15 staff and 35 officers ($M_{age} = 45.86$ yrs.; $SD_{age} = 5.65$ yrs.; female = 28). Participants were randomly

allocated to two groups using equal allocation systematic randomised sampling, which ensured that each identified demographic subgroup was equally represented (Evans, 2007). The two groups were: experimental group ($N = 24$; $M_{age} = 47.96$ years; $SD = 5.58$ years; female = 13) and control group ($N = 26$; 43.92 years; $SD = 5.09$ years; female = 13). The experimental group received the REBT intervention, and the control group received nothing. Members of the control group were offered the same REBT intervention following a study debrief. Seven participants in the control group opted to receive the same intervention following the study debrief. Ethical approval was granted by a University Ethics Committee and informed consent was gained from participants before all data collection. As the REBT practitioner was a part of the research team, steps were taken to mitigate potential bias in the research procedure. There were no inducements for taking part in the study and participants were informed that their participation was voluntary and that they were free to withdraw from the study without consequence. Psychometric data were collected via online surveys and the research team did not have sight of the research data until the full completion of the intervention and data collection.

3.2.2 Design

We used a between-and within-subjects design to assess pre-intervention to post-intervention changes in our target variables between the two groups (e.g., Cornelisee, Stegaren, & Joels, 2011). After random allocation to the two groups, participants in the experimental group received eight 60-minute one-to-one REBT sessions over the same twelve-week period, whilst participants in the control group received nothing. All participants were psychometrically assessed at the same three time points, using an online survey, on self-reported target variables: irrational beliefs, the satisfaction of basic psychological needs, and self-determined motivation. These time points were pre-intervention, mid-intervention and

post-intervention (immediately following completion of the intervention or at the 12-week time point for the control group). In addition, all participants provided hair samples, to determine cortisol levels, at pre-intervention and post-intervention time points, at two time points only. In addition, fifteen participants in the experimental group completed video diaries throughout the study period to indicate how they felt each week. The remaining participants in the experimental and control group did not feel comfortable recording a video diary and elected to withdraw from this part of the procedure. After the final collection of self-report and cortisol data, social validation was completed with the experimental group, via a short questionnaire at a time point six months following the completion of the intervention to test the long-term impact of the intervention.

3.2.3 Measures

Irrational Beliefs. The irrational performance beliefs inventory (iPBI; Turner et al., 2016) was used in the present study. This inventory has 28 items for which participants are asked to indicate the extent to which they agreed with each of the 28 statements (e.g., I can't stand not reaching my goals) on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate stronger beliefs. The iPBI is currently the only scale that specifically measures performance-related beliefs. The iPBI has indications of good criterion, construct, concurrent and predictive validity in professional working environments (Turner et al., 2016). In the current study, Cronbach's alpha across all three-time points ranged from .87 to .95.

The Satisfaction of Basic Psychological Needs. The basic psychological need satisfaction in general scale (BNSG; Johnston & Finney, 2010) measures the general need satisfaction in one's life (Gagné, 2003). The scale was adapted from a widely used measure of need satisfaction in the workplace (Deci et al., 2001). The scale consists of 21 items (e.g. I do

not feel very competent when I am at work) and 3 subscales that correspond to the degree to which the participant experiences the satisfaction of the need for autonomy, competence, and relatedness. Participants were asked to what extent the scale items were true to them using a 7-point Likert scale ranging from 1 (*not true at all*) to 7 (*very true*). Higher scores indicate greater need satisfaction. The reported internal consistency for the subscale ranges from acceptable to good. As in previous research (Molix & Nichols, 2013), the three correlated subscales were averaged to obtain a single index of general need satisfaction ($\alpha = .74 - .85$).

Occupational Motivation and Self Determination Index. An adapted version of the Sport Motivation Scale (SMS; Pelletier, Tuson, Fortier, Vallerand, Briere, & Blais, 1995) was used to measure the motivation of the participants in their work. The SMS consists of seven subscales of four items each, that measure intrinsic motivation (to know, to accomplish things, and to experience stimulation), extrinsic motivation (identified, introjected, and external), and amotivation. The SMS has adequate psychometric properties including fair levels of construct validity and test-retest reliability. Participants are asked to indicate to what extent each scale item (e.g. I used to have good reasons for doing this job, but now I am asking myself if I should continue doing it) corresponds to the reasons for which they currently perform their work roles. Each item is rated on a 7-point Likert scale between 1 (*does not correspond at all*) and 7 (*corresponds exactly*). Subscales can be used in combination to form a summary score (Otis & Pelletier, 2005). Using procedures outlined by Vallerand (2001) and in line with previous research (Blais, Sabourin, Boucher, & Vallerand, 1990; Grolnick & Ryan, 1987; Senecal et al., 2001) and recent research (Turner & Davis, 2019), a self-determination index (SDI; also known as the Relative Autonomy Index) was calculated (e.g., Gillet, Vallerand, Amourab, & Baldesb, 2010). Higher SDI scores reflect greater self-determined (or autonomous) motivation and a lower score represents less self-

determined (more controlling) motivation. Cronbach's alpha across all three-time points ranged between .89 to .92.

Stress. Hair samples taken from the scalp were used to extract cortisol as an objective biomarker of chronic stress (Manenschijn, Koper, Lamberts, & Rossum, 2011). Hair cortisol, in contrast to saliva and urine cortisol, enables longitudinal monitoring of stress suitable for assessing stress management strategies (Russell, Koren, Rieder, & Van Uum, 2012).

Following previous research (Kirschbaum, Tietze, Skoluda, & Dettenborn, 2009), participant hair strands were cut with scissors as close to the scalp as possible at a posterior vertex position. The size of the strand was selected to provide a minimum of 50mg of hair for a 3cm segment. To extract cortisol from hair, hair samples were sent to the Biomarker Analysis Laboratory at Anglia Ruskin University. Extraction procedures are in line with those published in previous research (Davenport, Tiefenbacher, Lutz, Novak, & Meyer, 2006).

Social Validation. The current study can be viewed as a series of single-cases, therefore social validation has been undertaken at the end of procedures to supplement statistical data (Page & Thelwell, 2013; Deen, Turner, & Wong, 2017). It has been argued that statistics alone do not fully detail the efficacy of interventions, and social validation can reveal details of socially important outcomes of interventions and intervention procedures (Page & Thelwell, 2013; Kazdin, 1982). Social validation procedures were used to determine whether the participants' behaviour and responses, during the intervention and at 6 months following the intervention, were changed (Kazdin, 1977). Participants were asked to respond anonymously to a post-intervention social validation questionnaire. The questionnaire was emailed to the participants in the experimental group six months following the completion of the intervention phase. The aim of the questionnaire was to establish the practical (applied) effectiveness of the intervention (Mellalieu, Hanton, & Thomas, 2009) and its ongoing

impact (Richardson & Rothstein, 2008). The protocol followed was in-line with previous work (Mellalieu et al., 2009) where a short questionnaire consisting of four Likert-response questions and one open-ended question was used. Social validation questions were systematic, concise, based on a single item, and unambiguous (Shaw & Wright, 1967). The questions addressed the three areas of social validity identified as the social significance of the goals, the social appropriateness of the procedures, and the social importance of the effects (McCarthy, Barker, Jones, & Moran, 2011). Open-ended questions were collated, and themes were deducted by following the guidelines of thematic analysis (Braun & Clarke, 2006). A deductive approach was chosen due to the specificity of the research questions presented. The collected data was read and re-read, so that familiarity with the content was achieved, after which coding and theme development were directed by the existing theory of REBT, stress, and the satisfaction of basic psychological needs (e.g., Deen, Turner, & Wong, 2017).

3.2.4 Intervention Procedure

The REBT intervention was delivered by a qualified REBT practitioner (Advanced Certificate Practicum), to the participants in the experimental group over a concurrent 12-week period. All one-to-one sessions were conducted in a private meeting room within the police organisation's headquarters and lasted approximately 60 minutes. Each participant in the experimental group received 8 individual sessions, equating to 200 hours in total. The intervention followed guidelines of previous similar research (see Turner, 2016, for a review), and was also in line with typical REBT procedures (Dryden, 2009). The intervention included teaching REBTs GABCDE model (G= Goals; A = activating event; B = belief system; C = cognitive, emotional and behavioural Consequences; D = disputes or discussions to reveal engagement of the irrational belief system; E = presentation of rational and effective

new beliefs and their resulting consequences; Ellis & Dryden, 1997). As is usual in REBT, participants identified the goal of each session and collaboratively worked with the practitioner in the assignment of homework tasks (Digiuseppe et al., 2014). In sessions, the practitioner and participant explored the participant's current work performance and general wellbeing to promote greater attainment of goals and wellbeing.

3.2.5 Analytic Strategy

Before main analyses, data were screened for missing data, normality, and outliers. For self-report data, Shapiro-Wilks tests were performed, and if the presence of significant ($p < .05$) outliers were indicated, then z scores for significant outliers were assessed. Data-points with z scores greater than two were winsorized ($n = 30$). For hair cortisol, data were significantly positively skewed and kurtosis (Skewness = 9.85; Kurtosis: Time 1 = 17.87, Time 2 = 17.00) contained significant outliers. Indeed, the hair cortisol concentration obtained from the participants ranged from 1.39 pg/mg to 184.02 pg/mg. Therefore, log₁₀ transformation was applied, and data above $-2/2$ SDs were winsorized ($n = 1$ for Time 1 and $n = 1$ for Time 2). After log₁₀ transformation, data were less skewed and kurtosis (Skewness: Time 1 = 3.03, Time 2 = 3.05; Kurtosis: Time 1 = 2.97, Time 2 = 3.27).

Main data analyses were completed in two stages. First, to assess changes in each dependant variable (DV) across the three time-points (within-subjects independent variable), between experimental and control conditions (between-subjects independent variable), three separate mixed-methods MANOVA's were conducted for irrational beliefs, the satisfaction of basic psychological needs, and self-determined motivation index (SDI). For hair cortisol, a mixed-methods MANOVA was conducted across two time-points (time-point 1 and time-point 3). Second, pairwise comparisons were conducted across time points within each condition for all DVs. A probability alpha value of $p < .05$ was considered statistically

significant, and small (.01), medium (.06), and large (.14) effect sizes were determined using partial eta squared (η^2 ; Cohen, 1988).

3.3 Results

3.3.1 Change over time

Irrational beliefs. For irrational beliefs, the mixed-methods MANOVA revealed a significant large ($\eta^2 = .23$) interactive effect for time*group, Wilks Lambda = .77, $F(2,42) = 6.12$, $p = .005$. Pairwise comparisons for the REBT condition across the three-time points revealed that there was a significant ($p < .001$) decrease between time 1 ($M = 92.96$, $SD = 9.04$) and time 2 ($M = 79.85$, $SD = 10.99$), a significant ($p = .001$) decrease between time 2 and time 3 ($M = 72.88$, $SD = 16.53$), and a significant ($p < .001$) decrease between time 1 and time 3. Pairwise comparisons for the control group from time 1 ($M = 92.45$, $SD = 2.55$) to time 2 ($M = 90.45$, $SD = 2.41$) and to time 3 ($M = 87.36$, $SD = 2.86$) revealed no significant differences.

Self Determination Index. For self-determined motivation, the mixed-methods ANOVA revealed a non-significant medium-large ($\eta^2 = .08$) main effect for time*group, Wilks Lambda = .919, $F(2, 42) = 1.039$, $p = .169$. Pairwise comparisons revealed that there were no significant differences between any of the time points in the REBT group or the control group.

Basic Psychological Needs. For the satisfaction of BPNs the mixed-methods ANOVA revealed a significant large ($\eta^2 = .19$) interactive effect for time*group, Wilks Lambda = .089, $F(2, 44) = 1.516$, $p = .009$. Pairwise comparisons for the REBT group revealed that there was a significant increase ($p = .025$) from time 1 ($M = 32.27$, $SD = 4.00$) to time 3 ($M = 34.21$, $SD = 3.43$). There were no significant differences between any of the

other time points. Pairwise comparisons for the control condition revealed that there was no significant difference from time 1 ($M = 31.91$, $SD = 3.39$) to time 2 ($M = 30.05$, $SD = 5.03$) to time 3 ($M = 31.05$, $SD = 3.46$). See supplementary material for individual BPNs analysis.

Hair Cortisol Concentrations. For hair cortisol, the mixed-methods ANOVA revealed a non-significant small ($\eta^2 = .01$) interactive effect for time*group, Wilks Lambda = .990, $F(1, 48) = .499$, $p = .483$. There were no significant differences between Time 1 and Time 3 in the REBT group or the control group.

In summary, data analyses indicate that participants in the REBT group reported significant reductions in irrational beliefs and significant increases in the satisfaction of BPNs from pre- to post-intervention. There were no statistically significant changes in self-determined motivation and hair cortisol concentration. See table A4.1 for a summary of changes in dependent variables across time and between groups.

3.3.2 Social Validation.

Seventeen participants reported that the intervention was both satisfactory and effective. Participants indicated that the performance components that they selected were meaningful to them ($M = 6.12$, $SD = .97$, Range = 2.00), and that any changes that had occurred following the intervention were significant in their lives ($M = 5.69$, $SD = 1.06$, Range = 4.00). Also, participants reported that these changes have been significant to other people in their lives, such as work colleagues, team members, and/or family members ($M = 5.06$, $SD = 1.30$, Range = 5.00). Participants reported satisfaction with the intervention ($M = 6.35$, $SD = .10$, Range = 4.00) and indicated that the delivery of the intervention was practical and acceptable ($M = 6.35$, $SD = .61$, Range = 2.00). There was also strong agreement that the intervention was useful to participants ($M = 6.47$, $SD = 1.01$; Range = 4.00). But there was less agreement that others had commented on significant changes to participants'

performance following the program ($M = 4.18$, $SD = 1.74$, $Range = 5.00$). This score was lower than other social validation scores, possibly because the behavioural consequences of the cognitive shifts reported by participants may not have been overt enough for others to notice. Perhaps participants' emotional changes were more salient to them, which are of course experienced more privately. Finally, participants agreed that they had a good understanding of the REBT (GABCDE) framework ($M = 5.59$, $SD = 1.42$, $Range = 5.00$).

Qualitative data were thematically analysed following relevant guidelines (Braun & Clarke, 2006). Five themes and eleven sub-themes were collated (Table A4.2) from the social validation data, which are presented below with examples. The first theme centred on 'decreases in irrational thinking' and increases in rational beliefs, with seven participants articulating that the intervention helped them to adopt an alternative perspective e.g., participant seventeen "It gave me the understanding to see things and think things through differently" and greater clarity of thought e.g., participant three "It enabled me to think more clearly, become more balanced and measured in my assessment of what is going right and wrong in my approach to work".

The second theme centred on the articulation of 'reductions in stress'. A sub-theme of "experiencing pressure without stress" demonstrated that while external events are unchanged, the intervention provided an opportunity to experience stress differently and more helpfully, e.g., participant five "I was able to make sense of how I was feeling and recognise what a difficult period I had been through and this enabled me to ensure I was proportionate in my response to myself". The second sub-theme highlights that the intervention provided strategies for enhancing participants' ability to cope, e.g., participant six "I feel I have the tools to help me diffuse that more effectively, limiting the impact" and

participant seven “The experience was a little relief for a new tool kit and way of working in an otherwise overwhelming world where we are just coping and not improving”.

The third theme centres on ‘increased psychological wellbeing’ and participant six reported that they “recognise how valuable it has been to my wellbeing”. Sub-themes demonstrate the impact that the intervention had on the satisfaction of each of the three basic psychological needs, e.g., for autonomy satisfaction, participant six stated “Once the [intervention] had finished I felt far more in control of my life and career”, for relatedness satisfaction, participant ten stated “I realised everyone had been in the same boat at one time or another”, and for competence satisfaction participant sixteen stated, “This course gave me the confidence to confront my fears, my lack of confidence in my abilities and what I needed to do to improve my performance and abilities”.

The fourth theme of ‘psychological consequences’ further demonstrates the experimental group's emotional and motivational responses to the intervention. In terms of emotion, participants reported a range of positive emotional states, e.g., participant three stated that they felt “exhilarated, reflective and ambitious” participant one stated that they felt “positive, good to be challenged and supported” and participant nine commented that they were “able to let certain issues go more easily”. In terms of motivation, participants reported that as a result of the intervention they were “empowered” as stated by participant nine and “motivated to do [their] job”, as stated by participant five.

For the final theme of ‘client experience’, participants reported that the intervention was useful and practical, e.g., participant seven stated that the intervention was “probably the most useful and practical development experience of my career” and “the practical element and philosophical approach, for me, had great application to the police and like services”. The participants also gave some suggestions for the enhancement of the intervention, e.g.,

participant three stated “It took me a session or two to work out what they were really about and how they could help. That may be a reflection on working for the police where we are used to very tactical and transactional conversations” participant seven stated “I do think you need to feel the flames of not coping or not achieving to try this. It just makes sense, but you do need your examples to work through and apply the framework”.

3.4 Discussion

The aim of this study was to examine the effects of an REBT intervention on the irrational beliefs, self-determined motivation, satisfaction of BPNs, and stress as measured via hair cortisol, of senior police personnel. It was hypothesised that the REBT intervention would decrease irrational beliefs and stress and increase self-determined motivation and basic psychological need satisfaction.

In line with the hypotheses, data indicated that irrational beliefs reduced significantly in the experimental group compared with no significant changes in the control group. The reduction in irrational beliefs is in-line with previous researchers applying REBT-based interventions across sport (e.g., Turner & Davis, 2019), business (Turner & Barker, 2015), and exercise settings (Outar, Turner, Wood, & Lowry, 2017). Given that a chief goal of REBT is to reduce irrational beliefs, our data is unsurprising but reflects the first indication that REBT, as applied in a police context, has comparable effects on irrational beliefs as found in many samples (see David, Cotet, Matu, Mogoase, & Simona, 2018). In sum, the reductions in irrational beliefs reported in our study echo the vast corpus of the extant literature.

Also, as hypothesised, there was a significant increase in the perceived satisfaction of BPNs (autonomy, competence, and relatedness) for those in the experimental group. Indeed,

this study is the first to demonstrate the effects of REBT on the satisfaction of BPNs and is the first evidence that there may be an association between irrational beliefs and the satisfaction of BPNs. To explain, the main purpose of REBT was to target and reduce irrational beliefs and so the satisfaction of BPNs was not explicitly addressed in the intervention. However, the REBT intervention may have caused a shift in an individual's perception of the locus of causality of emotional responses, enabling individuals to take responsibility for their emotional experiences and act constructively to negotiate adverse events (Palmer & Dryden, 1993). For example, it is common for individuals to believe that their emotional responses are the sole result of the adverse events which befall them, rather than resulting from the perception they autonomously choose to take of the event. This heightened perception of autonomy satisfaction speaks to an association between one of the core processes of REBT and perceptions of autonomy satisfaction. That is since participants are encouraged to take responsibility for their thoughts and beliefs and to learn to challenge these thoughts and beliefs independently, it is possible that they feel greater autonomy and satisfaction when they experience emotions and behaviours (Ryan & Deci, 2008). Further, at the core of REBT is the idea that people can choose their beliefs, and this notion of choice is at the core of autonomy satisfaction (Deci & Ryan, 2000). These theoretical contentions are supported by post-intervention comments made by several participants. To illustrate, participants became aware and could accept that they could be the source of their stress and were "inflicting stress" on themselves and then were able to decide on how they responded to their performance by being "proportionate" in their response to themselves.

Increases in a person's perspective of their competence could be viewed more optimally by holding a rational mindset. It is possible and was demonstrated with the social validation data that a rational approach helped participants to develop new skills and professional relationships, this, in turn, had a positive impact on their perception of

competence satisfaction. Furthermore, holding a rational perspective enabled participants to demonstrate their capabilities in what were personally high-risk situations, such as speaking up at meetings or facing challenging conversations. In support of this contention Ellis (1978) teaches executive leaders to use a rational approach to improve professional relationships and previous research has supported REBT as a means of managing social anxiety (Turner, Ewen, & Barker, 2018).

There was a positive effect on co-worker relationships following the intervention. Rational philosophy holds as one of its core beliefs the concepts of unconditional self, other, and life acceptance (Diguseppe et al., 2014). Therefore, it is logical that unconditional acceptance underpins relatedness satisfaction. Indeed, Ellis (1962) started his psychotherapeutic career as a relationship psychologist but concluded that the foundation of effective relationships was an individual's acceptance of beliefs both of oneself and others.

Despite the theoretical overlaps between irrational beliefs and OIT (Turner, 2016), the results of the current study indicate no significant increases in self-determined motivation from pre-REBT to post-REBT. There are several explanations for this. First, unlike in previous research (e.g., Davis & Turner, 2020), the SDI did not form part of our pre-screening for the study. Therefore, low participant SDI was not necessary for inclusion in the study. It could be that the small but not statistically significant increases observed in SDI in the current study reflect a sample who are already high in self-determined motivation. Second, it is of course possible that irrational beliefs and self-determined motivation are not associated, since a reduction in irrational beliefs would presumably be accompanied by increases in SDI scores. Finally, the lack of statistically significant increases in SDI scores may be linked to the psychometric properties of the index. Self-determined motivation is a complex construct made up of a range of regulation types. Readers should be aware that the

appropriateness of calculating the SDI has been questioned on conceptual and statistical grounds in SDT literature (e.g., Chemolli & Gagné, 2014). Readers should view these results with caution and future research should explore the links between REBT and SDI scores in more detail.

Concerning stress, inferential statistics indicate that hair cortisol concentrations remained stable for both the experimental and control groups. Descriptive data did, however, indicate that the intervention influenced the cortisol concentration of those in the experimental group, who showed a small reduction. Specifically, hair cortisol concentrations decreased in most of the experimental group participants ($n = 17$), compared to the control group ($n = 9$). The practical and subjective impact, as opposed to the statistical significance, for those participants who did demonstrate reductions in hair cortisol concentrations is potentially important, given that higher cortisol is related to poorer health outcomes. When individual data is considered, in line with single-case analyses, alongside inferential statistics, it is possible to understand the idiographic effects of the REBT intervention on hair cortisol concentrations. Indeed, there are current debates in applied psychology which highlight an over-reliance on inferential statistics (Fricker, Burke, Han, & Woodall, 2019). The current study is an example of where a broader evaluation of results, which can often be considered subordinate to p -value, is needed (McShane, Gal, Gelman, Robert, & Tackett, 2019).

Despite the reduction in cortisol concentration for seventeen participants, the sample size was limited due to the expense of processing hair cortisol leaving the analyses underpowered. Due to the small sample sizes inherent in intervention studies, it is not clear whether measuring stress by evaluating hair cortisol concentration is the most suitable method for indicating biological stress change. For example, there was a range in hair cortisol concentration from 1.83 pg/mg to 184.02 pg/mg at time point one, and from 1.39 pg/mg to

151.48 pg/mg at time point two. This variation makes the data difficult to evaluate using standard statistical tests. There are limited studies demonstrating a change in hair cortisol concentration following stressful events. The intervention studies that have been conducted focus on extreme stress responses (e.g., Feng et al., 2011) or participants have been pre-screened for stress (Goldberg et al., 2014). Also, there is a variation in the way in which chronic stress is measured via hair cortisol concentration with some studies evaluating a 3cm hair sample length, as in the current study, compared with a 1 cm hair sample length in others (e.g., Goldberg et al., 2014). Future researchers could address these limitations in several ways. They could base study participant selection on hair cortisol levels, ensuring that only those with higher hair cortisol concentrations were participating. Additionally, they could measure salivary or blood cortisol at regular intervals to observe and report on acute changes in stress giving a clearer picture of the overall stress response (Russell, Koren, Rieder, & Van Uum, 2012). Alternatively, the addition of a subjective measure of stress may be useful as there are debates within the literature regarding inferences of stress made with objective measures when participants do not report experiencing it (Panari, Guglielmi, Ricci, Tabanelli, & Violante, 2012). In the case of predicting the impact that CBT interventions have on stress, objective measures such as hair cortisol concentration may fail to capture the extent to which individuals experience stress (Muckler & Seven, 1992). Objective measures of stress reflect what is happening biologically and fail to capture coping, the resources used while coping, the resources still in reserve, personal experience, and levels of motivation. Subjective ratings also consider individual differences in ability, state, and attitude. Such differences are not captured by objective measures, giving subjective measures some important advantages, whilst also suffering the limitation of potential response bias.

In further relation to stress, some of the findings of the current study are not in line with the extant literature. Specifically, a meta-review presented by Joyce et al. (2016)

concluded that CBT-based stress management interventions have a significant and positive impact on stress, however, the studies included in Joyce et al. (2016) used only subjective measures of stress which may respond differently to CBT interventions using objective markers. In the current study, there were no statistically significant improvements in objective markers of stress. The lack of statistical significance could be explained in several ways, for example, objective markers of stress do not capture the subjective stress experience, also the variability of the objective marker used in the current study may have hindered the analysis of the data, as noted above. It would be advantageous to continue to use psychophysiological markers of stress so that comparisons can be made to other, non-psychological, stress reduction strategies, such as physical activity interventions (Richardson & Rothstein, 2008). So, comparing the current findings to research which relies upon subjective stress markers, such as the literature covered in Joyce et al. (2016) is problematic. In contrast, the meta-review reports findings which *are* consistent with the current study in relation to counselling interventions. To be clear, the one-to-one REBT intervention conducted in the current study can be thought of as a hybrid of both counselling interventions and stress management interventions. Joyce et al. (2016) report limited evidence for the effects of counselling interventions on reducing the symptoms of stress echoed by the findings of the current study. McLeod and McLeod (2001) found a small yet positive impact on work-related outcomes such as job commitment, work functioning, and job satisfaction for counselling approaches. These work-related outcomes are kin to the satisfaction of BPNs in the current study. Both McLeod and McLeod (2001) and the current study demonstrate increases in these work-related outcomes.

In addition, an increased sample size would be desirable, but the intervention elements at the core of the study would be compromised. Given the nature of the study, with its requirement for cortisol collection and analyses and the use of one-to-one sessions, the

financial and time investment from the policing organisation was already large, and a bigger sample size would have been disagreeable.

The present study has some additional limitations that if addressed, would strengthen the work. For example, data collection occurred at three main time-points, but continuous (daily, weekly) data collection would also add to our understanding of when and how change occurs. There is of course an ethical balance between the burden placed on participants in a stress-related research project and the amount of data that is reasonable to collect. Adding daily or weekly measures to an already complex protocol could affect participant motivation and result in greater participant drop-out. In the present study, the effects of REBT have been compared to the absence of an intervention. Such is the growing burden on resources within public services, the participating police constabulary could simply not have resourced an attention placebo, as well as an REBT programme. Since there is an ethical requirement to inform participants about the study design and to describe the intervention conditions under experimentation (Popp & Schneider, 2015), an attention-placebo condition was less desirable and ethically not justifiable for this sample, because of the pressures under which the police perform their roles. Future research could compare REBT to an attention-placebo condition or alternative interventions (e.g., Turner, Slater, & Barker, 2015) such as relaxation, as this could strengthen the argument for applying an REBT approach as opposed to simply receiving an intervention. The addition of an attention-placebo condition is desirable so that the specific effects of the psychological intervention can be examined with high internal validity (Vickers & Craen, 2000). An attention-placebo condition, or alternative intervention, would allow for the assessment of the stability of the intervention effect since a placebo or alternative intervention is less likely to produce stable reductions in dependant variables (Vickers & Craen, 2000). The need for an attention placebo would also help to account for socially desirable self-report responses in the treatment condition. That is if both groups

received some meaningful interaction with the practitioner, then reporting changes in target variables in the treatment condition over and above the attention placebo condition would strengthen the conclusions that the intervention worked through targeted mechanisms (e.g., irrational beliefs) over and above the working alliance. Future research could employ a more tightly controlled laboratory protocol to experimentally examine the effects of REBT protocols compared to an attention placebo condition.

The lack of statistical significance may also be an important indication for us to explore. What is apparent is that there is no worsening of motivation or satisfaction of BPNs, and cortisol levels did not spike because of the intervention, but, an important observation to make is that many of the participants were able to put themselves into situations in which they would have previously not been able to do. The social validation data suggests that participants could develop new skills and take more interpersonal risks following the intervention. Such an increase in facing stressful situations could arguably cause a drop in BPNs, and the intervention likely provided the participants with the psychological ability to face their fears and challenges.

The current study offers various valuable applied insights due to its use of one-to-one intervention support. Practitioners are often prepared to receive cynical and pessimistic participant groups displaying some resistance in terms of engaging with the intervention (Turner & Barker, 2014). The simplicity of the GABCDE model aided in the rapport-building process as participants could very quickly see the use and application of the model and the practitioner in this instance did not experience such resistance. In a transactional command environment such as policing, the REBT model may lend itself to the prevalent leadership style present in police culture. In addition, seven participants became visibly emotional during sessions, and it was necessary to ensure that the sessions were conducted in a private

space. Participants felt safe in the sharing of information once there was a clear understanding of the limits of confidentiality under which sessions fell. It was important at key points to remind participants of this, specifically when they appeared to be at a point of conflict about what was an honest reflection and what they felt was appropriate to share. It may be important to give more information about what participants can expect in sessions. For example, there may be a need for an orientation session which specifically explains how the intervention works or how change comes about when applying the REBT intervention so that participants know, to some degree, what to expect. It is important that clients understand the extent to which REBT can support them as well as the vital importance of their role and actions in the process of change (MacAskill, 1995).

After the completion of the current study, a recent piece of research emerged that is highly relevant to the discussion. Onyishi et al. (2021) conducted an REBT-based intervention with police officers and staff in Nigeria, demonstrating positive effects on subjective wellbeing. Considering the findings of both the present study and Onyishi et al., there is a rationale for further integration of REBT interventions into police settings. REBT could be used efficiently across large groups using educational workshops (Turner & Barker, 2015), Rational Emotive Education programs (REE; Knaus, 1977), online coaching (David, Predatu, & Cardos, 2018), and one-to-one REBT as is reported in this study. Further testing of the intervention is required which addresses the limitations of the current study, such as the use of police-specific measures of target variables, and a more detailed idiographic approach to data analysis to examine the details of the content of one-to-one sessions and how those subtleties impact intervention process and outcomes. Finally, programs which focus on developing REBT skills within leadership development programs, or wellbeing “champion” roles within policing, may broaden the positive impact that applying REBT has.

3.5 Conclusion

The current study adds to the extant literature by demonstrating that REBT can impact positively on psychological wellbeing through the support of basic psychological needs. The study also addresses limitations found in previous research (Richardson & Rothstein, 2008) and in psychology research in general (Normand, 2016). Specifically, it addresses calls for stress management intervention studies which incorporate random assignment to treatment and control groups, reports on the long-term effect of the intervention through means of social validation data, and reports the results of all the outcomes measures, regardless of statistical significance and so revealing the complexity of the subject. The aim of many stress management interventions is to reduce the symptoms of stress, anxiety, low mood, or other difficulties (Joyce et al., 2016) but they do not further promote the development of psychological health. Meanwhile, increasing evidence supports the health-protective features of psychological wellbeing in reducing the risk of ill health and promoting length of life (Ryan & Deci, 2017). The concept of psychological wellbeing goes beyond the absence of psychological ill-health and promotes quality of life; positive affect and optimal functioning (Ryan & Deci, 2017). Focusing the goal of stress management interventions on a more positive and holistic sense of wellbeing (including rational beliefs and motivation) could be advantageous as this may promote personal development and could have a positive impact on human functioning and performance.

This chapter provides insight into the application of REBT in a police force setting and has also demonstrated some contradictions in terms of intervention effects. Specifically, there is a contrast between the findings in terms of the levels of assumed intervention effectiveness when the data are observed from a traditional group quantitative statistical analysis perspective and qualitatively when assessing the social validation perspective. In the

next chapter, a single-case experimental research design is adopted to assess the intervention effects to allow for further understanding of the application of the REBT intervention and to explore the reasons for variations in intervention effects in more detail.

**CHAPTER 4: OF COURSE I MUST! PEOPLE COULD DIE IF I DON'T:
EXAMINING THE USE OF RATIONAL EMOTIVE BEHAVIOUR THERAPY
WITH FIVE POLICE SENIOR LEADERS USING AN IDIOGRAPHIC SINGLE-
CASE EXPERIMENTAL DESIGN.**

4.1 Introduction

Chapter three of the current thesis presented an REBT coaching intervention that examined levels of irrational performance beliefs, objective stress, basic psychological need satisfaction, and motivation regulation in a sample of police senior leaders. A sample of 50 police senior leaders participated with the experimental group receiving 8 x 1-hour weekly sessions of one-to-one REBT coaching. Results demonstrated significant reductions in IBs, significant increases in self-determined motivation, and BPN satisfaction but no significant reductions in stress as measured by evaluating hair cortisol concentration. Social validation data, however, revealed a positive change in the participants who received the intervention which indicated a practical significance of the intervention outcomes along with the lack of scientific significance in terms of objective stress markers. This chapter examines a selection of cases represented in chapter three more closely using an idiographic single-case experimental design to understand the contrasting findings from the group-level statistical analysis. This chapter contributes over and above the group-based study described in chapter three as it allows for the variation and nuance of the individual cases to be explored and demonstrates that while a level of control can be accomplished in applied group-based intervention research an individual's interaction with their environment is unique and complex. Individual differences render group-based analysis alone an incomplete approach to the assessment of the effectiveness of stress and motivation interventions. An ideographic

approach can offer more direction in terms of how stress and motivation interventions are applied.

As noted in chapter one, stress and psychological wellbeing are emerging concerns in policing (Queiros et al., 2020) and there is a growing call for evidence-based interventions which are both efficient and effective in police settings (Patterson, Chung, & Swan, 2014). Stress is experienced when there is a physical or psycho-social threat to an individual's adaptive maintenance of the complex and dynamic equilibrium of biological processes within the human body, which is continuously responding to internal (e.g., a virus) or external factors (e.g., a violent attack; Chorus, 2009). The stress system exerts its effects in an inverted U-shaped dose-response curve where suboptimal effects at either extremity of the curve can lead to insufficient adaptation. When stressful factors are encountered neural and neuroendocrine pathways are activated therefore glucocorticoids are frequently used as stress biomarkers (Iglesias et al., 2015). In humans, cortisol is the most common glucocorticoid and its production increases in response to the perception of stressors (Michaud, Matheson, Kelly, & Anisman, 2008). Analysis of cortisol concentration in hair is a means of capturing systemic cortisol production over longer periods (Russell, Koren, Rieder, & Van Uum, 2011) and has emerged as a reliable, non-invasive biomarker of chronic stress (Iglesias, 2015). As police personnel are thought to experience ongoing exposure to potential stressors, assessing and managing chronic stress is important because, as noted in chapter one, it has a well-documented impact on health (McEwen, 2016). Police work involves confronting potential stressors regularly such as risks to police officers, police organisations, and people in the community; poor public opinion; long working hours; dealing with mentally ill members of the community; dealing with community disturbances such as riots; and dealing with natural disasters (Burke, 2017).

One factor that might exacerbate stress is the quality and quantity of one's motivation, because it may influence functional or dysfunctional psycho-social adaptation that takes place when faced with stressors (Weinstein, Farah, & Nicole, 2016). Poor motivation and poor psychological health are detrimental both to employees' quality of life and organisational performance (Manganelli, Thibault-Landry, Forest, & Carpentier, 2018). It is thought that police employees may be particularly at risk of loss of motivation and deterioration in psychological wellbeing due to the nature of the demands of their roles (Anderson et al., 2002) and that the complex and dynamic service expectations of policing can impact the maintenance of motivation and psychological wellbeing of officers and staff (Gillet, Huart, Colombat, & Fouquereau, 2013).

There is some initial support for the positive impact of REBT on motivation and psychological wellbeing in policing. A significant improvement was found in the subjective wellbeing scores of Nigerian Police officers after receiving a structured group intervention grounded in REBT (Onyishi et al., 2021). While motivation was not a directed target of the study the researchers reported that through increases in subjective wellbeing, improved motivation can be inferred. In chapters two and three, studies are presented which are thought to be the first to directly investigate the association of irrational beliefs and motivation dynamics in policing. Understanding motivation dynamics more fully may provide a deeper understanding of the relationship between irrational beliefs and functional or dysfunctional outcomes and in sport, researchers have begun to address this question (Chrysidis, Turner, & Wood, 2020; Davis & Turner, 2020; Turner & Davis, 2019; Wood, Mack, & Turner, 2020). Reducing irrational beliefs is one mechanism through which improved mental and physical health can be achieved (Turner et al., 2022) and through the application of REBT, individuals can experience increases in functional motivation (Davis & Turner, 2020).

Contemporary stress theory posits that there is a pivotal psychological element within the stress response mechanism such that the meaning attributed to events can ameliorate or exacerbate the stress response (Lazarus, 1966; Lazarus & Folkman, 1984). Indeed, events that are appraised as personally relevant to the individual provide the foundations for stress response, and as such, situations that speak to one's motives are subject to stress (Lazarus, 1999). While there is a continued concern with the external events that individuals attempt to process in a complex police environment there is also a continued lack of focus on recognising the psychological mechanisms which may support or hinder effective responses to the demands of a policing environment.

As noted in chapters one and three, one way of managing stress, motivation, and psychological wellbeing is through the application of cognitive behavioural strategies. While supporting evidence for the application of cognitive behavioural strategies to manage psychological health in policing is sparse, in a recent review these approaches appeared to be effective (Joyce et al., 2016). One such strategy is Rational Emotive Behavioural Therapy; (REBT; Ellis, 1956). There is some support for the application of REBT in policing (Papazoglou & Anderson, 2014; Dick, 2000; Nwokeoma et al., 2019; Onyishi et al., 2021). Disputing irrational beliefs has been highlighted as an important element in the ongoing promotion of resilience and improved health outcomes in police officers (Papazoglou & Anderson, 2014). In an early exploration of police officers' engagement in a stress counselling service, REBT was used as an analytical tool through which the construction of the meaning of acute stressors in policing was made (Dick, 2000). While the author reported using a detailed and idiographic approach, REBT as an intervention was not the subject of the research, rather the focus of the study was how the meaning individuals assigned to events was influenced by police culture. Having noted this, both the importance of the role of meaning in the experience of work-related stress and the subtle, idiographic, and complex

nature of an individual's experience of stress is recognised within the study. Within the study, cross-sectional and self-report methodologies were highlighted as an inadequate means of fully understanding the stress experience and building theory. The use of a qualitative template analysis did not capture the complex nature of the beliefs associated with stress in the study. Field notes were used to create illustrative idiographic accounts which represent the meaning associated with the stress response and provide an indication of how irrational beliefs about specific activating events in the police environment could contribute to the stress response. To date, research indicates that REBT can be effective in supporting the psychological wellbeing of police officers, therefore, this chapter aims to explore the mechanisms through which this might occur at an idiographic level.

The effectiveness of REBT in policing has recently begun to be examined through intervention studies. In an REBT-informed occupational stress management intervention, Nwokeoma et al. (2019) found a significant reduction of stress in police officers post 3 months. REBT appears to have a positive impact on the participants and the evidence is promising support for the efficacy of REBT in the police context. There is, however, no reporting on the detailed application of the intervention, indeed, it is not clear if participants received a group intervention or an individual intervention. One can only infer that a group psychoeducational program was conducted and so there is little clear understanding of the change mechanism that resulted in the reported positive impact on stress levels.

The effectiveness of an REBT occupational health coaching intervention has also been investigated in terms of enhancing the subjective wellbeing of police officers in Nigeria (Onyishi et al., 2021). A sample of 153 police officers took part in the study with the experimental group (n=76) receiving two-hour group REBT sessions once a week for 16 weeks. While the authors note that the reduction of IBs was the primary aim of the

intervention, no assessment was made of IBs and so it is difficult to infer with certainty that this is what may have been a causal factor in improvements in subjective wellbeing. Also, the study does not focus on stress specifically but is focused on improvements in subjective wellbeing therefore understanding the impact of the stress response in this study is a challenge. The authors provide a detailed summary of the generic intervention program but offer no practical implications and future directions because of their findings. What is clear is that the REBT intervention had a significant positive impact on subjective wellbeing and perceived workability. While a participant evaluation was conducted it is not reported in their findings. Such evaluative data is an important element of intervention research so that both the scientific and practical significance of the findings can be examined in detail (Hrycaiko & Martin, 1996).

In another emergency service profession, the fire service, a recent study explored the effects of an REBT intervention on resilience, chronic stress, emotional distress and presenteeism in fire service personnel (Wood, Wilkinson, Turner, Haslam, & Barker, 2021). Wood et al. (2021) reported similar findings to those reported in chapter three, there were significant reductions in irrational performance beliefs, and yet a lack of statistically significant change in the remaining variables. Upon closer inspection of the data, increases in resilience measures and decreases in stress were observed. These findings indicate that traditional group designs offer a broader opportunity than reporting group-level results and that taking an idiographic single-case approach to the analysis of findings can offer further insight into the possible multi-faceted complex nature of psychological interventions.

The aim of the current study is to examine the effectiveness of an REBT intervention on psychophysiological stress (as measured by hair cortisol concentration levels) and psychological wellbeing (as assessed through examining changes in the satisfaction of basic

psychological needs and self-determined motivation) at an idiographic level of analysis. In conducting the intervention, it is an objective to go beyond stress management and promote enhanced wellbeing, therefore, in the current study, psychological wellbeing is conceptualised within the humanistic framework of self-determination theory (SDT; Ryan & Deci, 2000). SDT proposes that satisfaction of a set of innate basic psychological needs of autonomy, competence, and relatedness (BPNs; Ryan & Deci, 2017) is required for human thriving. The process of need satisfaction is thought to occur through the interaction one has with their social environment (Ryan & Deci, 2017). Therefore, it seems that an individual's interpretation of their social environment is essential in their experience of psychological health. As REBT is an intervention which aims to help individuals adopt a functional life philosophy, its application may positively impact an individual's satisfaction of their BPNs, and therefore support wellbeing.

Furthermore, within SDT goal-directed behaviour is differentiated by the processes of regulation through which goals are pursued (Deci & Ryan, 2000). Goal-directed regulatory processes are outlined through SDT's organismic integration theory (OIT; Deci & Ryan, 1985; Ryan & Connell, 1989). OIT captures the complex processes which lead to internalisation through the classification of motivation within six main categories which fall along a continuum from intrinsic motivation to amotivation (Deci & Ryan, 1985). It is important and relevant, in the current study, that the direction of movement along the continuum is examined as well as the participant's experiences of each motivation category throughout the course of the intervention as changes in motivation both quantitatively and qualitatively may inform the future application of REBT stress management interventions. The quality of motivation regulation is strongly associated with the experience of stress (Weinstein & Ryan, 2011) and psychological ill-being (Olafsen, Deci, & Halvari, 2018), therefore, the current study aims to examine the impact that an REBT intervention has

on the motivation regulatory processes experienced by a cohort of senior police officers and examines how the regulatory motivation process change through the application of an REBT intervention. Examining the intervention process and outcomes in an idiographic way and from a perspective of motivation regulation provides a unique contribution to knowledge as it can guide future effective focus and practice of psychological wellbeing interventions in performance contexts (Davis & Turner, 2020).

Another opportunity to develop an understanding of stress and psychological wellbeing in policing is to broaden the participant sample on which almost all police research is currently focused. For example, of the limited research on cognitive behavioural interventions for stress management and psychological wellbeing in policing there is a sole focus on frontline, operational policing as the target population. This, of course, is an important population to understand, but an over-focus on operational policing tends to sideline the broad range of stressors that may be apparent in police organisations. Police organisations are usually large and complex and consist of a wide variety of roles. For example, strategic policing and police leadership can carry nuanced stressors which may, if not coped with effectively, lead to a “domino effect” of stressor creation throughout a police organisation and impact police culture (Al Hashmi, Jabeen, & Papastathopoulos, 2018). To our knowledge, there is no research to date which considers police leaders as targets for stress management interventions (apart from the precursor to this paper). It seems important to recognise the potential impact that stress can have on police leadership. Furthermore, as with other research in the current field, there is little investigation of the nuances of the intervention process. For example, were there any particular elements of the complex intervention procedure that may be more important for change to occur? Answering such questions will inform and develop the practical application of interventions. Therefore, the aim of the current chapter is to explore the nuances of applying REBT as a stress

management and psychological wellbeing intervention on the objective stress, irrational performance beliefs, self-determined motivation, and satisfaction of the basic psychological needs of five police leaders.

4.2 Method

In other performance domains, such as sport, there is a growing depth and detail to the evidence emerging in favour of the effectiveness of REBT in the form of idiographic exploratory case studies (Cunningham & Turner, 2016; Maxwell-Keys, Wood, & Turner, 2022; Turner, Ewen, & Barker, 2020; Wood, Barker, & Turner, 2017). Such depth of knowledge enables the development of more efficient and effective interventions. For example, in one idiographic case study detailing the application of one-to-one REBT sessions with an elite athlete Wood, Barker, and Turner (2017), go beyond reporting the efficacy of REBT as a performance anxiety-reducing intervention and offer insight into misconceptions and challenges that a practitioner might face. In another idiographic case study athletes (golfers) benefited from the effectiveness of a one-to-one intervention which detailed the application of REBT both on and off the golf course and focused on the integration of REBT into the golfers' performance (Turner, Ewen, & Barker, 2020). Irrational self-depreciation beliefs and unconditional self-acceptance were the focus of another case study which documented the application of REBT in mixed martial arts (Cunningham & Turner, 2016). The mechanisms through which REBT promoted changes in irrational beliefs were thought to enable athletes to react to adversity in functional ways through experiencing disappointment and acute withdrawal as opposed to responding in a dysfunctional way through experiencing depression and chronic withdrawal. Most recently a single-case staggered multiple-baseline research design was used to explore the development of decision-making in rugby union match officials (Maxwell-Keys, Wood, & Turner, 2022). Through taking a single-case approach visual and statistical analysis showed that an REBT intervention reduced irrational

beliefs. There were also reductions in anxiety, decision-making reinvestment and improved performance. To date, there are no idiographic case studies which offer a detailed exploration of the application of REBT to reduce chronic stress in police leaders.

4.2.1 Participants and Selection Criteria.

Of the twenty-five participants in the experimental group in the primary research project presented in chapter three, five cases were selected from the original sample presented to facilitate the idiographic, detailed retrospective analysis of intervention effects, where broader knowledge can be obtained by examining fewer participants in greater detail (Normand, 2017). To clarify, this chapter offers an in-depth analysis of the existing data obtained from the study reported in chapter three. Five cases were selected, a similar number of cases as reported in the extant literature (Davis & Turner, 2020; Turner & Barker, 2013), so that a close examination of the range of experiences reported by participants could be conducted in an attempt to demonstrate the complex, dynamic and individual nature of the findings. A small number of cases is useful because the experience of subjective stress in response to environmental factors is difficult to pin-point and often unique and popular methodologies such as cross-sectional and self-report research that mask such nuances risk making assumptions about relationships and change mechanisms that may not be accurate at an individual level (Fineman & Payne, 1981). Taking a performance psychology approach (Raab, 2020) and due to the assertion made by Ellis (1990) that all people have the propensity to hold irrational beliefs to some extent, it was assumed that all potential participants could benefit from the REBT intervention (Turner & Barker, 2013), and were, therefore not pre-screened for stress. Since the objective and psychometric data are central to the analysis and discussion in chapter three, and since a single- case experimental research design emphasises the practical significance of intervention outcomes (Hrycaiko & Martin, 1996) participant selection was guided by assessing the reported social validation data in chapter three. Cases

where participants reported low (n=1), medium (n=2), and high (n=2) practical intervention effects were selected along with cases where practical and statistical intervention effects were contradictory (e.g., participants reported subjective changes because of the intervention, but objective and psychometric data did not necessarily reflect this). This range of participants was selected to explore the variation in intervention effects observed in the results presented in chapter three. In chapter three, only one participant reported low intervention effects and so their case is examined along with four other randomly selected cases that reflect medium and high practical intervention effects.

4.2.2 Design

In this study, an exploratory idiographic case-study design with the use of multiple probes was adopted (Kazdin, 2011) to examine the effects of REBT on five senior police leaders (e.g., Thelwell & Greenlees, 2001). The participants each received eight sixty-min one-to-one REBT sessions over the same twelve-week period. All participants were assessed before, at the midpoint, and following the intervention, using an online survey, on self-reported target variables: irrational beliefs, the satisfaction of BPNs, and self-determined motivation. These time points were pre-intervention, post-intervention (immediately following completion of the intervention or at the twelve-week time point for the control group), and follow-up at 6 months following the intervention. Also, all participants provided hair samples, to determine cortisol levels, at preintervention and postintervention time points. After the final collection of self-report and cortisol data, social validation was completed, via social comparison by peers, and a short questionnaire at a time point six months following the completion of the intervention to test the longer-term impact of the intervention.

4.2.3 Measures

The measures used in this chapter are outlined in detail in chapter three. In brief, they consisted of hair cortisol concentration as an objective biomarker of stress; a measure of irrational performance beliefs (iPBI; Turner et al., 2018; α .96); a measure of occupational motivation adapted from the sport motivation scale (SMS; Pelletier et al., 1995; α .82) and self-determination index (Vallerand, 2001); and a measure of the satisfaction of basic psychological needs at work (Johnston & Finney, 2010; α .85). As the current chapter is a series of single cases, social validation (Kazdin, 1982) was undertaken at the end of procedures to assess the practical significance of the intervention and to enable further analysis in conjunction with statistical data (Deen, Turner, & Wong, 2017; Page & Thelwell, 2013).

4.2.4 Intervention

The REBT intervention was delivered by the author. As mentioned in chapter one the author is a qualified REBT practitioner (Advanced Certificate Practicum) and a performance psychologist who is a Chartered Sport and Exercise Psychologist with the British Psychological Society. A performance psychologist applies interventions that focus on human performance in professions that demand excellence in performance, policing is deemed to be such a profession (American Psychological Association, 2014).

The intervention was delivered to the participants in the experimental group over a concurrent twelve-week period. All one-to-one sessions were conducted in a private meeting room within the police organisation's headquarters and lasted approximately sixty minutes. Each participant received eight individual sessions. The intervention followed guidelines of previous similar research (see Turner, 2016, for a review), and was also in line with typical REBT procedures (Dryden, 2009). The intervention included teaching REBT's GABCDE

model (Ellis & Dryden, 1997). As is usual in REBT, participants identified the goal of each session and collaboratively worked with the practitioner on the assignment of homework tasks (Digiuseppe et al., 2014). In sessions, the practitioner and participant explored the participant's current work performance and general wellbeing intending to promote greater attainment of goals and wellbeing.

Phase one- Assessment, education, and routine (sessions 1-4). The beginning stage of the intervention focused on both assessment, psychoeducation, and developing a routine of coaching. The purpose of the assessment phase is to understand the extent to which a client is experiencing unhealthy negative emotions stemming from irrational beliefs. In REBT unhealthy negative emotions stem from irrational beliefs and make irrational beliefs the primary target for change. Changing irrational beliefs to their rational alternatives is thought to lead to healthy negative emotions and improved psychological functioning (Ellis, 1962). Psychoeducation is used to promote an understanding of the mechanics of thinking, believing, and emoting so that clients can begin to understand their responses and choose to intervene effectively and healthily (Dryden, 2009). Furthermore, clients were educated regarding elements of self-determination theory and encouraged to view their experience through motivation regulation types (e.g., using “shoulds” and “oughts” to create self-pressure through introjected regulation) and the extent to which basic psychological needs were satisfied and/or frustrated (e.g., do behaviours match with one's values so that they are experienced as autonomous). Finally, the establishment of a routine supports both the client and practitioner in understanding the process of intervention sessions and serves to alleviate any anxiety that psychological therapy may bring (Digiuseppe et al., 2014). Furthermore, the creation of habitual activity supports the client in establishing self-help strategies, kin to learning a new language, repetition and routine allow for the effective acquisition of the therapeutic process as a self-administered skill over time.

Following the initial assessment and towards the end of the first session the practitioner began to introduce the GABC framework by using the stressful experiences conveyed by the participants. At this stage, the practitioner explained that the intervention would draw on a model that would help both the practitioner and the client make sense of their experiences of stress. Each participant was asked to think of a specific recent example when they experienced stress or strong disturbing emotion (DiGiuseppe et al. 2014) doing so enabled the practitioner to highlight the critical activating event (A) in the model and the emotional consequences (C) and subsequent thoughts and behaviours that stemmed from that activating event. All participants were asked to make a note of activating events and emotional consequences as they went about their business between sessions as a homework task so that they became familiar with self-reflection and so they were enabled to begin to apply the model without reliance on the presence of the practitioner. Homework tasks are thought to be a central element in the therapeutic process as they encourage change through practising the skill of applying their new rational philosophies (Ellis et al., 2001).

Phase 2 - Broadening to all problems, strengthening the B-C connection, and fostering self-coaching (sessions 5-6). During the middle phases of the intervention, the focus on attention tended to broaden exploring other stressors experienced by the participants. Doing so demonstrated the universality of the approach. While the approach can be effective in the face of any stressor the way the GABCDE model is applied is often unique for each case. For example, one stressor may stem from a unique combination of irrational beliefs. In this phase of the intervention, the practitioner guided the participant in reflecting on their critical As, and their unhealthy negative emotions, and in identifying, disputing, and changing their irrational beliefs to effective alternative beliefs. The aim of this phase is that participants become proficient in applying the GABCDE model to their stressors. In this phase, certain elements of REBT theory can also be emphasised. Specifically, the practitioner

assisted the participants in emphasising the B-C connection and pointed out their tendency to use A-C language and “change A” when self-managing their stress. To bring about deep-seated and robust change the practitioner encouraged the participants to go further than an intellectual understanding of the application of the GABCDE model. Through multiple methods which involve insight, belief, thinking, acting, wishing, and practising a deeper emotional or philosophical change is achieved (Ellis, 1963). The participants in this phase were encouraged to challenge themselves to think and act from a rational perspective. To build the client's effective new beliefs homework tasks are emphasised as important. While the participants were not forced to complete tasks their ability to prioritise such tasks was challenged in this phase of the process.

Phase 3- Integration of REBC theory, experiencing life with a rational philosophy, preparing for relapse, and enhancing philosophical gains (sessions 7-8). The final phase of the intervention focused on assessing to what extent the participant had experienced change and support through applying REBC theory to manage their stress. During the final session, each participant was thanked for their involvement in the study and reminded of signposts to further support should they require it. The practitioner discussed participant reflections on the intervention with each participant to ensure the appropriate application of the GABCDE framework. Following this, participants were fully debriefed. At this phase, the participants voiced their concerns about relapsing to their previous thinking habits and so strategies to prevent such relapses and manage such relapses were discussed drawing on stages of change theory (McConaughy, Prochaska, & Velicer, 1983) and implementation intention theory (Gollwitzer, 1999). Both theories were used to explain the normality of relapses and the importance of, and strategies for maintaining a goal focus and rational curiosity to understand and learn from relapses were emphasised (Ellis, Gordon, Neenan, & Palmer, 2001).

To build on any progress made in adopting a more rational philosophy the practitioner asked the participants to demonstrate their understanding of the major insights that REBT offers and adopted a less active directive stance in sessions. Instead, the practitioner assisted the client in reflecting on their ability to take the role of “being their psychologist” by encouraging the client to reflect on their ability to effectively identify, dispute, and replace their irrational beliefs (Ellis et al., 2001). Not all participants shared the practitioner’s therapeutic goals of making a philosophical shift. This is reported as being common in REBT literature (Ellis et al., 2001) and so the practitioner needed to compromise their goals and maximise the therapeutic change that was acceptable to the client. Participants were, in some cases, experiencing an extreme sense of emotional relief by this point and were using “REBT language” (e.g., I noticed my A was that I don’t feel that I have the right people on my team and I was demanding that I must have the right people on my team and experiencing debilitating stress and frustration at point C). From a motivation regulation perspective, it could be said that at this point an REBT way of thinking or being had been integrated into the participant's life. Not all participants experienced such integrations. For example, participants two, three, and five experienced emotional relief but the practitioner felt that they had not broadened their philosophy for everyday thinking and acting. This was evidenced by the participant's ongoing reports of stress in their daily functioning. Participants reported seeing their irrational reactions after they had occurred and not having the awareness of “ABC” at the moment that triggering activating events occurred. To summarise this section provides a general overview of the processes of conducting a comprehensive REBT intervention. The general structure described was followed for each participant. In the following section, an idiographic summary of the five selected cases is presented. The idiographic summary reveals the unique ways in which the REBT intervention is applied and understood by participants.

4.2.5 Idiographic summary of client cases.

Participant one: Of course I must! People could die if I don't.

The range of potential stressors that were identified during phase one of the intervention ranged from the responsibility of leading two thousand plus operational and support staff across a vast geographical area to leading across a collaborating partnership between two forces which created duplication of work. Also, participant one was responsible for leading several extensive change initiatives across the organisation, including the implementation of enhanced digital systems as well as being the Senior Responsible Officer (SRO) for several protective operational events (e.g., large sports events, and high-profile diplomatic events). In the first session participant one listed their main stressors as the volume of work including the volume of emails and meetings, not feeling that they were having quality time with their direct-reporting team, and not having enough quality planning time. They also mentioned that their current role was very different from their last role and that they had only recently moved into their current role. Participant one identified the stress they experienced in the face of the risk and responsibility that they carried in their new senior role and the lack of mental space and control that they experienced in their role due to the volume of work they faced.

For example, participant one explained stressors associated with the responsibility of their role, the volume of bureaucratic tasks they felt prevented them from executing their responsibilities to their very best ability and the lack of time for quality proactive planning. Participant one exhibited demandingness concerning the control they had over their activities, with frustration intolerance regarding the tasks that blocked the effective execution of their role along with awfulizing the potential consequences of failure through lack of thorough

planning and global evaluation beliefs about the current state of affairs and potential failures in police operations.

An important and challenging element of this case was the client and practitioner discussions related to the fear of failure and risk management in their role. During phase two of the intervention, participant one revealed their lack of understanding of their role (they were recently promoted) and their associated feelings of stress, nervousness, and low confidence. They explained that as a senior officer they carried responsibility for many high-risk, life-or-death decisions in their role. Their decisions came with a high level of public scrutiny, and they could be held responsible for what could be catastrophic police failures. They imagined that they would be devastated if they were to make a poor decision and be blamed for doing so and because of this they found it hard to trust others and found themselves “thinking all the time”.

When disputing the irrational beliefs in this case the practitioner found it challenging to create the cognitive dissonance required to bring out reliance on a rational philosophy and effective beliefs and the participant demonstrated resistance to the value of applying REBT to this specific part of their role. It is important to recognise that the targets for change in REBT are a person’s absolute unconditional demands as opposed to recommended ideal courses of action (Dryden & Branch, 2008). Both absolute demands and recommend ideal courses of action can present with the same language (e.g., “I should/must make the right decision”). Absolute musts are a representation of irrational beliefs and non-absolute musts are conditional representations of the primary conditions which occur, (e.g., making the right decision, to achieve optimal outcomes). REBT practice guidance notes that language can sometimes lead to the misinterpretation of beliefs as irrational (Dryden & Branch, 2008). In the current example, it would be possible that the word “must” is not representative of an

irrational belief but a conditional must. A further complexity of the process is that while the participant may describe a conditional must, they may also elevate the conditional must that they describe to an irrational belief. This makes targeting and disputing the irrational component of the belief, the component, which is experienced as dysfunctional stress, a challenge.

Also, the client had difficulty accepting that when the risk of negative events was high that their thinking was still responsible for their dysfunctional stress response. In this case, letting go of the irrational element of the belief “I must not make mistakes” and “I couldn’t bear it if I made such a mistake” was difficult for the participant. It could be that the client was experiencing a rational, ideal preference for being responsible for avoiding tragic losses which would result in intense, yet healthy negative stress. REBT theory emphasises that healthy negative emotions can be intense and lead to functional adaptation and coping (DiGiuseppe et al., 2014). For example, Dryden & Branch (2008) advocate using a range of approaches to understanding and teaching the distinction between healthy and unhealthy negative emotions. One way of doing so is through the assessment of the cognitive consequences of unhealthy and healthy negative emotions and another is through distinguishing between different action tendencies (i.e., intended or executed behaviours). Through assessing both the cognitive consequences and the action tendencies it was clear to the practitioner that participant one was experiencing unhelpful cognitive consequences about the risk they were managing. Specifically, they were underestimating their ability to cope with the responsibilities of their role and the action tendencies were that they were experiencing a desire to leave the situation (even though they did not leave), that they were trying to guard against the threat through continuously thinking about it (i.e., rumination), and that they were feeling a strong need to seek reassurance regarding their management of risk. A healthy negative response would include a realistic perspective in terms of coping

from a cognitive perspective, and an ability to deal with the threat constructively without engaging in safety-seeking behaviour (Dryden & Branch, 2008).

Participant one found that letting go of safety-seeking cognitions and behaviours (e.g., rumination and seeking reassurance), felt as if they were not taking the responsibility required in their role and that they had to think and behave in such a way to be effective. The point was discussed at length in sessions with the participant insisting that adopting an alternative rational belief of “I would strongly prefer not to make poor decisions in the face of such high risk” and “I can cope with the risks” would impact the quality of their motivation and performance. They prefer to rely on their current belief of “I must make the right decisions” by stating “of course, I must, people could die if I don’t” because the risks to people’s lives, in their view, require this type of belief for them to be at their most effective when performing their role. It could be in this instance that the participant was holding rational beliefs about managing what could be negative consequences. It is a common misconception in REBT practice that REBT is only applicable to minor negative events (Dryden & Branch, 2008). It would be tragic if poor decision-making lead to the suffering of others. There are several examples in public service which illustrate this (Heaton, Bryan, & Tong, 2018). In this sense participant one may experience their irrational beliefs as motivating which is why it might be difficult to shed them or that using irrational statements deliberately was an effective and powerful means of focusing on goal-directed action (Ellis, 1995; Turner, 2016). In summary, participant one was experiencing dysfunctional stress and anxiety about the risk that they were held responsible for in their role. While the disputation of irrational beliefs was possible during some aspects of the intervention the participant resisted changing their irrational beliefs when considering the most important elements of their role. The different definitions of irrational beliefs and ideal courses of action were

challenging for the participant to accept. They felt that relinquishing their irrational beliefs in this instance would be damaging to their effective concentration and motivation.

Participant Two: That was then, this is now.

Participant two felt stress by leading a large team ($n = 200$) that they perceived as being resistant to their leadership. Participant two worked in a high-risk, high-volume, high-scrutiny role and reported experiencing “daily panic” stemming from the demandingness associated with the expectations they have of the service they want to deliver to the victims of crime; low frustration tolerance regarding the lack of resources that they have to enable the delivery of the expected service, awfulizing and global evaluation beliefs that the service is not good enough, and that they are not good enough to be able to meet performance expectations. They experienced stressors (As) associated with feeling that they were not able to care enough for their staff and balanced this with the high-performance expectations of leading in the police control rooms. In this context, there is often a high turnover of staff, and one specific stressor was the regular loss of experienced staff. Participant two had been promoted quickly through the hierarchy and was experiencing doubt about their leadership ability. This was deemed to be the most stress-triggering of all the activating events that they were experiencing and culminated in a sense of chronic anxiety. Through assessment and formulation, the practitioner thought that their anxiety may have been stemming from their demandingness beliefs about their leadership expectations and global evaluation beliefs about their current leadership activity. In this specific part of the intervention, the goal was to support the participant in transitioning into their new role effectively through adopting rational beliefs and facilitative cognitive and behavioural consequences that would aid them in adapting to their new leadership role. To do this the intervention involved an exploration of expectations and inferences that the participant was holding about their current

performance. From an REBT perspective, to be an effective leader it is important to understand and demonstrate expertise in the area that one leads and more importantly that one is not self-blocked by inferences and irrational beliefs about their current limited leadership skills (Ellis, 1972).

Participant two was specifically experiencing stress related to their self-blocking perspective. This was illustrated through a part of the intervention where they reported ruminating about a situation in which they had been excluded from a meeting. It seemed that rumination was a result of thinking that there was “nothing that they could do about it”, to which we explored two avenues. The first was recognising their irrational beliefs beneath their thinking that there was nothing they could do about not being invited to a meeting and the second was identifying and exploring their irrational beliefs associated with not being invited. This led participant 2 to achieve a greater awareness that, as a leader, if they felt they would add value by being at the meeting that it was within their control to explore this with the meeting organisers. They reflected that internally they may, to some extent, still identify with their previous self, a subordinate, rather than a leader and the self-affirmation “that was then, this is now” helped them to integrate new and effective leadership behaviour and cope with the adaptation discomfort of doing so.

Participant three: I just can't get over it, even though I know it's irrational.

Participant three explained that stressors for them were time to manage the breadth and depth of their workload, dealing with resistance from some of those that they lead, and the discomfort of feeling exposed as a temporarily promoted senior leader. Participant three explained the typical stressors of their role as not being able to “fit everything in”, managing staff through human resource processes and feeling exposed to strategic policing. Specifically, participant three was in a temporary promoted rank but had been unsuccessful in

securing the promotion permanently. As a result, participant three was coping with their duties in their temporary role without the endorsement of their peers and was questioning their ability to perform the role well. Irrational beliefs present for participant three at this time were considerably linked to demandingness associated with unfairness and global evaluations of self and of the police organisation which in turn were producing extreme distress.

Participant three was experiencing the most distress about failing a promotion board and while they expressed reluctance to admit that they were feeling distressed about a failure to pass a promotion board this was the biggest trigger of their stress. In the session, the client spoke in detail about their experience since failing the board. As they had held the role temporarily for some time, they had expected that they would be successful, although they identified some difficulties with their strategic communication skills as this was a new area for development for them. Participant three explained that they avoided taking a practice promotion board because they are “horrible” and that since the failure she has been trying very hard not to show that she is experiencing any form of pressure or emotion. At this point, the participant was not visibly displaying any signs of emotion.

In this case, it seemed that participant three felt that expressions of emotion would be a sign of weakness to others and that avoiding emotional expression would help the participant maintain a positive judgment by others (DiGiuseppe et al. 2014). The practitioner sought to explore the participant’s emotional experience by commenting on their present reluctance to admit that the failed board was an important issue for them. The client admitted that they were experiencing extreme shame, guilt, and anger about the situation and as they articulated this, they began to display emotion through crying. They articulated feeling offended, and helpless having failed the board and that they thought that what had occurred was unjust. The practitioner guided the client to explore the beliefs that were underpinning

their emotions and discussed the possibility of changing beliefs so that healthier negative emotions could replace their current dysfunctional emotions.

It took several sessions for the participant to process the situation fully. They continued to hide and then reveal that they were ruminating about the board's failure. In the later sessions, they became aware that there was something (an irrational belief) triggering about the word "failure" and that they "couldn't get over" what had happened even though they knew it was irrational. It appeared that participant three was able to intellectually apply REBT theory but that they had yet to fully integrate their understanding to bring about an emotional insight about the event. In the session, the participant again became emotional as their experience was explored and a complex web of irrational beliefs was revealed. It is common to encounter a complex range of irrational beliefs stemming from one activating event (DiGiuseppe et al., 2014).

Most of the time the latter sessions were focused on disputation through Socratic questioning and didactic explanation so that all the participant's irrational beliefs could be addressed (DiGiuseppe, 1991). Furthermore, the practitioner encouraged the participant to use force and energy to dispute their irrational philosophy (Ellis, 1995). They were advised to do this by applying rational-emotive imagery (REI; Maultsby, 1971; Ellis, 2000), by visualising responding more functionally to the memory of failing the promotion board and acting against their irrational philosophy and in line with their rational philosophy. For example, rather than avoiding talking strategically, they were encouraged to talk strategically whilst accepting themselves, and developing this as a skill. Finally, the participant committed to regularly reflecting on their progress to continue to foster their awareness and overall rational philosophy. Towards the end of the intervention, the client expressed that they had experienced a "massive mindset shift". When the practitioner explored the meaning behind

this statement the participant explained that for the specific triggering event of the failed promotion board, they were now able to review it and develop as a result of it. They admitted that they still harboured a feeling of injustice and that their view of the organisation was not particularly favourable but that they felt they could move forward from this particular incident. While the practitioner was aware that further depth could be added to the participant's changed philosophy, the participant expressed that they were satisfied with the progress they had made.

Participant Four: There are not enough people, why am I surprised?

Participant four presented with a concerning level of stress and demotivation and explained that at the chief inspector rank they felt unable to influence performance where needed in the high-risk, high-volume, high-scrutiny context in which they worked. Participant four went on to describe unhealthy negative feelings of “daily panic” in the face of critical activating events of making decisions and feeling able to challenge and endorse performance direction within the organisation. At the beginning of the intervention, the participant described their work as “all-consuming” and that they were frustrated, felt that the department was ineffective and that, while they wanted to express their views candidly, they felt that this would be inappropriate. In the early part of the intervention, the practitioner focused on teaching the participant that the circumstances of their role in policing do not cause their frustration alone and the ABC model was introduced (DiGiuseppe et al., 2014). In the following sessions, the participant reported reflecting regularly on the sessions and began to recognise how their thinking was playing a role in how they were feeling and seeing the current situation.

The participant read REBT books (e.g., Ellis & Harper, 1997) to deepen their understanding of the approach as a homework task. During the middle stages of the

intervention, the participant and the practitioner applied the disputation process to the client's demandingness belief that "things should be better" and that they "could not tolerate that they were not". During this part of the session, the client expressed that they were shocked and surprised that they were continuously experiencing staff shortages. Through disputing the belief underlying the surprise, by reflecting that such staff shortages are regular, the client was able to adopt effective tolerance and acceptance beliefs which allowed them to experience a functional reaction, a reaction that kept them focused on the work and one that supported their wellbeing, to the unfolding situation.

Between each session, the client reported reflecting repeatedly on the sessions and noticing and disputing their irrational beliefs. In session five the participant stated that the sessions were making a big difference in their life, particularly changing from the non-tolerance perspective of "surprise" to being curious about the way events unfolded daily and detecting their unhelpful cognitive and behavioural consequences by asking themselves the question "how does this help?" and then assessing their beliefs. During the final session, the participant explained that only through practising their new thinking and behaviour were they able to see that they were not coping well at the beginning of the intervention. Looking for evidence and functionality of their thinking, recognising that there is a choice they are making in terms of their response to adversities had caused a change that had been positive but "strange" to embody and that further support could help them negotiate the further integration of their mindset change. In the practitioner's opinion participant four experienced emotional and intellectual insight during the course of the intervention. Intellectual insight is when a client understands the psychological mechanisms through which stress might be occurring but does not use this insight to change, and emotional insight refers to a deeper process of understanding the mechanisms that lead to functional and dysfunctional emotions through behaviour, experience, and practice which is thought to lead to more robust change

(Ellis, 1963; Ellis, 2001). It emerged through this shift that further support was needed so that the participant could explore his new perspective on safety. This participant described feeling very strange in his life now and that so much had changed for them that they felt somewhat insecure. The practitioner was able to provide support as the participant continued to perceive differences in his emotions and quality of life by examining their experience through a rational perspective.

Participant Five: Others judge me, and that's awful.

Participant five had embarked on a promotion process to the senior level and was experiencing stress and anxiety about what their peers thought of their performance. In the initial psychoeducation of the GABC framework participant five first chose a personal family frustration that they had recently experienced as an activating event (being told about an illness in the family) and the associated consequences (frustration) were explored to begin the process of examining their responses. Homework tasks were discussed at the beginning of each subsequent session where participant five was asked to report on any A and C experiences that had been particularly stressful for them. An important element of applying REBT at this point is identifying the critical activating event. The critical activating event, critical A, is the specific element that triggers irrational beliefs (B) resulting in a dysfunctional consequence (C; DiGiuseppe et al., 2014). The application of the ABC model in REBT can serve to oversimplify the complexity often involved in effectively intervening to support clients (Dryden, 1995). The critical activating event can be hidden within the accounts that clients give of their stressful encounters and so it is important for an effective assessment that the critical activating events are identified and examined. Two situations have been identified where critical As can be hidden. The first is when critical A forms a part

of a sequence of events, and the second is when critical A occurs in parallel with other triggering events (Digiuseppe et al., 2014), as would be common in the experience of stress.

Another important element to consider when assessing A is that the client's description may go beyond describing A and include Bs and Cs as well. The client's description tends to include what happened; the client's perception of what happened; the client's inferences about what happened; the client's evaluation of what happened; the client's acceptance or rejection of their evaluations and inferences of what happened and the emotional and behavioural reactions to what happened and REBT theory is precise about this categorisation (Digiuseppe et al., 2014; Turner & Barker, 2013). Within REBT As are recognised as the description of what happened; the client's perceptions of what happened; and the inferences that emerge from the client's perceptions of what happened. In REBT As are not the target of change and the practitioner explores the client's sequences of cognitions to discover the evaluative cognitions which demonstrate the degree of acceptance (or rejection) of what has been perceived to have happened.

Inferences are often chained together with further inferences, evaluative and degree of acceptance cognitions (Dryden, 1995). A technique called inference chaining (Moore, 1983) can be used to identify the critical triggering A that clients experience. In inference chaining the practitioner explores the details of the client's inferences by asking "then what?" and "why?" questions. A "then what?" question will reveal further inferences and "why?" questions are used when emotional or behavioural consequences are reported. Inference chaining was used to assess participant 5's critical A during session 2. During a review of participant 5's homework, they noted that they had felt stressed while reviewing emails during the previous week. The inference-chaining process is represented in the following dialogue and reveals the derivative of their "stressful emails". Inference chaining was used on

several occasions to find the underlying irrational beliefs of the participant in this case. For example, in one exchange regarding “stressful emails,” the practitioner guided the participant to assess the generalisations they were making in relation to their emails. The participant identified that rather than all emails being stressful that there was one, in particular, that was particularly triggering stressful feelings for them in which a colleague has dismissed a strategic decision of theirs. The participant reflected that they thought that their integrity had been questioned and that it was outrageous that this should be the case. At this point, the participant was visibly demonstrating frustration in their tone and body language also. Further exploration revealed a core theme of fear of judgment and awfulizing beliefs about being judged and through targeting the core irrational beliefs, as opposed to targeting the general inference that “emails are stressful” the participant was able to make and observe broader changes in their daily life and reported growing in confidence throughout the course of the intervention.

The above idiographic summary of participant cases provides a detailed insight into the nature of the applied REBT intervention. All participants presented with examples in which the practitioner could formulate their stress experiences as stemming from the participants' irrational beliefs. All but one participant was able to accept the irrational nature of their beliefs and so benefit from directly changing their irrational beliefs to rational alternatives. Participant one did accept that there were some incidences of irrationality but found it challenging to delineate when ideal courses of action were elevated to irrational beliefs. This idiographic summary is presented to offer depth to the following analysis and discussion of results.

4.3 Analytic Strategy

Within idiographic exploratory single-case research designs it has been highlighted that small changes in variables can lead to marked changes for participants (Barker, McCarthy, Jones, & Moran, 2011). To assess change we used visual inspection of tabled (Tables A5.2-A5.6) data for each participant and each dependent variable, to determine whether intervention effects had occurred (e.g., Turner, Ewen, & Barker, 2018). Visual inspection was selected as the analytic strategy (and not statistical analysis) to emphasise, in this chapter, the practical rather than the statistical significance (which was emphasised in chapter three), of the intervention effects on participant data (see Hrycaiko & Martin, 1996). The following criterion was employed to evaluate the intervention: The intervention effects were determined when; (a) the effect is replicated across participants, (b) the effect occurred quickly following the intervention, and (c) there are few overlapping data points between baseline and intervention phases, and (d) the magnitude of change from baseline is substantial, assessed through measuring the percentage of change in relation to contextual factors, such as social validation data (Hrycaiko & Martin, 1996). As is common in applied research these criteria were suited to the exploratory nature of the study and the constraints faced in fulfilling strict visual analysis criteria (Kazdin, 2011). Specifically, it was deemed unethical and an overburden to expect senior police officers to provide repeated measures of the dependent variables and that the collection of repeated data points may serve to cause bias in the current study by causing stress which is why multiple probes were selected (Horner & Baer, 1978). We have structured the results by participant rather than by variable to add clarity to the visual analysis and to adhere to the idiographic nature of the study (e.g., Thelwell & Greenlees, 2001). As the data, at the group level, is presented in chapter three, the results reported in this chapter are the individual changes in variables for each case so that variation in intervention effects can be explored.

4.4 Results

4.4.1 Participant One

Visual inspection of data (see table A5.2) revealed a substantial reduction in hair cortisol concentration (-19.85%), demandingness (-9.9%), frustration intolerance (-57.14%), awfulizing (-22.58%), global evaluation (-36.36%) coupled with a substantial shift towards self-determined motivation (+271.67%). Participant one experienced a substantial increase in autonomy (13.79%) and relatedness (5.71%) with no change in competence.

Social validation data revealed that the participant perceived that they did not have a strong understanding of the REBT framework and that they could not agree or disagree with the significance of the changes that the program may have brought about and the practical applicability of the program. The participant had a strong disagreement that changes that occurred during the program were significant for other people in their life and that others had not commented on significant changes in the participant following the program. Participant one went on to reflect that they found it a challenge to see the relevance of the program to the policing context and that they found it difficult to commit the time needed to experience the program in full, however, following sessions participant one reported feeling informed, more knowledgeable, and thoughtful.

4.4.2 Participant Two

Visual inspection of data (see table A5.3) revealed a substantial increase in hair cortisol concentration (+30.59%) but substantial reductions in demandingness (-10.71%), frustration intolerance (-18.52%), awfulizing (-20.00%), and global evaluation (-21.43%). There was a substantial increase in self-determined motivation (+99.38%). There were also substantial increases in autonomy (+9.67%), competence (+25%), and relatedness (+5.41%).

Social validation data revealed that participant two felt strongly that they understood the REBT framework and that they agreed that they had experienced improvements in the selected performance components on which they had chosen to focus during the sessions. They could not agree or disagree that any changes that had occurred had been significant in their life and disagreed that any changes that had occurred had been significant in the lives of others. Participant two was satisfied with the program and thought the program was highly relevant to their context and useful. Participant two reflected that they felt “empowered and positive” during the program and that “on some occasions, I had been emotional as I had delved into my insecurities and didn’t realise how much they are affecting me”.

4.4.3 Participant Three

Visual inspection of data (see table A5.4) revealed a substantial increase in hair cortisol concentration (+11.59%) and a substantial increase in frustration intolerance beliefs (+32.00%). There was a substantial decrease in demandingness (-6.45%) and global evaluation with awfulizing beliefs remaining unchanged overall. There was a substantial increase in self-determined motivation (+262.21%). There were also substantial increases in autonomy (+6.25%), and competence (+2.78%), but a reduction in relatedness (-13.33%).

Social validation data revealed that participant three felt that the program was both practical and acceptable, strongly agreed that they had improved on the performance components that were targeted during the intervention and strongly agreed that others had commented on significant changes in them. Participant three reflected that the intervention gave them the “confidence to confront my fears, my lack of confidence in my abilities and what I needed to do to improve my performance and abilities”. They went on to reflect that “I learnt a range of techniques to improve my confidence and also my performance under pressure” and that “I couldn't recommend this type of coaching highly enough”.

4.4.4 Participant Four

Visual inspection of data (table A5.5) revealed a substantial decrease in hair cortisol concentration (-35.27%), demandingness (-65.52%), frustration intolerance (-62.96%), awfulizing (-66.67%), and global evaluation (-50%). There was a substantial increase in self-determined motivation (+435.45%). There was a substantial increase in autonomy (+114.29%), competence (+33.33%), and relatedness (+32.26%).

Social validation data revealed that participant four felt that they had improved on the performance components that they selected to work on during the sessions and that the changes that occurred following the program have been significant in their life. Furthermore, the changes that occurred following the intervention have been significant to other people in their life also. Participant four reflected on the importance of the independence of the practitioner, “For me, an independent professional was important but also their ability to draw on experience to add context to the theory, in particular, the rationale, practical and philosophical approach to the theory”. They also commented that “time to engage and rapport building is critical. It takes time to know, understand, accept and then apply the theory”. They also go on to say that they were “really impressed with my organisation investing in this and me” and that the intervention was “probably the most useful and practical development experience of my career”. Furthermore “the practical element and philosophy approach, for me, had great application to the police and like services”. Participant four also thought that “you need to feel the flames of not coping or not achieving to try this. It just makes sense, but you do need your examples to work through and apply the framework. The coach was very skilled in understanding our world and my experience to then apply the practice”.

4.4.5 Participant Five

Visual inspection (see Table A5.6) revealed a substantial reduction in hair cortisol concentration (-32.37%), demandingness (-31.03%), frustration intolerance (-44.45%),

awfulizing (-36.00%), and global evaluation (-35.00%). There was a substantial increase in self-determined motivation (+2827.27%). Autonomy (+50.08%), competence (+34.62%), and relatedness (+8.11%).

Social validation data revealed that participant five agreed that they had experienced improvements in the performance components that they targeted during the intervention and that the changes that occurred because of the intervention were significant in their life and the lives of significant others. They agreed that the coaching procedure proved useful to them and that they understand the REBT GABC framework. Participant five reflected that “I have tried to reflect on events from a more rational mindset to avoid a negative response and inflicting stress on myself” and they reflect further that “I am not always successful and perhaps need to focus on the learning more actively”. They notice that they “talk more constructively about events/situations that are troubling me with my partner with whom I have discussed the course. Together we then replay events and break them down using ABC, this has helped me to continue using the process. The more I do this the more, it becomes part of my thinking habit”. As a result of the program participant five reflects that they “have been able to take on new challenges and push myself outside of my existing comfort zone” and that they have found this both “exciting and empowering”. They contrast these positive effects of the intervention with the challenge of embedding REBT theory, “making ABC the norm, has been challenging - a whole lifetime of reacting to situations and trying to change reactions is a longer journey than the course permitted, which is a shame as I occasionally wish I could pick up the phone and discuss something with [the practitioner] as I struggle to be completely rational on the subject. However, I am trying to keep with it as I recognise how valuable it has been to my wellbeing”.

In the summary of participant data below, (table 4.1), hair cortisol concentration changes were not uniform with two of the participants experiencing a substantial increase and three participants experiencing substantial decreases. All but one participant experienced decreases in irrational beliefs and the participant that experienced an increase only increased for one of the four irrational beliefs (frustration intolerance). In terms of motivation, all participants experienced a shift towards self-determined motivation although this was achieved through a unique combination of changes in motivation regulations for each participant (see tables A5.2- A5.6). The satisfaction of basic psychological needs increased for all participants with two exceptions, for participant one competence was stable and participant three reported a decrease in relatedness satisfaction was reported. Social validation data revealed broad support for the importance of the intervention, the significance of the changes in the participants' lives, and a broad understanding of the REBT framework that was taught throughout the intervention, however, participant one reported difficulty in contextualising the intervention and finding time to commit to the intervention sessions.

Table 4.1.

Summary of changes for hair cortisol concentration, irrational beliefs, self-determined motivation, and the satisfaction of basic psychological needs.

Participant	% HCC change	%IB change	%SDM change	% BPN change
1	-19.85	-28.85	271.67	6.12
2	30.59	-17.02	99.89	12.50
3	11.59	10.53	262.21	-2.65
4	-35.27	-63.54	435.45	50.00
5	-32.37	-36.63	2827.27	27.59

4.5 Discussion

In the current chapter, an idiographic single-case approach was used to examine the effects of REBT on the hair cortisol concentration, irrational beliefs, motivation, and satisfaction of BPNs of five senior police leaders. This study supports the findings of past research that REBT can reduce stress (Malkinson, Kushnir, & Weisberg, 1997), increase self-determined motivation (Turner & Davis, 2019) and increase the satisfaction of BPNs, as described in chapter three. Specifically, visual analyses of the data indicate that for all participants the intervention reduced irrational performance beliefs, increased self-determined motivation, and increased the satisfaction of BPNs in varied ways. The results are strengthened by adherence to inspection criteria (e.g., changes in targeted variables were substantial and occurred immediately following the REBT intervention, were replicated across the participants, and incurred few overlapping data points) used to determine meaningful change (Hrycaiko & Martin, 1996). The data analysis presented in this chapter offers a detailed examination of intervention effects which are not presented in the group-level data presented in chapter three along with detailed idiographic practitioner accounts presented above to demonstrate how psychological changes, or lack thereof, may emerge during client sessions. The objective of providing this further data analysis was to explore the variation in intervention effects on an idiographic level of analysis. The ideographic single-case analysis presented in this chapter indicates how and why changes occurred throughout the interventions and therefore represents a contribution over and above the findings presented in chapter three.

In chapter three a reduction of hair cortisol concentration was reported for the experimental group, however, hair cortisol concentration did not decrease for all participants. Participants two and three, in the present chapter, saw an increase in hair cortisol

concentration post-intervention, while participants one, four, and five saw a substantial decrease. The increases in hair cortisol concentration can be interpreted in terms of the participant's individual experiences and their progress in terms of applying the strategies taught in the intervention. For example, participant two was experiencing a range of stressors that emerged over the course of the eight sessions. Initially, they felt the anxieties of becoming a senior leader very quickly having been promoted twice in quick succession, later they faced the challenge of prioritising the competing demands of the contact management (e.g., police call centres and control room) centre. Participant one spoke of the stress they experienced in dealing with personnel issues as well as managing the expectations of the communities that the constabulary serves. Participant three described their experience of a range of challenging situations that they were experiencing as stressful. The most impactful of which was a recent attempt to promote to a senior role that did not meet their performance expectations. Having held the post temporarily participant three felt that it was extremely unfair that they had not gone on to fill the post permanently. They experienced a great deal of distress during their sessions when their experiences were validated and examined from an REBT perspective. At the beginning of session six, participant three reported experiencing a "massive shift in mindset" which the practitioner interpreted as acceptance of the events that had, until then, been interpreted by the participant as unfair and unacceptable. However, the participant found it challenging to accept the possibility that their confidence could develop and that they were committed to trying again for promotion. Furthermore, their career challenges were occurring in the context of managing a demanding operational role also and so the increase in hair cortisol may reflect their current ability to apply REBT theory at an intellectual level. Both participants could have benefited from further sessions to consolidate their understanding and application of REBT theory.

The decreases in hair cortisol concentration can also be interpreted in terms of the participant's individual experiences and their progress in terms of applying the strategies taught in the intervention. For example, participant one chose to focus on a variety of stressors and reflecting on these from an REBT perspective led to some thought-provoking conversations, however, participant one found it difficult to accept the value of the qualitative shift from unhealthy negative stress, anxiety, and frustration to healthy negative alternatives. In their social validation data, they support this view by noting that while they felt more informed following the sessions, they did not think the REBT framework was beneficial in policing. A key point in the intervention was the practitioner's skill in demonstrating the difference between rationality and irrationally based fear responses in the context of operational police planning. Participant one led several large scales and high-profile police operations where mistakes can lead to fatalities. It is important within any high-risk context to develop practitioner skills that validate the seriousness of potential consequences of mistakes, and that can help the client adopt a robust rational approach that will place them in the most effective mindset for tackling such operations. Delineating the behaviours that result from rational beliefs in the form of conditional demands and irrational beliefs in the form of absolute demands can be achieved through clarifying language and assessing the behaviours that occur in the face of the activating event and comparing them with an ideal goal-directed pattern of behaviour.

Through the intervention participant four experienced a reduction in hair cortisol concentration, which indicates improved adaptability to their environment and a reduction in their stress response. This can be reflected in the insight that they gleaned. For example, at the beginning of the intervention participant four was experiencing extreme stress and reported that as a chief inspector they were in a high volume, high risk, and high scrutiny role. They articulated several irrational beliefs which demonstrated their lack of acceptance

and responsibility to choose their response to the demands placed upon them in the role. In session five, participant four noted the depth of the impact that the intervention was having on their behaviour and that through applying REBT theory they were able to see how much stress they had been experiencing. By applying REBT they were able to “see the problems” and begin to solve them as opposed to experiencing extreme stress that prevented them from seeing what functional steps could be taken. Participant five also experienced a substantial reduction in hair cortisol concentration. By session four they reported a strong shift in their perspective in terms of their perception of their workload. For example, participant five noted that when they think that they are busy they create a sense of urgency and stress around the tasks that they are doing. Adopting rational and optimistic beliefs regarding their work they began to recognise that they could deliver robust performance and enjoy the challenge of doing so.

The practical real-world impact of the intervention was revealed through social validation data where, for example, participant four commented that the intervention was probably the most useful and practical development experience of their career. The comment represents the potential that the application of REBT can have on an individual when its principles are applied. Indeed, REBT was born out of the frustration that Dr Albert Ellis experienced using more dominant approaches of the time, namely psycho-dynamic and person-centred approaches (Ellis, 1993). REBT was designed to go beyond offering insight and to also assist clients in bringing about the changes that they sought and, to a certain extent, to be empowered to do so by applying the practical GABCDE model to act against their dysfunctional irrational beliefs.

Discussing every stressful encounter in a police leader’s week was impossible in a session. Hair cortisol concentration data may also have been impacted by any situation that

the participants had experienced (as stressful) during the time at which the intervention took place, leading to objective data that does not fully reflect the impact subjective impact of the intervention. It, therefore, was important to assess the practical significance of the intervention. Social validation data enabled the assessment of the practical significance of the intervention (Page & Thelwell, 2013), with unanimous agreement that the intervention had been functional for each participant. Differences in effectiveness seem to occur when the participants and practitioner were able to work together to apply the theory to the nuances of each of the participants' experiences. The time and skill required to achieve the most impact appear to differ for each participant, a point which is of importance for the practical application of REBT in the field (Jordana et al., 2020; Ellis, 2002). For example, as stated by participant four, perhaps a prerequisite for the effectiveness of the intervention is an extreme sense of stress. Some participants were able to demonstrate that they knew the right things to say and do in relation to REBT, but deeper impacts were not evident. This could link to the transition between intellectual and emotional insight (Ellis, 2001). Future research could focus on establishing the conditions under which successful emotional change occurs and if and how such change is maintained. Specifically, it would be of interest to assess motivation regulation in relation to the application of rational beliefs as well as the disputation of irrational beliefs. It may be that identified regulation represents intellectual insight and integrated regulation emotional insight.

4.5.1 Possible mechanism of change

It appears that REBT is a robust and effective stress management and psychological wellbeing promoting intervention. The key mechanism of change is thought to involve the transformation of irrational cognitions to rational cognitions through psycho-education, skill development, and practice. The transformation of belief quality (i.e., from irrational to

rational) provides a pathway through which external activating events can be integrated into an individual's broader cognitive architecture. This occurs through accommodation (e.g., a willingness to acknowledge the events that occur) and assimilation (e.g., a modification of a person's schemata or internal model of the world; Ryan & Deci, 2017). In REBT the cognitive mechanism of change has been stated as being in line with a scientific paradigm shift, where the culmination of evidence, tests of logic, and functionality cause a broad and deep change in a person's philosophy (DiGiuseppe, 1995). Changes in scientific thinking occur similarly (Kuhn, 1970), therefore, REBT adopts the process of scientific paradigm change to represent a broader model of how beliefs can change (DiGiuseppe, 1995).

The mechanism of change which occurs during stress management can be summarised as first, the disputation of irrational beliefs; second, the adoption of rational alternative beliefs, along with education and acceptance that it is one's beliefs that are a major causal factor in the stress response. These processes are thought to support the internal, psychological, adaptations one can make when faced with such requirements in their environment. The Cognitive Appraisal Theory of stress (Lazarus, 1991) posits that coping skills are a form of resource on which an individual can draw during a stress response. It could be that reducing irrational beliefs and increasing rational beliefs increase the coping skills and resources on which an individual can draw to support their adaptations to stressors. In chapter two, reductions in levels of irrational beliefs were significantly associated with reductions in stress and in this chapter, the increased ability to cope with the demands of policing roles was inferred from the results of the cases. For example, the participants refer to increased skills to perform under pressure and being able to withstand being out of their comfort zone which suggests increased coping.

In terms of the REBT change mechanism and motivation dynamics, integrated motivation is supported through rational beliefs which support psychological flexibility, acceptance, tolerance, and non-extremity. Primarily REBT theory focuses on acceptance and tolerance and its application provided participants with a pathway from amotivation where participants were experiencing cognitions related to global hopelessness, for example, participants displayed a degree of amotivated regulation at the beginning of the session as they felt helpless in terms of the external events that were occurring. As the intervention progressed, this changed as they began to understand the importance and psychological skill of acceptance through adopting a rational perspective which involved exploring and disputing a complex range of irrational beliefs. All participants moved towards a greater experience of self-determined motivation which infers that greater integration was taking place (Ryan & Deci, 2000).

Finally, BPN satisfaction may be increased through the transformation of meaning that takes place throughout the course of the intervention. All participants apart from one experienced an increase in BPN satisfaction. This could be because the intervention provided a broadening of personal meaning to their experience. For example, an important part of the REBT intervention is that individuals understand that they can take responsibility for their responses to adversity, this can be experienced as empowering and therefore increase the satisfaction of one's autonomy needs. The psychological skills developed during the intervention allow individuals to cope with the inherent discomfort experienced when in a new role as they understand that they can adapt to their environment thereby increasing satisfaction in competence, and finally REBT promotes the satisfaction of relatedness through unconditional acceptance of self and others and may allow for individuals to give and receive more autonomy support. Participant 3 did not experience increased satisfaction with the need for relatedness. This makes sense considering the context of their distress in

that they had felt unjustly treated by the police organisation. The reduction in the satisfaction of the relatedness need could, in this case, represent a move to an acknowledgement of the situation from a position of defensive compartmentalisation and avoidance of distress that was occurring at the beginning of the intervention.

It seems that the effectiveness of the approach relies heavily on two important factors, first the skill of the practitioner and second, the receptiveness of the client. While REBT provides beginner practitioners and their clients with a simple framework it tends to disguise the complexities and nuances that may emerge during interventions. For example, where the intervention was less successful the practitioner may have struggled to effectively communicate the differences between cognitions that represented inferences and irrational beliefs, as may have occurred with participant one. The difficulty that the participant had in recognising the difference had an ongoing impact on their commitment and engagement in the intervention which they mention in their social validation data. It could be that participant one was coping with the stress that they were experiencing through exhibiting high FI, and the high pace of their role meant that they were able to compartmentalise their frustrations. Furthermore, there is a range of reasons which might impact the client's full engagement with the approach. These include healthy disagreement with the practitioner's interpretation of events; a lack of motivation or energy to commit to the tasks that will bring about change, the change process may take a long time due to biological and social learning tendencies, and feelings of hopelessness, or a lack of willingness to take a risk on making changes (Ellis, 2002). Participant three, for example, was expressing feelings of hopelessness, along with a reluctance to "forgive" those whom they held responsible for what they believed was extremely unjust treatment. In contrast, participant four felt that the intervention was successful because they were experiencing feelings of hopelessness and that adopting a more rational philosophy enabled them to accept the conditions and find a way to

work with them, rather than against them. It could be that participant three needed more time to understand and apply a rational philosophy.

This study builds on the findings presented in chapter three by adding a more detailed examination of the processes and outcomes of an REBT intervention. Specifically, the current study reveals that levels of irrational beliefs impact both motivation regulation and the satisfaction of BPNs in unique ways for each participant and that reductions in irrational performance beliefs appear to impact both self-determined motivation and psychological wellbeing positively for all participants. The stress data also supports the hypothesis that where increases in cortisol do occur, they do so in the face of relatively low cortisol levels, to begin with. The reductions in stress observed in the current paper, alongside past research in policing (Nwokeoma et al., 2019), show that by disputing irrational performance beliefs and promoting rational performance beliefs, police leaders can reduce stress, and increase motivation, and psychological wellbeing. This study is positioned as an important and novel contribution to stress management, police wellbeing, police leadership and REBT literature. To our knowledge, it is the first idiographic examination of the application of REBT to manage stress with police senior leaders. In applied settings, it is often a challenge to balance the volume of data collection and the burden this may place on participants in real-world settings, a solution to this is the multiple-probe design, used in this study, which allows for systematic data collection in ecological settings which in their nature present with many competing variables (Barker, McCarthy, Jones, & Moran, 2011). More studies are called for using single-case methods to build on the current findings.

Limitations within this study may guide future researchers. For example, a subjective measure of stress may further add to our understanding of the intervention effects. While objective measures of stress such as hair cortisol concentration are indicative of stress the

range of “unstressed” to “stressed” is difficult to determine, indeed low levels of hair cortisol may represent reductions in chronic stress and can also be indicative of increased levels of chronic stress due to poor functional cortisol secretion (Staufenbiel et al., 2013). Subjective experience is an important indicator of stress also and its addition to the current study would have strengthened the findings.

The current cases employed a measure of irrational performance beliefs to assess levels of irrationality. Future research may broaden this measure to include context-specific beliefs. For example, sleep quality and work-life balance appear to be prevalent stressors in policing (Lammers-van der Holst & Kerkof, 2014). Developing more context-specific measures may further assist in the targeting of irrational beliefs in practice. Furthermore, measures of increases in rational beliefs may further reveal the broader change mechanism involved in reducing stress and highlight the importance of both disputing irrational beliefs as well as their replacement with rational alternatives.

In light of the current findings and limitations presented in the study, there are some practical implications that practitioners and policymakers may consider when designing the application of REBT interventions. Practitioners in policing and other high-performance settings should consider the unique needs of the individual when designing interventions and allow for individual differences to emerge in the provision and offer some flexibility in the length of the intervention based on individual needs.

In traumatic contexts, such as policing, practitioners should prepare for interventions by exploring the sensitive application of REBT to the specific context. For example, it is usual in low-risk contexts to dispute awfulizing beliefs by assessing the degree of “badness” that is rational. While REBT theory holds strong when disputing traumatic events, practitioners are advised to dispute irrational beliefs in a compassionately effective manner.

For example, participant one felt that the risk that they were responsible for meant that they had life-or-death decisions to make in their role. While carrying the risk was experienced as stressful, the functionality of the awfulizing belief was the target of the dispute, not the evidence or logic for their view of making such grave mistakes. This recommendation is also supported in REBT practitioner education (DiGiuseppe et al., 2014) and is highlighted as an important detail within high-risk contexts.

Homework assignments formed an important part of the intervention in this study. Homework tasks were emphasised as an important component of achieving change particularly emotional change (Ellis, 1963). While homework tasks were negotiated and their impact discussed during sessions, factoring participant engagement into the design of case study research may assist in supporting understanding of their importance to the change process, indeed, participant two admitted not committing the time to homework tasks which may well be reflected in their experience of the effectiveness and applicability of the intervention. Future research could be designed to more accurately record the formulation of and level of engagement with homework tasks. It could be that some tasks are more effective than others or that there are specific tasks that suit a particular context, (e.g., emotive tasks such as rational emotive imagery; REI; Maultsby, 1971), behavioural tasks such as implosive desensitisation or flooding, which involves full exposure to stressors (Ellis et al., 2001), or cognitive assignments such as completing REBT self-disputing forms (DiGiuseppe et al., 2014). A more systematic approach to and evaluation of the application of homework tasks may also lead to more positive and robust intervention outcomes as has been demonstrated in previous research (Rees, McEvoy, & Nathan, 2005). Furthermore, there is an opportunity to integrate innovative tasks such as reflective practice which are more commonly used for practitioner evaluation (Bennet-Levy, Thwaites, Chaddock, & Davis, 2009), and virtual reality tasks (Banos et al., 2011) within REBT interventions.

Finally, the current study aimed to proactively develop psychological perspectives to pre-emptively tackle stress rather than deal with stress as a clinical outcome. Future research designs could emphasise this approach more clearly and aim to measure responses to life events or known stressors longitudinally to assess the preventative effect of understanding REBT theory early. While such designs may pose challenges for researchers, preventative interventions would be of value to the psychological health of individuals.

4. 6 Conclusion

This study contributes to the extant literature by providing an idiographic single-case examination of the effects of REBT on an objective marker of stress, self-reported motivation, and the satisfaction of BPNs of five senior police leaders. This study supports the effectiveness of REBT within an under-researched and high-risk context and also contributes to the research field by examining the application of REBT in a “real-world” performance setting. Doing so has resulted in clear methodological advances and implications for future research and practice. Data indicated that REBT was successful in reducing irrational performance beliefs, hair cortisol concentration, increasing self-determined motivation, and the satisfaction of BPNs. It is hoped that this study will encourage further applied research in the field of REBT in policing and other performance contexts, where the opportunity to apply REBT proactively is of particular interest in terms of promoting psychological wellbeing in challenging contexts.

This chapter has addressed the second aim of this thesis in that it has presented an idiographic analysis of the effectiveness of an REBT intervention in relation to psychophysiological stress and psychological wellbeing from an SDT perspective. The results have revealed the individual nature of the experiences of senior police officers both in the range of stressors that they experience and in the meaning that each represents. In the

following chapter, the third and final aim of this thesis is addressed in the form of an autoethnographic review of applying REBT- informed interventions within policing over four years.

CHAPTER 5: MAKING A DIFFERENCE: A REVIEW AND AUTO-ETHNOGRAPHIC ACCOUNT OF APPLYING RATIONAL EMOTIVE BEHAVIOUR THERAPY (REBT) IN POLICING.

5.1 Introduction

In the previous chapters, the role of irrational beliefs (IBs) was examined as an antecedent of stress and motivation in police personnel, and the effectiveness of an applied REBT intervention was examined demonstrating its usefulness in this context. The current chapter is a detailed reflection of a performance psychologist's experiences and understanding of applying REBT in policing over four years and serves to address the final aim of this thesis, which is to provide an insight into the extent to which REBT has and can be applied to support personnel in the police context. Policing is a complex, fast-paced, 24/7 environment. Within the law enforcement/police practice literature there has been a broad and growing interest in ensuring the ongoing psychological wellbeing of police officers and support staff (Cartwright & Roach, 2021). The fact that policing is stressful is well supported (Houdmont & Elliot-Davies, 2016), and the negative effects that stress has on police performance, and personnel wellbeing, are also broadly known (Nisar & Rasheed, 2020). As stress is largely a psychological challenge, the field of applied performance psychology is in a strong position to respond. Performance psychology is a branch of psychology that focuses on describing, explaining, predicting, and optimising performance-oriented activities in the fulfilment of general and domain-specific ethical standards (Nitsch & Hackfort, 2016). In particular, performance psychology researchers are interested in the balance of optimal performance, development, and wellbeing (Williamon & Philippe, 2020). Rational Emotive Behaviour Therapy (REBT; Ellis, 1962) is a psychological approach to human functioning that, at its core, aims to shift people's perspectives to achieve a profound philosophical

change that greatly impacts their quality of life. It is posited that by changing their philosophy people can move from experiencing debilitating stress to functional pressure (Ellis et al., 2001). The aim of this paper is to reflect on the experiences of applying REBT theory from a performance psychology practice orientation within a British Police organisation, to draw pragmatic conclusions that inform its effective application in this context and to illuminate avenues for future research.

REBT theory is a goal-oriented comprehensive life philosophy which, it is claimed if applied robustly and rigorously, can bring about profound effective emotional relief and behaviour change (Ellis, 1994). REBT began as an evidence-based cognitive behavioural psychotherapy (CBT) that focused on the identification and disputation of irrational beliefs and the construction of rational beliefs as healthy and functional alternatives (Digiuseppe et al., 2014). REBT has several distinctive features that distinguish it from other forms of CBT (Dryden, 2009). Most notably, REBT places significant emphasis on the role rational and irrational beliefs play in shaping emotions and behaviours. In REBT rational beliefs are defined as beliefs that are flexible, non-extreme, and logical (i.e., consistent with reality), and in contrast, irrational beliefs are rigid, extreme, and illogical (i.e., inconsistent with reality). Irrational beliefs underpin unhealthy emotions and behaviours, whilst rational beliefs underpin healthy emotions and behaviours (Turner, 2016). The chief aim of REBT is to weaken irrational beliefs and to develop and strengthen rational beliefs to promote greater wellbeing (Digiuseppe et al., 2014).

Recently researchers in the field of performance psychology have started to examine the role that REBT theory may have in relation to motivation (Artiran, Simsek, & Turner, 2020; Davis & Turner, 2020; Chrysidis, Turner, & Wood, 2020). Motivation is a key component of change (Gagne & Deci, 2005) and the quality of motivation, as with the quality

of beliefs (e.g., rational or irrational) and emotions (e.g., healthy or unhealthy) is thought to be important in a change process (Turner & Davis, 2019). The current paper is grounded in self-determination theory (SDT; Ryan & Deci, 2000) as well as REBT theory. SDT represents a broad framework for the study of human motivation and personality (Ryan & Deci, 2017). SDT takes a unique approach to the concept of goal-directed behaviour as it differentiates the content of goals and the regulatory processes through which goals are pursued (Deci & Ryan, 2000). This process is outlined by organismic integration theory (OIT; Ryan & Deci, 2017) which is one of six mini theories that capture different aspects of motivation and psychological integration within the SDT framework. Furthermore, SDT employs the concept of innate basic psychological needs (BPN; Ryan & Deci, 2017) and their satisfaction as a foundation for the integration of developing behaviours.

The little REBT research that exists in policing (Chapter three; Onyishi et al., 2021; Nwokeoma et al., 2019) demonstrates that the application of REBT theory is effective in managing stress, improving motivation, and improving wellbeing. Having noted that police contexts are vast and complex, the specific application of REBT may differ according to the context in which emotional distress occurs. This leads to calls for detailed professional practice literature that illustrates how REBT theory can be applied across and within a police context effectively. Along with a shortfall in empirical investigations into the theoretical tenets of REBT in policing, there is also an absence of professional practice literature that explores the nuances and challenges of applying REBT within policing. The effective application of REBT theory requires both a thorough understanding and innovative thinking so that accurate and relatable intervention can continue to evolve. Conventional research approaches, such as cross-sectional and experimental designs, do provide support and advancement in theoretical knowledge but do not often illustrate the detail of the experiences of professional practice. Literature that explores the nuances of professional practice has the

potential to illustrate and provide an evidence base for a more detailed application of REBT and can provide important recommendations for practitioners working within policing contexts. To this end, the purpose of the present article is to discuss the emergence, application and future of REBT in policing. It is hoped that reviewing and synthesising practitioner reflections, through an autoethnographic account, will help provide a foundation that may inform future practice and stimulate innovative thinking to effectively support performance and wellbeing in this complex and challenging environment.

5.2 Methodology

As noted in chapter one this research is situated in a pragmatic research philosophy (Fishman, 1999). A pragmatic philosophical approach to research, with origins in the work of Dewy (1931), James (1907), and Peirce (1984), emphasises practical solutions to applied research questions and the consequences of enquiry (Rosiek, 2013). Critics of an extreme positivist approach to applied psychology research recognise that the reality of experience is influenced by socio-cultural conditions and subjective biases (Giacobbi, Poczwardowski, & Hagar, 2005). Pragmatism is an approach to research that attempts to explore and evaluate the practical value of knowledge as a tool for helping people cope and thrive within their specific context, as opposed to striving to reflect an underlying reality (Rorty, 1999). Pragmatic knowledge consists of the usefulness of research findings in terms of problem-solving and achieving goals in the context in which we operate (Fishman & Messer, 2013).

Autoethnography (Heider, 1975; Goldschmidt, 1977; Hayano, 1979) was adopted to chart the multi-faceted application of REBT interventions in the dynamic and complex world of policing. An autoethnography is a research method that draws on personal experiences to describe and understand experiences, beliefs, and practices within a specific culture or context (Adams, Ellis, & Holman- Jones, 2017). The rationale for adopting an

autoethnographic approach is to complement and build on the growing body of research in REBT within high-performance contexts (e.g., Jordana et al., 2020), and the findings reported in earlier chapters of this thesis. In this study, this rationale will be addressed through the exploration of the nuances of applying REBT from a performance psychology orientation in the context of policing. Such exploratory findings may, ordinarily, be masked by generalisation in more traditional research approaches (Sparkes, 2015). Qualitative findings may be structured using narrative approaches, although this is not commonplace in the presentation of the results of scientific enquiry (Sparkes & Smith, 2009). Autoethnography contains narrative components which have a potential contribution to broadening the understanding of psychological processes and building knowledge (Poerwandari, 2021), and is congruous with a pragmatic research philosophy as it allows for reflection on experience to take place (Rosiek, 2013). It is possible to apply an analytical approach to autoethnography which aims to capture the lived experience of professional practice in an ethical way but also stimulate collective progress knowledge development (Wall, 2016). Furthermore, pragmatism grounds the first-person account through reflexive critique and locates enquiry in the context of historically and culturally constituted experiences. Reflexivity is the critical examination of personal experiences and is central to autoethnographic research (Fassett & Warren, 2007). Autoethnography involves the examination of the self while maintaining an outward account of the broader context where self-experiences occur. Autoethnographic texts are written in the first person and feature dialogue, emotion, and self-awareness as a narrative that is affected by history, social structure, and culture (Ellis & Bochner, 2000). The context of autoethnography as a research method in this study is that there are many opportunities and benefits of adopting a rational emotive behavioural approach to address the broad psychological challenges faced in policing and the obstacles in doing so.

I am a performance psychologist. A performance psychologist applies interventions that focus on human performance in professions that demand excellence in psychomotor performance, policing is deemed to be such a profession (American Psychological Association, 2014). Performance psychology is a sphere in which researchers and practitioners describe, explain, and predict human behaviour (Raab, 2020). Effective performance is denoted by an optimal mindset that keeps the performer focused on the task at hand at the expense of other competing stimuli (Cotterill, 2017) and seeks to understand the cognitions and behaviours initiated when working towards competent performance (Matthews et al., 2000). The general tasks of performance psychology are likely to be the description, explanation, prediction, and psychological optimisation of performance-orientated activities (Cotterill, 2017). Performance psychology is also especially concerned with contextual factors and their impact on performance as well as the impact that performance has on those contextual factors. For example, the external environment or emotional state of a performer is considered in terms of the quality of performance as well as the impact of performance tasks on wellbeing, and long-term performance (Matthews, Davies, Westerman, & Stammers, 2000).

The data generated for this study is drawn from my reflective experiences of first working as a performance psychology researcher in policing and then becoming an embedded performance psychology researcher/practitioner within the organisation over four years. Each theme arose through regular reflective practice based on an integration of reflective models proposed by Gibbs (1988) and Mason (2002). As a practitioner, I regularly reflect on my practice as a form of performance evaluation and as a means of developing my skills. To add depth and structure to my reflective process I draw on the discipline of noticing (Mason, 2002) which orientates my reflective practice to surface experiences at the inner level (e.g., emotion, attention, memory) and outer level (e.g., assumptions, predispositions,

biases) and deeper experiences at the inner level (e.g., rational/irrationality, motivation, behaviour changes) and outer level (e.g., critiquing ethical, social, political values). To add further structure to the analysis here salient themes were selected, through reflexive dialogue with my supervisory team; consultation with texts that focus on the differentiation of REBT from other psychotherapeutic approaches (Dryden, 2009; Dryden, 2021; Digiuseppe et al., 2014), and they were based upon practitioner experiences that are thought to echo and also build upon previous practice literature. The process of identifying themes was outlined by Chang (2016), and included shifting attention back and forth between self and others in the personal and social context; using data to inform the culturally informed narrative that was produced by the author. There was a balancing of interpretation and analysis through categorising; zooming in, and assessing insight, intuition, and impression as analytical processes. This was balanced by connecting categories to the sociocultural context, zooming out, and using personal creativity and imagination in the interpretation process. Ten strategies were used to focus the analysis and interpretation process. These were, searching for recurring topics; themes, and patterns; looking for cultural themes; identifying exceptional occurrences; analysing inclusion and omission; connecting the present with the past; analysing relationships between self and others; comparing self with other's cases; contextualising broadly; comparing with social science constructs and ideas; and framing with theories.

5.3 Findings

As a result of collating, reading, and rereading the data, sometime after writing the initial reflective entries, I identified units and then categories from the data. Nine key categories emerged from data analysis. Categories one to six directly reflect the GABCDE model popularised within REBT; G = Goal; A = Activating Event; B = Belief System; C =

cognitive, emotional, and behavioural Consequences; D = Disputes or discussions to reveal engagement of the irrational belief system; E = presentation of rational and Effective new beliefs and their resulting consequences (Ellis & Dryden, 1997). For B, there is a focus in the present paper on irrational beliefs, which are beliefs that are dogmatic, inflexible, inconsistent with social reality, and hinder long-term goal attainment, whereas rational beliefs are flexible, consistent with social reality, and aid long-term goal attainment (Turner, 2016). In the first category, I expand on G; goals and include values and motivations as a more representative description of my experience and way of working. Categories seven to nine felt important to include separately as a narrative of my experiences of professional challenges, my growth as a practitioner, and my ideas for the future.

5.3.1 Goals, values, motivations (Gs), and contexts in policing.

5.3.1a An emphasis on client goals, values, motivations, and context. In my practice, I have found it important to explore the goals, values, and motivations of the people that I work with, the importance of which is mentioned frequently in REBT theory and research (Ellis, 1994; Turner, Aspin, Didymus, Mack, Olusoga, Wood, & Bennett, 2020). The stressors and psychological challenges that people face in policing can often be linked to their goals, values and motivations. Emotional reactivity in the form of activating events occurs when there is a perceived incongruence between expectations in terms of goals and reality (Chadha et al., 2019; Ellis, 1994). In this section, I reflect on the topic of exploring goals, values, and motivations in policing and within an REBT practice philosophy.

The values of policing and behavioural expectations of police employees in England and Wales are currently set out through the College of Policing's Competencies and Values Framework (CVF; COP, 2016). It espouses that the core values of policing are impartiality, integrity, public service, and transparency, all of which are grounded in the Police Code of

Ethics (COP, 2014). Personal and organisational values alignment has been significantly related to anxiety and work stress (Posner, 2010), with poor personal and organisational values congruency correlating with higher work stress and anxiety. Many officers and staff that I have encountered express intrinsic motives for joining the police service. That is, they sign up for reasons that tend to fall in line with giving to one's community as opposed to gaining wealth, fame, and image (Kasser & Ryan, 1993). Without exception they tell me their motivation for being in policing is to fulfil a drive to "make a difference", but on closer examination "making a difference" is rarely the only life goal at play. Extrinsic motivators such as buying a house, looking after a family, and earning a secure and decent wage are also important.

The goals landscape becomes more crowded when you consider the complexity of policing, including the rising demands of policing, the cuts to police numbers, and the politics that swings policing priorities. While perhaps at the start of a policing career values are strongly in line with making a difference, that important intrinsic goal is often trumped by extrinsic aspirations. These extrinsic foci tend to include, maintaining a positive image in front of others, gaining respect, being promoted, making it to retirement, and drawing a generous pension. Such extrinsic foci are a facet of modern society and are by no means poor or immoral goals, but their presence builds complexity into the picture of goal achievement creating a prioritisation challenge for individuals to manage and an important area for focus in applied practice. The contents of goals are then coupled with how an individual is motivated in pursuit of their goals. Often the extrinsic goals of maintaining a positive image are coupled with introjected regulation or self-pressure and they can be experienced as having to do as one is told which is an external form of regulation. Both introjected regulation and external regulation are known to be associated with poorer goal achievement and

psychological wellbeing outcomes (Ryan, Sheldon, Kasser, & Deci, 1996). Assessing the content and process of goal pursuit is therefore an important focus of applied practice also.

The complexity of goal focus is further compounded by the desire to avoid catastrophic policing mistakes. The goals of many of the individuals I work with tend to be about self-survival within policing (e.g., “I cannot/must not make a mistake, because mistakes can be catastrophic”). Such internal conflicts can be explained by an approach-avoidance conflict where individuals are both motivated towards and repelled from high-risk goals as there are elements of such goals which have positive and negative qualities (Ito & Lee, 2016). There is a lot of evaluation within and of policing. The word “scrutiny” is common parlance, often resulting in mindsets focused on egoic survival over masterful effectiveness. Motivation research has demonstrated that dominance of a performance/egoic motivational climate which is predominantly focused on results and performance outcomes predicts that individuals will fear judgment and failure and so are likely to experience increased stress, alternatively, the dominance of a mastery motivational climate which is predominantly focused on continually improving skilled task performance predicts that individuals will experience lower stress (Nerstad, Richardsen, & Roberts, 2018). In my experience, the dominant motivational climate in policing is a performance-egoic motivational climate. This possibly stems from the high-risk, high-profile nature of the context where performance failures can carry catastrophic consequences. The realities of the risks carried by those who work in policing coupled with their drive to protect the public can lead to an extreme, yet predominant mindset of contingent worth, in that if individuals fail to solve all crimes and perfectly protect the public, they will be wholly bad people who have failed victims of crime. Developing the confidence to deliver effective police performance is a key reason for seeking psychological support.

Theoretically, when people can identify and perceive that they act and live in line with their goals, values, and motivations the distress that they experience is minimised (Deci & Ryan, 2000). In such situations, the volume of activity in pursuit of goals can appear to be extremely high. For example, during high-profile criminal investigations, there is often a relentless motivation to deliver justice and is experienced as “just doing the job”. In those circumstances, the officers and staff seem fully connected to “making a difference” and don’t tend to report high-stress levels. Alternatively, I have examples of individuals experiencing extreme distress due to failure to reach the goals that *others had suggested for them*. For example, an officer is not promoted to a position after being asked to apply for the position. When we explored the distress of this individual, we discovered that they “didn’t even want the job in the first place” but that they experienced a great deal of personal shame in not getting what they were told they would get. Exploring “who’s goal was this anyway?” seemed to help the client recognise the reality of the situation and resolved their distress to a certain extent. Doing so allowed us to reflect on their shame through an REBT lens too. I think this makes the case for the importance of assessing goals, values, and motivations within the REBT framework. Clients’ goals, values, and motivations can be assessed against the contents of goals (Ryan, Sheldon, Kasser, & Deci, 1996), the motivation types that are influencing clients, and the satisfaction of basic psychological needs (BPNs; Ryan & Deci, 2008) and in conjunction with critical activating events (A) and consequences (C) (Ellis et al., 2001) with all hypotheses striving to identify irrational beliefs (B).

I draw on REBT and SDT theory to explore a client’s choice of focus and goals. I think that raising awareness of what is important to humans (their goals and values) along with understanding what drives them (their motivations), and if what drives them is healthy or unhealthy is an important part of the therapeutic process. SDT also situates individuals in their social context and makes sense of human experience through the dialectic between the

two. REBT theory does address goals, values, and motivations but does not explicitly focus on their importance as “disturbance factors”. REBT theory is in agreement with SDT that a person’s goals are preferably constructive, and intrinsic (Ellis, 1974).

5.3.1b When good goals go bad. I think the following reflection illustrates the complexity of competing motivations as experienced in policing. The most common police value that I think is misinterpreted is the public service value of selflessness (U.K. Government, 2014). It states that holders of public office should act *solely* in terms of the public interest. It seemed in many of my early one-to-one meetings with police officers and staff through Socratic examination of their “overdoing it habits” that this argument seemed the most solid reasoning that they would give for compromising their wellbeing to the extent of burnout and breakdown. Those who seemed to suffer most “could not believe” how others could take a break adding to their emotional disturbances about not matching up to apparent superhuman levels.

While practising within policing I came across the concept of public service motivation (PSM; Perry & Wise, 1990). PSM is a person’s predisposition to respond to motives grounded in public endeavours. Four dimensions are reported to be empirically associated with PSM, these are an attraction to public policymaking; commitment to the public interest and civic duty; compassion; and self-sacrifice (Perry, 1996). It seems to explain, to some extent, how the habit of overdoing it can happen in policing. Being public service motivated extremely and dogmatically, i.e., where one believes that they absolutely must be committed to serving the public at all times may be the causal route of negative outcomes associated with the construct.

While having PSM is thought of as positive to foster (Ritz, Brewer, & Neumann, 2016) my immediate thoughts were how would that lead to detrimental wellbeing and

performance outcomes. I could see that it might be possible that reducing resources would perhaps have a psychological effect on strengthening intrinsic motivation which might ignore the signs of burnout because the work being done was for the greater good. Indeed, in the initial formulation of the concept, there were concerns that PSM could produce negative outcomes through overcommitment (Perry & Wise, 1990), a point that was largely ignored as the concept gained research momentum. More recently the darker side of PSM has been researched (Schott & Ritz, 2017). The compassion and self-sacrifice components of PSM have been shown to foster resigned satisfaction (Giauque, Ritz, Varone, & Anderfuhren-Biget, 2012) and as an overall concept PSM has been positively related to stress (Gould-Williams et al., 2013); burnout and job dissatisfaction (Van Loon et al., 2015); involuntary or long-term absenteeism (Koumenta 2015); presenteeism (Andersen et al., 2016), and negatively to physical wellbeing (Liu, Yang, & Yum 2015). This is bleak reading for researchers and practitioners who focus on purpose and values as key to motivation. It seems that an over-emphasis on PSM could be detrimental to wellbeing, particularly if we see and promote motivation as a unidimensional construct and focus solely on the goals and values of public service which are easily interpreted in extreme and dogmatic ways.

PSM theory does not account for contextual factors and is a theory that has developed independently of broader social psychology. SDT is a broader and more empirically supported motivation theory and posits that contextual factors are vitally important (Ryan & Deci, 2000). This means that there is more than one way to be healthily motivated and while a person's PSM may be high, other sources of motivation may add to or come into conflict with the drive that they experience. External and partially internal types of motivation may factor into the equation. For example, an officer may have a strong sense of public service motivation (intrinsic motivation), along with a desire to please their boss (external regulation) which clashes with the importance they would like to give to their home life commitments

(identified regulation) all topped off with believing that they ought, should, or must meet all of their goals and that they are terrible people if they do not (introjected regulation). Each motivational element can be supportive of psychological wellbeing so long as officers' basic psychological needs are satisfied and not frustrated in the process of managing the progress towards achieving their complex goals and values in complex contexts. It is my view that managing progress towards achieving and maintaining psychological wellbeing can be achieved through applying many of the principles of REBT. Of particular importance is motivation through introjected regulation which seems to be the clearest alignment of SDT and REBT theory. Irrational beliefs are created when people elevate their goals and values to dogmatic absolutes (e.g., I must achieve my goal). This, in turn, creates the setting for events to become activating (As) which consequently triggers stressful emotional disturbances (Cs).

If PSM is generally thought of as having a positive impact on individual performance through healthy motivation (Perry & Wise, 1990) because individuals scoring high on PSM measures are expected to perform well due to the meaningfulness of their work (Petrovsky & Ritz, 2014), how does PSM contribute to stress and burnout? It has been argued that those with high PSM suffer due to the discrepancy between what they think should be the outcome of their work and the actual outcome of their work (Koumenta, 2015). From an REBT perspective, it is the demandingness applied to the achievement of outcomes that is the causal factor in stress. Stress in these instances results from the fact that individuals cannot meet the high demands they have set themselves (Schott & Ritz, 2017).

We have seen that in other contexts, for instance, in sport, overly- high self-expectations lead to poor athlete wellbeing outcomes (Tait, Kremer, Carson, Walsh, & Main, 2020). In policing self-expectations play out against a backdrop of real and potentially traumatic events regularly. Making a stand for rational emotive behavioural mindsets is

arguably even more important in policing contexts. In general, the irrationally stressed police officers who believe that they “must” make a difference can be stoic in their stance.

Disputation has been difficult in some cases. The evidence for the apparent irrational “They or I must perform more or better, or I am not protecting the community that I serve” can feel difficult to counter. The psychological collisions that my clients and I discuss in sessions on political policies, public safety, and personal resilience are challenging to navigate.

Convincing a committed police officer to be less self-sacrificing is challenging. Initially, I felt that I was teaching police personnel to care less about the work that they do. Ethically my perception of teaching REBT principles felt wrong, however, through self-reflection and exploratory supervision conversations, self-disclosure and honesty with my clients I came to rest in the notion that REBT does not challenge us to think less, believe less, feel less, or act less. Instead, it challenges us to think effectively, believes effectively, emotes effectively, and act effectively in relation to our important goals and values. The message that has stuck with several of my clients in policing is *not to care less*, but to *care differently*, to care in a way that helps for now and for the long-term and that an effective formula for quality care is adopting a rational approach.

5.3.2 Typical activating events (As) in policing.

Activating events (As) represent perceptions of objectionable or unfortunate occurrences (Diguseppe et al. 2014). Specifically, “As” represent the feature of a situation that a client is most troubled by (Dryden, 2009). “As” may be an external environmental stimulus, i.e., an event that has happened and/or an inference about reality. There are a wide variety of potential activating events reported in policing including working in negative social situations such as crime and suffering (Henry, 2004), along with organisational red tape (Queiros et al., 2020). My experience has echoed those reported but also extends to

issues of inclusion within the organisation and personal matters such as relationship challenges. The most prevalent activating events that clients have reported in my practice emphasise personal internal pressure to perform, self-confidence and organisational issues. It seems that operational matters are less overtly activating, although the carrying of risk seems to be a prevalent activating event. In this section, I offer a brief description of the typical activating events or stressors that I have noticed in my tenure in policing so far.

5.3.3 Performance confidence Some of the most prevalent activating events in policing are associated with an individual's relationship with their performance. These range from questioning one's skills and abilities within policing to feeling frustrated that time and resource constraints do not allow for individuals to deliver quality performance where individuals are likely to experience competence and autonomy frustration. Transitioning into new roles brings activating events associated with imposter cognitions which may also frustrate an individual's BPNs. Frustrations also arise when people feel disconnected and ignored which connects with the frustration of the relatedness need.

5.3.4 Functional performance conversations. For many talking about performance in the policing culture is an activating event, as the word performance is often interpreted as poor performance, blame, and punishment. Moving the climate forward where performance conversations are a welcome exploration of collective goal achievement is a challenge. A functional performance conversation is an opportunity to reflect on the performance processes of an individual to support future performance optimisation. Individually and privately, officers and staff make evaluations of their performances and are so overly concerned about their abilities and capacities, that functional performance conversations are often avoided. This is probably the biggest contrast that my work in policing has with my work in sport. In sport, there is a relentless appetite for performance evaluation. While

subordinate staff found it difficult to challenge upwards due to a lack of psychological safety there was also a range of stress associated with challenging poor-performing individuals by line managers. This sort of awkward conversation was often avoided by those who found tackling such issues uncomfortable which in turn led to greater and more breadth of activating events as the poor performances perpetuated. Often line managers felt held to ransom with their fears that tackling poor performance would result in individuals falling sick and placing a greater burden on an already stretched service.

5.3.5 Vicarious stress. One Detective Inspector (DI) described what he saw as vicarious stress. Vicarious stress can be compared with experiencing secondary traumatic stress and vicarious traumatisation which is common in policing (Conn & Butterfield, 2013). In this example, critical A was that the team leader experienced that his colleagues were stressed about the stress that they observed or perceived others were experiencing. Another DI spoke about how others' descriptions of experiencing "dark" or suicidal thoughts which were catalysed by the volume of work faced by an individual felt like his responsibility for having asked that person to take on the cases that were duly his. Feeling responsible for his team's wellbeing led to his observations of stress within his team and his colleague's disclosure of suicidal thoughts becoming activating events which, through the activation of associated irrational beliefs, created a sense of debilitating guilt.

5.3.6 Big As (something bad happened) and Little As (nowhere to park). Managing risk, the high volume of work, and dealing with personal challenges are all common activating events in my experience of policing. There are some typical activating events associated with "the little things" which have been referred to in research as hindrance stressors (Lockey, Graham, Zheng, Hesketh, Plater, & Gracey, 2021). Hindrance stressors do not need to and are not causal of stress but if there are small blockers to efficiency and

effectiveness organisations would do well to address them. These often included, in my experience, email volume, lack of car parking spaces, the quality of the estate, and the Wi-Fi connectivity to name a few. Such “little things” are easy to overlook but each is a potential activating event within the police context with chronic stress as a consequence in such cases.

5.3.7 Equality and inclusion – from ignorance to awareness. As a practitioner equality and inclusion emerged as an important source of activating events and adversity throughout my time in policing. As awareness is raised within our societies of the biases that lead to institutionalised inequality and exclusion, those that make a stand can experience those inequalities as distressing adversities. On the other hand, those who are perhaps unaware of how institutionalised racism and exclusion affect their behaviours are distressed and surprised when they are blamed as a whole for racist and exclusionary acts. Activating events emerge as not being listened to or supported when raising concerns about issues of equality and inclusion and alternatively being seen as a symbol of a biased and prejudiced part of society by being a police officer.

5.4 Rational and irrational beliefs (B) in policing.

The activating events described in the previous section can activate a range of irrational beliefs that underpin psychological distress. Irrational beliefs are beliefs that when examined are absolute, dogmatic, rigid, illogical, inconsistent with reality, do not support goal achievement, and lead to dysfunctional emotional experiences (Digiuseppe, et al.,2014). I am particularly interested in the extent to which the quality (irrational or rational) of a person’s beliefs helps or hinders them in pursuit of their goals (G) in the face of activating events (A). Within REBT activating events can generate up to four core irrational beliefs. These are demandingness, awfulizing, frustration intolerance, and global evaluations. Demandingness is an absolute expectation of events or individual behaviours (e.g. the belief

that events absolutely must be congruent with one's expectations), awfulizing is the extreme exaggeration of the negative consequences of a situation (e.g. it is terrible, even catastrophic that events do not live up to expectations), frustration intolerance reflects beliefs of coping ability (e.g. the belief that one cannot tolerate or survive a certain event), and global evaluation beliefs imply that humans and complex life events can be rated or judged as solely good or exclusively bad (e.g. that a person or the world is wholly bad in the face of expectations not being met). There is a range of typical context-specific IBs for each belief type. In this section, I reflect on each belief type in turn. In my experience, irrational beliefs are rarely singular and occur within a complex network of associated beliefs, some of which are irrational, and some of which are rational. For ease of reflection, I review each belief category in turn.

5.4.1 Demandingness. Based on the typical activating events discussed in the previous section there is a range of beliefs that are characterised by demandingness, which appear within two broad overarching categories; demandingness associated with performance, and demandingness associated with professional relationships. The demandingness associated with performance can be directed at the self, colleagues, and the system and include unrealistic expectations based on how one would want to respond versus how one does respond to performance-related activating events. For example, performance drivers which may be underpinned by irrational beliefs (e.g., I must perform well) are ineffective/inefficient decision-making (particularly in making prioritisation decisions), managing time, and feeling able to meet organisational goals. In particular, there is a prevalence of believing that one can perform beyond one's limits in terms of time capacity and volume of work. Unfortunately, there is a constant imbalance between work volume and one's time and ability to respond to that volume. Officers and staff typically believe that they must be able to respond to all the work that they are faced with. Working towards promoting

effective new beliefs (i.e., I would like to, but I do not have to, respond to all the work that I am faced with) is important so that individuals can explore functional ways of meeting the realities of the volume of work that they face. This is to say that staff should not strive to meet their work commitment, rather, staff should work towards limiting the demand to meet work commitments and strengthen processes that make successful performance more likely.

The demandingness associated with professional relationships also stems from unmet expectations. Those expectations can be of oneself and others. For example, when aimed at the self this can be the belief that one must not let others down, particularly the victims of crime. When aimed at others typical demands are associated with the expectation that a team member “does what they are told” in a disciplined service or that a senior leader is fully aware of the realities of being a police officer on the frontline. From a systems perspective, the capacity of the service to respond effectively to the growing volume of work demands of policing is a source of systematic and cultural irrational demandingness beliefs. There is an expectation that the government invest more in policing, and that the service is armed with enough resources so that it can respond to all the calls from the public. This expectation is often elevated to demandingness which leads to stress and demotivation. There are expectations on police, and demands placed on them, however, a key feature of irrational demandingness is that the preference for meeting expectations is transferred into a demand, which is activated by an event that may prevent expectations from being met. Of course, police personnel want to meet public demand but elevating that “want” to a “must” creates stress if the resources simply do not exist.

One defining characteristic of an irrational belief is the rigidity with which it is held. In my experience, the irrational demandingness beliefs individuals hold are, often, so rigid that when change occurs which may address some concerns, such as modernising the

promotion process, providing support for wellbeing or effectively implementing change programs, those holding demandingness beliefs are unaware of steps being taken to address the real concerns that they raise. I often experienced this in support sessions in which individuals complain of a lack of support from the organisation, the very thing that I was providing to them at that time. My observation seems to concur with REBT literature which highlights the discrepancy between expectation and reality as causal of emotional arousal (Diguseppe, et al., 2014). While people may not try to solve a problem that they believe should not exist, it could also be that through selective attention people do not see that the problem that is distressing them is being addressed.

In police stress research a distinction is made between occupational stressors (stresses arising from how the organisation functions, like red tape and people management) and operational stressors (stresses relating to operational policing such as exposure to traumatic events). My observation is that irrational demands are more prevalent when individuals focus on occupational stressors. There is a view that occupational challenges like red tape, people management, working with the Human Resources Department, emails, and car parking spaces are easy to fix and so *should, must, or have to* be fixed easily. Invariably the realities in a public service organisation this is not the case. In contrast, when faced with the extremes of violent crime there seems to be an operational and professional ability to cope with the job. It seems that when reviewing a crime there is a tendency to respond rationally even in the most traumatic of cases and there are support services in place which can be used to support the processing of traumatic events. It seems that police professionals know, to a certain extent, when it is vital to draw on their cognitive coping abilities and that this occurs when events are inherently stressful. This may be because procedures, processes, and training support preparation and coping in this domain. I think there is a difference here in terms of what is expected to be stressful. While the principles of REBT can assist with coping in both

scenarios, organisational stressors which are the result of irrational beliefs are in danger of being trivialised and not a problem solved.

5.4.2 Frustration Intolerance. While demandingness is at the core of emotional disturbance (Digiuseppe, et al., 2014) stress can be experienced in policing through the route of frustration intolerance (FI, Ellis & Dryden, 1987). Tolerance beliefs seem to play an important role in the production of dysfunctional stressful reactions. FI beliefs are beliefs associated with how much frustration and discomfort humans can tolerate (Ellis, 2003). A person can have rigid expectations about their ability to sustain the effort, survive, or continue in the face of frustration, discomfort, or pain. I have found it useful to apply the theoretical categories of FI (Harrington, 2005) when exploring FI with clients. These are emotional intolerance (e.g., the belief that emotional distress is intolerable and must be avoided or controlled, and uncertainty reduced), entitlement intolerance (e.g. the belief that desires must be met), discomfort intolerance (e.g. the belief that life should be easy, comfortable, and free of hassles and effort), and achievement frustration (e.g. the belief that it is intolerable to perform below ones best). While the cognitive process is fundamentally the same in FI it is thought that the above categories lead to different emotional and behavioural experiences. This highlights the importance of fully exploring the content of IBs with the people I am working with.

Policing comes with a unique set of challenges to tolerate and often officers and staff are required to tolerate more than the average person as they are exposed to inherently stressful realities as well as extremes of work volume. Specifically, my practice has covered tolerance of stressful police-related incidents, tolerance of risk, tolerance of high workload, tolerance of one's limits, and tolerance of system constraints. Stressful police-related incidents are an accepted part of the job in policing but there is a requirement to be able to

withstand the details of police incidents. Achieving positive outcomes for the victims of crime often means that officers and staff focus on tasks that are inherently frustrating and uncomfortable with a core assumption that they can tolerate doing so. Tolerance of risk seems to be a more challenging task to achieve. Often officers describe living with a feeling of discomfort due to the risk of crimes being committed and their responsibility to prevent them.

5.4.3 Awfulizing. Explaining and disputing awfulizing beliefs in policing is challenging. Awfulizing beliefs are beliefs that are magnified negative evaluations about specific situations or people including oneself (Digiuseppe, et al. 2014). When working in policing I have deliberately emphasised the survivability of socially awful events and have taken a great deal of care to handle awfulizing disputes sensitively and with empathy and validation of my client's beliefs. It tends to get to a point where I articulate that I agree with the awfulness of the traumatic events that are reported in policing but then challenge my clients to explore whether they are adding to the awfulness through the perspective that they choose to take. I feel that the timing of this sort of conversation is very important. In addition, it is possible to not disagree with a person's evaluation that a situation is awful, whilst also questioning whether holding onto this belief is helpful for them (Dryden, 2009).

Beyond the traumatic incidents that occur in the daily work of police officers and staff, there is a societal culture where the extremes of language are used to describe situations that might be experienced as bad but that in reality are peripheral to one's goals. Such situations include being late for a meeting. Using extreme language to describe daily challenges tends to lead to an exaggeration of the negative consequences and can be extremely disruptive in many ways. One example I recall was of a senior officer losing patience with his children because it would be awful to be late for the first meeting of the

day. The frustration that ensued caused upset at home and disrupted his ability to focus on the long-term goals within his role.

5.4.4 Global Evaluation. Global evaluation beliefs describe a philosophical stance that when events, performances or behaviours do not meet expectations the individual will tend not to accept, approve, or regard themselves, others, or life positively at all (Digiuseppe, et al., 2014). This then derails one's focus from what could be done to correct or improve performances or behaviours in the future. This fourth irrational belief is also referred to as depreciation (Dryden & Branch, 2008). These negative global evaluations are negative evaluations of human worth which can be directed at oneself, others, and life. REBT theory recognises the complexity of humans and life events and so holds the position that humans cannot be rated as wholly good or of worth or wholly bad or worthless, however, I observe that there is a prevalence of the philosophy of contingent worth within western society, where success is seen as a sign of human value. The belief that a person should be competent and failure-proof to be able to be considered worthwhile has been a core observation of irrationality since the first inception of REBT in the 1950s (Ellis, 2002).

Fearing failure and believing that failing equates to a global evaluation of oneself, others or the world has been voiced by many of my clients within policing. Policing is a high-risk context where overlooking small details can impact the outcomes of cases in major ways. As a result, many officers and staff develop performance-related anxiety underpinned by global evaluation beliefs that affect their sense of self-worth and self-confidence. As described earlier, typical activating events such as focusing on performance, examining failure, challenging others, and feeling responsible for the wellbeing of colleagues can activate global evaluation beliefs.

Discussions about fear of failure centre on a range of topics from failing operationally to failing to perform in a promotion board or meeting, and letting others down, particularly the victims of crime, team members, and senior leaders. Furthermore, there is a pattern of frustration and disappointment in others who are perceived to have failed to perform. Layering on to this there is also a pattern of expectation that others should change rather than change being one of self-responsibility and self-led. I have encountered this in group sessions which have led to little change for individuals and merely provide a space for venting one's stresses to the group. When I have tried to challenge irrational beliefs in these cases and encourage self-responsibility there has often been resistance to adjusting the focus of change to oneself. I elaborate further on this point in the "challenges" section of this paper. REBT theory suggests that demands for high standards may reflect self-worth along with FI. Indeed, it may be a functional goal and value to be a high-performing and caring police officer, however, when failures occur, they can become activating events that trigger global evaluations of one's self and, in turn, lead to unhealthy negative emotional distress.

5.5 Typical emotional, and behavioural consequences of police work (C).

In REBT theory the "C" represents the emotional and behavioural consequences that are experienced about particular activating events. In my work in policing, I have dealt mostly with stress and have observed a wide range of emotional and behavioural consequences which hinder both an individual's wellbeing and performance. Stress and anxiety are currently the most commonly cited reason for absenteeism in policing (Cartwright & Roach, 2021). In this section, I briefly reflect on the common emotional and behavioural consequences that I have experienced in my practice within policing.

5.5.1 Anxiety. In terms of emotions most prevalent are feelings of anxiety related to being able to deliver on expectations. Here when the goals and values (e.g. to be an effective

performer) of an individual are disrupted by conflicting realities (e.g. high volume of work) and expectations are not met, irrational beliefs create unhealthy anxiety, which is characterised by catastrophising related to fear of rejection, fear of failure, and fear of anxiety itself (DiGiuseppe, et al., 2014). Many individuals I have worked with experience anxiety and associated cognitions centre on identifying with the imposter phenomenon (Clance & Imes, 1978), the feeling that one is not qualified to take on the responsibilities of a role and that they will soon be “found out”. Any expectation of performance evaluation, in this case, can become an activating event and trigger demandingness (i.e. I must perform well) along with associated awfulizing (i.e. it will be a disaster to fail), frustration intolerance (I can’t stand failure), and global evaluation (If I don’t perform well it means that I am a truly incompetent and bad person, cheating everyone who thinks that I am capable), which in turn leads to further distorted cognitions and unproductive behaviour (e.g. procrastination, over-preparation). It is common to observe further dysfunctional negative emotions when people fall beneath their perceived performance expectations. Such emotional consequences including guilt, shame, and hurt tend to stem from global evaluation beliefs (Dudau, 2014).

5.5.2 Unhealthy Anger. In other cases, clients present with unhealthy anger.

Unhealthy anger which can be categorised as hostility, rage, or contempt interferes with goal-directed behaviour (DiGiuseppe, et al., 2014). Often unhealthy anger and frustration stem from the expectation that others act in a way that is fair and supportive which, disappointingly, may not always be the reality that individuals are faced with. Hurt and anger can also occur when there are generalised negative judgments of police conduct that are regularly reported in the media. Research has demonstrated that those that work within policing are vulnerable in terms of their long-term mental health (Jetelina, Molsberry, Gonzalez, Beauchamp, & Hall, 2020). Such adverse mental health outcomes associated with

policing include occupational stress, anxiety, depression, psychiatric symptoms/psychological distress, burnout, and suicidal ideation (Purba & Demou, 2019).

5.5.3 Moral Injury. Trauma exposure over a career in policing can have a detrimental effect on an individual's psychological health and motivation within policing. Primary and secondary trauma exposure also has long-term insidious effects on individuals which impact their health and enjoyment of life. One area of research within the field of police wellbeing that may explain some of the emotional and behavioural consequences that happen over time in policing is known as moral injury (MI; Jinkerson, 2016). A construct with its roots in spiritual, religious, and philosophical traditions and traumatic exposure, moral injury is a particular trauma syndrome that can emerge following perceived violations of deep moral beliefs by oneself or a trusted individual. The emotional consequences of this are reported as dysregulated feelings of shame, guilt, contempt, anger, and disgust. Beyond emotions, MI seems to challenge a person's sense of self, spirit, trust, core beliefs, meaning and purpose (Lentz, Smith-MacDonald, Malloy, Careton, & Bremault-Phillips, 2021).

5.5.4 Moral Distress. Moral distress (Jameton, 1984), a related concept, is defined as a negative experience stemming from a sense of knowing what the right thing to do is and being prevented or blocked from doing the right thing due to institutional constraints (Papazoglou & Chopko, 2017). Such institutional constraints include high workloads which equal a lack of time to provide adequate attention to detail. Beyond this, there is a culture of wanting to attempt to respond effectively to all emergency calls and be able to support all those that suffer as a result of crime and feelings associated with failure sometimes ensue if this expectation is not met. In recent months these concepts have come to my attention as prevalent "C" s in policing. As yet no research examines the impact of REBT on moral

distress or moral injury although through the application of REBT within policing I believe that REBT could play a preventative and therapeutic role.

5.6 Disputation, strategies that bring about philosophical change in policing (D).

Disputation of irrational beliefs is a central change mechanism within REBT practice (Digiuseppe, et al., 2014). In my work within policing the targets of disputation are those in REBT in general. That is, I focus on targeting irrational and rational beliefs (demands/preferences, FI/FT, awfulizing/anti-awfulizing, depreciation/unconditional acceptance). In this section, I reflect on my disputing process within my work in policing.

5.6.1 Disputing in the context of long-term goals. REBT theory states that disputes tend to fall into three categories, empirical, logical, and functional. What seems to be less focused upon in REBT literature is that disputation takes place within the context of the long-term goals of the client. This, I think, is of particular importance when exploring the functional nature of irrational beliefs. Holding the goal within conscious awareness within the process seems to yield efficient functional results. Specifically, when I dispute a client's irrational beliefs, I continually refer to the long-term goals of the client and ensure that we test the belief in terms of its relationship with the goal. Interestingly Ellis (2003) referred to functional disputes as both pragmatic and juristical which may hint at the importance of the contextual aim of holding certain beliefs. Of course, the pragmatic quality of a belief can only be assessed against progress towards goals making awareness of goals an important foundation upon which disputation of irrational beliefs takes place. When working with non-clinical populations I think it is more challenging to know if emotional reactions are healthy or unhealthy because they may be low in intensity and relatively transient. So, I tend to rely on assessing the functionality of a belief in terms of how it aids progress towards a goal. That

way I think it is possible to recognise the junction between rational and irrational beliefs and how the consequences of either may be untangled and categorised.

5.6.2 Context-relevant disputation. Along with the disputing *strategies* explored above several, disputing *styles* have been identified – Socratic disputing, didactic disputing, metaphorical disputing, humorous disputing (DiGiuseppe, 1991), along with self-disclosure, and enactive disputation (Dryden, 1990). In my practice, I regularly combine Socratic and humorous disputing by playing the role of a detective and using context-relevant comparisons. I think that using context-specific criminal justice-related language can help strengthen the disputation. By asking a police detective “do you think that (the evidence that you have given) would stand up in court?” about rational or irrational beliefs, it seems easier for clients to assess the rationality of their beliefs. I also adapt this presentation of disputation for different contexts. In the world of sport, I might refer to the rules of a game for example.

5.6.3 Use of humour. Humour can play a major role in the processing of emotion, is a common antidote to distress (Samson & Gross, 2012; Strick, Holland, Van Baaren, & Van Knippenberg, 2009) and is a hallmark of REBT (DiGiuseppe, et al., 2014). Humour can also be a source of distress both deliberately, and accidentally. What has been perceived as acceptable “banter” is now recognised as discriminatory. The effective use of humour in practice is underpinned by a sense of a robust working alliance. I think it is important to recognise that humour may role model irrational beliefs. When I reflect on my style of practice, I have leaned on the use of humour frequently. I remember a client telling me that once during a presentation they watched me encounter technical problems to which I responded with humour and was unflustered. Something that they would find difficult to do. I also use humour to build rapport and to meet client resistance effectively. Coupling assertiveness and using humour has helped me to do this on several occasions. One occasion

that stands out to me occurred within my first month in the role. The use of humour in that session enabled me to ground myself with the group and foster engagement. I reflected that I did not need the group to like me, but I wanted them to listen to me and using humour to build rapport meant that the group were able to let go of resistance and engage in the session.

5.6.4 Self-disclosure and self-comparison. Self-disclosure and self-comparison have also emerged as key disputation styles for me. Much has been written in counselling and psychology literature about self-disclosure and I tend to take caution when using this. I think what assists some of the people I work with is that they can observe me in executive leadership meetings, giving presentations, and so on I can use a self-comparison technique. What I mean by this is because I have had parallel experiences within the hierarchy, I can disclose my stressful emotional consequences and show them how I use REBT to navigate these myself. In this sense I role model rationality via my behaviour. What is common is that people assume that I am never irrational and that I do not get stressed about anything and that “it’s easy for me” but I can demonstrate and talk about my similar experiences.

5.7 Effective new beliefs, philosophical change and effective policing (E).

The effective new beliefs that are constructed through the REBT process must be assessed against the long- and short-term goals of the client. In this section, I reflect on the process of developing effective new beliefs in my work.

5.7.1 Goal-focused effective beliefs. As noted in the previous section on goals, there may be several competing goals and the one-to-one environment has been the easiest place to explore an individual’s goal priorities. Sometimes there is a strategic goal of building a relationship or tolerating a “difficult” personality that becomes most salient and stress-provoking for a client. By far the most challenging effective new beliefs to build, in my experience, are those that involve unconditional acceptance when personal and policing core

values are challenged. For example, witnessing the underperformance of others, witnessing prejudice, and accepting one's limitations in the face of the extreme demands of the job seem particularly challenging for individuals in this context and can lead to moral distress.

However, when the therapeutic work undertaken articulates the process of acceptance effectively, i.e., that unconditional acceptance beliefs represent beliefs that lead to active problem-solving towards long-term goals rather than passive continued suffering in the status quo then effective new beliefs can ensue and lead to, often, profound change. This can, sometimes, take time and it is my view that I will continue to articulate the benefit of therapeutic sessions until I can see that the client can apply REBT theory at a philosophical level. I have been lucky that my role has afforded me the freedom to do this.

5.7.2 Philosophical change. Witnessing philosophical change is a privilege of working using REBT as a framework and focusing on goals, personal values, and mastering performance (in whichever way that shows up for an individual) seems to be an important part of the process in my experience. When people weaken and relinquish their rigid beliefs, they can often realise that the choices that may have a major impact on their lives are theirs to make. It seems during the process of recognising that they do have a choice some have felt empowered to change their careers and their lives. It felt to me that their philosophical freedom seemed to play out in behaviour immediately and sometimes perhaps before they had the opportunity to explore these decisions fully. For example, when one senior leader in the organisation recognised that they did not "have to" experience the stresses of the job they felt empowered to resign from their post following some post-session reflection. Later they reflected further that they recognised that resignation was not the right decision for them but that drawing on better coping skills, such as building rational beliefs and negotiating better working conditions was a more optimal way of problem-solving for them. Another client described feeling very different and uncertain about their new philosophy. Although the

philosophy brought positive change, they felt that it was important to continue to explore the breadth and depth of their new way of seeing the world. I recognise this pattern of behaviour as a catapult effect after change. It was described to me by one client as almost a rush of rational motivation. Having noticed this pattern along with feedback from clients about how strange it can feel to embody their new philosophies. I feel that it is important to support a full transition until the client's new philosophy is integrated into their lives. Once experienced there can also be a need to support the maintenance of changes in mindset and this can be achieved through continuous personal reflective practice and continued rational correction. I think it is possible for people to fall back into dysfunctional thinking patterns and so I help clients to develop strategies to stay aware of their thinking patterns.

5.8 Challenges

In this section, I discuss the challenges that I have encountered which I think are specific to the police context. I can identify and reflect on two types of challenges in my work in policing. First, there are some practitioner challenges and second, there are challenges that I think are specific to the REBT approach. The practitioner challenges that I encounter most often are adopting the cultural mindset; clarity of role/boundaries and working with the right people. The REBT approach - specific challenges that I feel are most salient are concerned with how rational thinking is applied; communicating acceptance as active; confusion over conditional shoulds; encouraging self-responsibility rather than self-blame; recognising linguistic imprecision and working with it; using REBT to inoculate individuals against the stresses of working within a system that is under-resourced when it is clear that resources are the better choice. In the next section, I will elaborate on each challenge.

5.8.1 Practitioner Challenges.

5.8.1a Adopting the cultural mindset. As one psychologist within this environment, I have noticed that there have been periods where I have felt like I have been swept away by the tides of policing. More accurately the volume and pace of work within policing have often meant that I have felt compelled to mirror the cultural norms of policing. Policing is a reactive environment. In some circumstances and areas of police business, it has to be this way. For example, detectives talk about a “golden hour” in which they have the best chance of gathering evidence in a criminal case. I have found that this reactivity (working at a heightened pace and under pressure to deliver the products of work) extends beyond the circumstances in which it is needed. I have found myself responding to both the volume and timeframe of requests in an unrealistic way simply because I am mirroring the culture. When I reflect on this, I see my role as grounding myself and those with whom I work to the reality of what is necessary. Doing so is an important stress management strategy in itself. I am trying to be the change.

5.8.1b Assessing who would benefit from support. On several occasions, I have been asked to intervene to help someone else to change rather than help the individual with their change journey. When I began practising REBT I fell afoul of this quite often and this could sometimes make the situation more challenging if the relationships became even more strained. It is difficult to assess who needs help and sometimes difficult to confront people with this perspective. In this situation, I talk through with the referrer to explore the extent to which they may be able to develop psychological skills to tackle the issues and assess who would most benefit from an intervention. Often it is both parties.

5.8.2 REBT Approach Challenges.

5.8.2a Literal Rational Thinking. In my experience sometimes the danger of rational mindsets is that they can produce what can be perceived as uncaring and unethical messages. One message that springs to mind is a wellbeing message to officers and staff that aimed to help individuals recognise their choices in terms of the constraints and challenges that they faced as police officers. Rationally there is always the option to leave the job if its strain is too much, but this message was received by some as offensive. There is a sense in policing that much more could be done to protect officers from the strain of the job. In REBT and SDT the perception of choice is an important element that supports psychological wellbeing. Leaving the job would be an effective means of managing stress but in the face of not being able to provide better working conditions in the here and now another choice might be to develop robust psychological coping strategies grounded in REBT theory. In my experience, many police officers and staff begin to feel trapped in the job. Often, they are waiting to reach pensionable age and counting the years, months, and days down to their retirement. Due to financial constraints, their experience of life means that leaving, even if the job feels unhealthy for them, is not an option. Of course, the psychological choice helps to support one's wellbeing as it acts as a vehicle for autonomy satisfaction but there may still need to be some validation of the fact that members of police organisations have strong psychological connections with their police force, along with practical constraints that make the rational statement "leave if you don't agree" meaningless and unhelpful. I think validation of an individual's perceived reality is very important in the process of application of rational arguments. Sometimes one's experience is that they have no choice as to whether they leave so their psychological choices may lie in developing effective coping skills.

5.8.2b Communicating acceptance as an active foundation for change. One of the biggest goals of the work I do is to help people understand acceptance as it is presented within REBT theory. Often the idea can be questioned and rejected by individuals and groups when we tackle the wrongs that people have faced or are facing. Particular examples in policing include discussing issues of ethical and moral integrity. For example, inclusion issues and acceptance are difficult to talk about together. It seems that our default understanding of acceptance is passive and a “do as your told” mindset is adopted. The passive default that I experience in policing may be a facet of the idea that policing is a disciplined service. This, of course, is not conducive to a context where bias is often unconscious, people are stressed and there is a strong power distance at play. Unconditional acceptance in REBT involves intentionally allowing stressful or seemingly unacceptable events to be present so that they can be examined in enough detail to be able to move forward in a valued direction (Matweychuk, DiGiuseppe, & Gulyayeva, 2019).

Within my first year in policing, I was asked to provide support, in the form of a workshop to constabulary employees during an inclusion awareness week. I had also been asked to work with the group that supports women in policing. My workshops were well received, and their content always relied on the principles of REBT to some extent. However, focusing my work in this direction, initially felt out of my depth. Exploring the boundaries of my practice and reflecting on whether I should or was qualified to tackle these subjects took me on a path of self-discovery that declining the invitations would not have.

It seems that to begin to see the answers to the equality and inclusion challenges that we face it would be of value for us to perhaps adopt the REBT view that humans are all equal in their worth and cannot be rated because of their complexity. I think through REBT theory I can see the potential that unconditional acceptance holds on a societal level. Not only as an

antidote to many mental health issues but more broadly for us to question the legitimacy of our actions. For example, can I be open to the unconsciousness of my biases, the answer is yes, through unconditional self-acceptance, I can.

5.8.2c Encouraging self-responsibility rather than self-blame. One unintended side-effect of acceptance has often been the experience of self-blame. I think when this occurs both rational and irrational thinking can be observed simultaneously. In this case, I try to help clients recognise the difference between self-responsibility and self-blame and also to help them be aware of when blame occurs and explore with them how to shift from blame to responsibility. Is blame a facet of irrationality? I would argue that it is. I think we can hold the thought “who or what is responsible for this occurrence?” on a platform of rationality, which might mean that beneath the questions there is tolerance. In reality, such questions are perceived with rigid demands and intolerance which precipitate irrational consequences. From a leadership perspective, I would advise that we predict a default irrational response by the perceiver and encourage leaders to build strong relationships and choose their words carefully so that the receivers of such questions can recognise the rational space from where they come.

5.8.2d Self-care and respect for others. There is an emphasis in REBT on self-responsibility but there is a lesser-known emphasis on responsibility to others. I think REBT can be misinterpreted as an excuse to be rude and un-empathetic to others because it teaches that one creates disturbances. I think we do have a responsibility to others to balance our goals and values with connection and empathy. More often than not it is in our best interest to develop positive relationships in our work and our lives (Ellis, 1972). Beyond the core theory of REBT, I have relied on the principles of self-care and respect for others (Dryden & Constantinou, 2004) to assess and develop healthy assertion skills with clients.

5.8.2e *Recognising linguistic imprecision and working with it.* Being embedded within any organisation or team comes with its political challenges but policing within senior ranks deals with the realities of politics. The challenge of this is that political messages designed perhaps to make strong political arguments can be perceived as truth by members of a police organisation. Often those arguments are negative and tend not to reflect the reality of the frontline experience. Such politically and irrationally charged messages often have ulterior motives (To gain votes or sell newspapers) but simultaneously promote disconnection between the lived experience of police officers and staff and those that lead and govern. Often in sessions, I talk about the use of language, and linguistic precision, and explore referenting when it occurs but there has also been a need to encourage individuals to acknowledge the imprecise language of those that are in positions of power, politicians especially. To this end, a functional dispute seems to help refocus individuals on the realities of what they can control.

5.9 Self-awareness and personal growth of the psychologist

I feel privileged to have been working with the police. Doing so has given me a lot of opportunities to build on my skills in using an REBT approach. I have been exposed to several hours of one-to-one, group, and team sessions. I have also given several educational seminars to help the workforce cope with the stresses and pressures of policing. Through evaluation of my practice and reflection, I have been able to integrate REBT into my way of being and through my personal experiences, stresses, and pressures I have explored how REBT helps me to continue to strive forward. I feel like I am still developing my core REBT skills through reflective practice and regular peer supervision. I think there is further opportunity for me to develop resources on which the police population can draw to support their adoption of rational philosophes. I think that I have learnt a great deal about the

theoretical underpinnings of emotional stress responses and that has helped me to apply REBT more robustly. Specifically exploring Socratic questioning and emotion theory has helped me to build a solid foundation on which to help others to make philosophical shifts.

More broadly my training and initial exposure to REBT was through sport psychology. Working within a performance but the non-sport context has challenged me. A core competency in my training program is to adapt to the context within which I work. The policing context (as any context) requires that the fundamentals are translated and tested against the variety of nuanced challenges faced by individuals within those contexts. Sport psychology is adaptable to policing to a certain extent but every context is different. Policing is a word that covers a plethora of roles, and skills. Each role and skill carries with it its psychological implications. Using REBT as an approach gave me the ability to support a broad range of psychological challenges. REBT has empirical support for its application in trauma-related stress (Ellis, 1994) as well as within coaching (Kodish, 2002) and stress counselling (Ellis, et al., 2001). I took the approach of “testing the theory” in sessions to aid the translation process and I drew on evidence where I could. What was of particular use to me were case study research papers and practitioner reflections which discussed the nuances of the translation process. For example, applying goal-setting theory in policing required some consideration of dealing with prioritisation and completing goals. In sports contexts, it is usually much easier to make prioritisation decisions. Currently, there is little supervisory support for performance psychologists that work within the policing context. This brings challenges to me as a practitioner. Such as, when I translate an intervention from a sport context there is little support in terms of knowing if I am doing this well. Furthermore, the policing context is vast and there is no real guidance as to what it would be effective for me to know as a psychologist in this field. Trauma knowledge may be a prerequisite for example. This lack of collegiate support leads to a vulnerability for me as a psychologist where it

would be easy for me to question my utility and my effectiveness within this world. Luckily my rational philosophy is protecting me for now until in the future a broader support network grows.

5.10 The Future

We know that people generally experience policing as stressful. I think as we begin to understand stress and particularly vicarious traumatic stress there is a clear opportunity to provide better mental preparation and ongoing support for those who serve within the police. Furthermore, formulating guidance on applying the principles of REBT within the police system appears to be an important next challenge. For example, policing can take the challenge of becoming more a psychologically informed environment (Johnson, 2012). Such environments focus on breaking cycles of dysfunctional behaviour. There is also a consideration of the psychological needs of employees, specifically developing skills and knowledge, increasing motivation, job satisfaction, and resilience. Psychologically informed environments consist of five key elements, one of which is the adoption of a psychological framework. REBT could be an effective psychological framework that could be adopted within a police context. While trauma care is vital in a police context a broad psychological model may ensure that issues beyond trauma can be viewed through a psychological lens. Such a lens would provide a perspective and platform on which wellbeing and ongoing work engagement can be supported.

Drawing on SDT theory I have been able to demonstrate the impact that IBs have on motivation and the satisfaction of basic psychological needs. SDT is a dialectic theory that observes the ongoing relationship between an individual and the environment. Understanding the SDT motivation dialectic from an REBT viewpoint in policing is becoming an important goal of mine. I believe that recognition of how these theories fit together will enable the

application of much more structure in our police performance and wellbeing endeavours. This is because, as with any public service, there will always be limited resources in policing and the nature of police work will always carry the risk of trauma and vicarious trauma.

REBT has a unique view of emotion which can help officers process emotions in more functional ways. Teaching emotional responsibility, and the ability to experience healthy negative emotions is an important focus of REBT and the main focus of my work in policing. This can help officers and staff identify the protective proactive things that they are already doing as well as provide a foundation on which functional changes may be made. This could permeate the day-to-day wellbeing tasks associated with policing. For example, debriefing conversations at the end of shifts could focus, in part, on the discussion of appropriate emotions, and what behaviours are associated with them in contrast to unhealthy negative emotions, thoughts, and behaviour.

5.11 Concluding Remarks

REBT, as an approach, has long been criticised for lack of empirical support and this lack of support is blamed, in part, for its marginalisation in the field of applied psychology, psychotherapy, and coaching (Ellis, 2001). In contrast, the approach is reported to be popular among practitioners (Still, 2001) and many of its insights are assimilated by the psychological mainstream (David, 2003). In writing this chapter my goal was to share my reflections and stimulate the readers' thinking in terms of applying REBT philosophy both within the context of police psychology and beyond it and to provide an alternative approach to building the evidence base on which REBT may be evaluated. In my view, the universality of REBT makes it an excellent approach to apply within the complex world of policing, however, as this thesis has shown its effects may be masked through the application of more traditional research methods and the application of REBT can be a complex process. In the

next and final chapter, an explanation and interpretation of the findings of this thesis are presented.

CHAPTER 6: DISCUSSION

6.1 Summary of Findings.

The aims of this thesis were to a) understand the role of irrational beliefs, in the stress and psychological wellbeing processes of U.K. police personnel, b) to examine the effectiveness of Rational Emotive Behaviour Therapy (REBT; Ellis, 1957) on the psychophysiological stress and psychological wellbeing of police officers at two different levels of analysis (i.e., nomothetic and idiographic), and c) to provide practical insights and guidance on the application of REBT-informed stress management interventions within policing over four years. The aims were based on theory-driven hypotheses of stress, specifically, the cognitive appraisal theory of stress (CAT; Lazarus & Folkman, 1984) as incorporated within REBT (Ellis, 1957), which asserts that the stress response is largely dictated by the cognitive processes that are created by individuals in response to external events. Furthermore, as REBT theory claims to support personal growth and development as opposed to being an intervention that solely focuses on symptom removal (Ellis, David, & Lynn, 2010) it was hypothesised that REBT could enhance self-determined motivation, support the satisfaction of basic psychological needs, as outlined in basic psychological need theory (BPNT; Ryan & Deci, 2017) and indirectly, support psychological wellbeing as outlined in self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2007).

In chapter one, current research in the field was presented, reviewed and discussed, and led to the formulation of the aims of this thesis. Chapter two addressed the first aim of the thesis, which was to explore the role that irrational beliefs play in the stress and psychological wellbeing processes of police personnel. This is the first time that the role of irrational beliefs has been examined in a police context and also the first time that irrational beliefs have been investigated as antecedents of police stress, motivation, and psychological wellbeing, providing an empirically supported link between REBT theory and SDT. This

aim was addressed by examining the atemporal relationships between irrational beliefs, self-reported stress levels, self-determined motivation, and the satisfaction of basic psychological needs. Results showed that higher irrational performance beliefs were significantly associated with greater stress, lower self-determined motivation, and lower satisfaction of BPNs. Specifically, frustration intolerance (FI; DiGiuseppe, Doyle, Dryden, & Bacx, 2014) beliefs were significantly associated with higher stress, along with higher experiences of amotivation. Both operational and organisational stress were measured with low autonomy satisfaction relating to high operational stress and low relatedness satisfaction relating to organisational stress and so a complex pattern of antecedents to stress, which are both psychological (e.g., high FI beliefs, high amotivation) and environmental (e.g., low satisfaction of autonomy in operational situations and low satisfaction of relatedness in organisational situations) has emerged. These findings represent the first empirical evidence of the association between irrational beliefs, motivation regulation, basic psychological needs and police stress. Further empirical investigation of the association between IBs, stress, and SDT components is warranted as REBT may provide an effective way to intervene to bring about healthier motivational regulation and wellbeing for individuals through reducing IBs. The implications of the findings reported in chapter two, which are further discussed in section 6.4 of this chapter, are that irrational beliefs should be further examined empirically and practically as there are clear indications of the centrality of their role in police stress.

Chapters three and four build on the findings reported in chapter two by examining the application of an REBT intervention in a real-world setting. Therefore, chapters three and four addressed the second aim of the thesis, which was to examine the effectiveness of REBT with police senior leaders. The results of the study presented in chapter three showed that REBT increased the satisfaction of BPNs and self-determined motivation and that reductions in hair cortisol concentration, were also observed, although the findings were not statistically

significant. The common thread across both studies is the pattern of functional intervention effects following the application of REBT (e.g., reductions in IBs and hair cortisol concentration, and increases in BPN satisfaction and self-determined motivation) with complex variations in the data. The social validation results revealed a strong practical significance of the intervention and strong indications that some participants did experience a marked reduction in hair cortisol concentration. In chapter four, the idiographic nature of the intervention was explored, to add depth to the findings in chapter three, and revealed the unique and complex experiences of each individual who received REBT. It was clear that reductions in irrational beliefs positively impacted each participant's experiences of stress, however, this occurred in unique ways for each individual.

Finally, in chapter five the final aim of this thesis was addressed by presenting an autoethnographic account of delivering REBT as a performance psychology practitioner, within a British Police organisation over four years. Through offering practitioner insights and recommendations for practice across a police organisation. The approach taken in chapter five intended to capture the dynamic and detailed nature of applying REBT and to go beyond traditional research methods such as cross-sectional designs. Salient points included: a focus on goals and values within policing; philosophical change; and the challenges of applying REBT in a police context.

In summary, this thesis shows that irrational beliefs may play a significant role in the stress response, the quality of self-determined motivation, and the satisfaction of BPNs of police personnel. This is the first empirical research to demonstrate the role of irrational beliefs in police officer and staff stress responses as measured psychometrically (chapter two) and via the examination of hair cortisol concentration (chapter three and four). Specifically, FI beliefs and amotivation predicted high stress (chapter two) and REBT improved the satisfaction of BPNs and self-determined motivation of a sample of police leaders (chapters

three & four). To explain the findings from chapters two and three, the relationship between irrational beliefs, stress, motivation regulation, and BPN satisfaction will be discussed.

Chapters four and five provided a more detailed account of the application of REBT at an idiosyncratic level of analysis and while reductions in irrational beliefs were indicated as facilitative in terms of stress reduction, the individual differences in how irrational beliefs were processed are an important factor to consider. Chapter five explores the depth and breadth of opportunity to adopt a rational approach in a police context.

The key strengths of this thesis are, first the application of mixed methods to enable the target variables to be investigated from multiple perspectives. Exploring REBT from several different perspectives has revealed important patterns which now require further exploration, for example, the relationship between frustration intolerance and stress. The group-based intervention study design has allowed us to question the effectiveness of REBT beyond statistical significance through the assessment of social validation data and the single case approach adopted in chapter four further revealed the impact of the intervention when individual changes in variables were inspected and the content of interventions were analysed using qualitative methods. An autoethnographic approach then became the most detailed “close-up” of the application of REBT in the police context. The whole thesis, therefore, represents a both broad and deep investigation of REBT, stress, and motivation among police personnel.

The second key strength is the level of rigour concerning the design of the studies, particularly in chapter three which represents one of the most rigorous and expansive intervention studies in current REBT literature and within police stress literature. To date, there appear to be no studies which can demonstrate the nuance of applying one-to-one REBT with a substantial number of participants coupled with investigating variables which demonstrate objective change following the intervention. Furthermore the assessment of

objective data along with both subjective measures of IBs and motivation as well as determining the practical significance of the intervention through social validation is a unique contribution.

A further key strength of this thesis is that police senior leaders were the specific sample that was addressed in chapter three. There is little research which addresses the stress encountered within this particular cohort of police personnel. Given the responsibilities that lie within the roles of police leaders and the impact that stress can have on performance, this is a population of importance to investigate and support. Furthermore, while embedded within the police organisation the researcher had unique access to the systems and dynamics of a police organisation and chapter four captures a unique observation of the whole system and how REBT can play a broad role in managing police stress and motivation.

6.2 Explanation of Findings.

6.2.1 Irrational beliefs play a significant role in the stress response of police personnel.

The findings from chapters two and three support the hypothesis that irrational beliefs play a significant role in the stress response of police personnel. This supports the fundamental proposition that is found within cognitive appraisal theory (i.e., that cognitive appraisal and coping are determinants of the stress response; Lazarus & Folkman, 1984) and REBT theory (Ellis, Gordon, Neenan, & Palmer, 1997) which emphasises the central role of irrational beliefs in the stress response. The proposition that irrational beliefs are causal of stress has been investigated from a CAT perspective (David et al., 2002; 2005; Chadha et al., 2019). As noted in chapter one, in CAT cognitions occur as a form of information processing forming a transaction between an event and a person's appraisals. More specifically the appraisal

process can be broken down into how a representation of an external event transacts, or performs a communicative action or activity, with an individual's goals and beliefs (Smith & Lazarus, 1993). An appraisal is proposed to be broken down into two parts which are relevant to wellbeing when a person is faced with an adaptational requirement or, in other words, is under stress (Lazarus & Folkman, 1984). The first component is a primary appraisal and is concerned with how the encounter is relevant to a person's wellbeing, the second component is a secondary appraisal which involves a person's options for coping with the concurrence of the event and the individual's available system of information processing. In CAT there are six appraisal components in total. Two are categorised as primary appraisals and four as secondary appraisals. A primary appraisal consists of, first, motivational relevance, which is an evaluation of the extent to which an encounter pertains to matters which are of personal importance to the individual (issues that a person cares about), and second, motivational congruence, which is an evaluation of the alignment of an encounter with a person's goals or preferences. Accountability, coping potential (emotional and problem focused), and future expectancy is the four categories of secondary appraisal. Accountability is how responsibility is assigned within an encounter and can be related to stress in many ways. Drawing on the data presented in the current thesis one way in which accountability could interact with stress could be illustrated as follows; when one takes responsibility for events (e.g. solving a crime) irrational beliefs may interact with the desire to fulfil an unachievable goal (e.g. It is my responsibility to solve this crime, therefore I have to solve it) resulting in overcommitment and stress. Coping potential has two sub-categories, problem-focused coping potential which involves evaluations of a person's ability to bring or maintain a dynamic situation in alignment with their goals and preferences and emotion-focused coping potential refers to the perceived likelihood of psychological adaptation to an occurrence by changing perspectives, goals, and/or beliefs. The data from this thesis could further illustrate

the role that IBs may be playing in coping potential, for example, one may estimate that they cannot bring a dynamic situation under control but believe irrationally that they must be able to do this or that they cannot tolerate changing their expectations, through experiencing frustration intolerance beliefs, which would bring about psychological adaptation. Finally, future expectancy is defined as an evaluation of the feasibility of there being any changes in the actual or perceived situation which can impact motivational congruence positively (e.g., progress towards alignment with one's goals or negatively; blocked progress towards alignment with one's goals; Smith & Lazarus, 1993). Future expectancy also seems congruent as a cognitive process which emerged from this thesis as important in the stress process, particularly amotivation (e.g., the situation cannot be changed) which may combine with IBs (e.g., the situation is awful and cannot be tolerated) and cause beliefs of helplessness.

It has been demonstrated that IBs merge with the CAT model, and lead to stress, in several ways. For example, David et al. (2002), demonstrated that IBs are significantly associated with all appraisal components. Furthermore, following regression analysis by David et al. (2002), demandingness was associated with low motivational congruence, a primary appraisal process, and awfulizing was associated with low emotion-focused coping potential, a secondary appraisal process. Frustration intolerance and global evaluation beliefs were suggested to be additional independent secondary appraisal processes which generate emotions and the stress response. David et al. (2005) added to their initial investigations by testing their hypothesis with a clinical sample and by accounting for core-relational themes. Core-relational themes are specific combinations of appraisal components which capture the central harm or benefit beneath each emotional experience (Smith & Lazarus, 1993). IBs were again significantly associated with components of appraisal and core relational themes which additionally supported the role of IBs in emotion generation, furthermore, David et al. (2005), suggest that IBs and components of appraisal may represent the same concepts, a

proposal that has yet to be investigated but which points to the alignment of IBs in CAT and, by default, the role of IBs in the stress response. In a more recent study Chadha et al., (2019), support the findings of David et al. (2002, 2005), by demonstrating that there is an interaction between IBs and cognitive appraisals when predicting affective states. Specifically, IBs were examined as part of cognitive appraisals when predicting pre-competitive affective responses in golf athletes. Their findings demonstrate that IBs play an important antecedent role in the generation of anxiety and that IBs mediated the association between cognitive appraisals and affective states. This thesis provides further, but indirect, support for the antecedent role of IBs in appraisal processes warranting further exploration of IBs in the context of both primary and secondary appraisal as in chapter two IBs were significantly associated with stress and motivational processes.

While police personnel can face a range of adversities regularly, the findings of this thesis begin to indicate that the appraisal of those adversities through irrational beliefs is predictive of stress. This conclusion can be drawn through the subjective measure of police stress (chapter two), and while not supported through traditional group statistical analysis of hair cortisol concentration samples (chapter three), assessment of social validation data and reviewing participant data using an idiographic case study approach (chapter four), reductions in hair cortisol concentration were observed with reductions in IBs. While statistically significant reductions were not apparent for hair cortisol concentration levels post-REBT in chapter three, there was strong evidence for the practical significance of the intervention through social validation reporting. These findings align with similar research with a sample of firefighters (Wood, Wilkinson, Turner, Haslam, & Barker, 2021). This thesis also extends knowledge as it provides the first empirical support to the theoretical assertion that cognitions in the form of IBs play an important, yet complex, role in the stress responses of another emergency service, namely policing, but goes beyond first responders

and focuses on the range of personnel found within such organisations. In their study Wood et al., 2021 conducted intervention research of a similar design to the intervention study presented in chapter three of this thesis where one-to-one REBT sessions formed an intervention that aimed to reduce IBs, increase resilience, and decrease hair cortisol concentration. Traditional group statistical analysis found only a significant reduction in IBs and no statistically significant changes in resilience, hair cortisol concentration, psychological distress, or presenteeism. Social validation data, however, revealed that the intervention was experienced as facilitative in terms of approaching and dealing with adversities. Further inspection of the results by examining trends in the data using temporal partial correlational analysis revealed that higher levels of IBs matched with significantly lower resilience scores and higher levels of stress. As discussed in chapter three, a lack of statistical significance at the group levels could be due to constraints such as sample size or measurement protocol, or it could be because of differences in the subjective experience of stress compared with the objective experience of stress (Epel et al., 2018). As with the findings of this thesis, Wood et al., 2021, demonstrated a lack of statistically significant change in HCC although there appear to be substantial reductions in this measure for the intervention group and Wood et al., 2021, agree that substantial variation in HCC data along with low statistical power may have contributed to a lack of statistical significance. In summary, the findings reported and discussed in chapter four of this thesis demonstrate the importance of examining such findings idiographically as research that focuses solely on group-level analysis does not represent the complex variation of individual stress responses.

The subjective and objective measurement of stress may be of importance to note as one may not be aware of the stress response occurring or one may over-evaluate the extent to which they feel the experience stress subjectively (Epel et al., 2018). In Chapter five, for example, anxiety, anger, and hurt were highlighted as typical emotional states which resulted

from adversities discussed within police stress interventions. An interesting observation is that stress represented a broad range of emotional experiences occurring at the same time for many. Each time one is asked if they are “stressed” it is challenging to know what being “stressed” represents, which can have an impact on the results presented in stress studies such as the current thesis. For example, in chapter two participants were asked to give a subjective rating of how stressful a range of police-work-related incidents had been over the last month. It is possible that feeling “stressed” represents different things to different people and that levels of awareness of stress vary. For example, working on a high-profile case can be both highly stressful and fulfilling and may represent why an individual became a police officer in the first place, and so such an individual may not report high levels of stress even though from a conceptual perspective they would be considered to be highly stressed. From an REBT perspective, one could be experiencing a strong and qualitatively healthy version of stress which would, perhaps, be an error to discourage. In contrast, dealing with bureaucratic red tape may be demotivating and frustrating for some and is considered to be not challenging enough to be stressful. In such cases, there may be a lack of awareness of experiencing stress and consequently misreporting of stress during research programs. Another potential source of variation in stress reporting could be associated with police cultural norms which perpetuate a stigma towards admitting symptoms of poor mental health (Marshall et al., 2021). This may occur as there may be fear of negative career consequences, as reported in a recent study of mental health screening in police officers (Marshall et al.). The key point is that effectively determining stress levels by subjective or objective reporting is not straightforward and increasing precision in stress reporting is accompanied by a greater burden on participants and greater cost.

In this thesis, there was a specific irrational belief that appeared to be more associated with stress than other irrational beliefs. In Chapter two, FI performance beliefs emerged as a

unique predictor of stress. Theoretically, FI can be connected to the stress response, a finding that complements past research (Visla, Fluckiger, Holtforth, & David, 2016). When integrated with CAT, FI beliefs indicate that a person appraises the adversity that they face as beyond their coping ability which leads to a stress response. It, therefore, seems logical that FI beliefs would predict stress. The construct of frustration intolerance refers to an individual's belief that they will not be able to endure a situation or that a situation is unrecoverable in terms of their psychological wellbeing if what they demand must not exist (adversity) is a reality (David, et al., 2002). In this sense, there are clear conceptual similarities between frustration intolerance beliefs and emotion-focused coping. The concept of frustration intolerance may also apply across a broader range of appraisal components. For example, for a situation to be appraised with frustration intolerance it would require motivational relevance in that it would need to be something that a person cares about, and motivational incongruence in that it would be inconsistent with a person's desires or goals in terms of primary appraisal components. In terms of secondary appraisal low problem-focused coping potential (e.g. poor perceived ability to bring or keep the situation in line with what one desires) conceptually relates to a person's evaluation of their ability to solve or endure a problematic situation, low emotion-focused coping potential (e.g. poor perceived ability to adapt psychologically by changing one's desires, goals, or beliefs) relates to perceptions of not being able to endure and psychologically adapt to the situation and poor future expectancy (poor perception of possibilities to change the situation, one's perspective, or emotional response to a situation to align more with a person's goals) may be related to frustration intolerance in that there is an unrecoverable, and unchangeable element associated with the definition of frustration intolerance. David et al, 2002; 2005, found that IBs in general added to the explained model of appraisal for a range of emotional responses and did not find, as hypothesised, that FI was strongly associated with emotion-focused coping, and

they suggested that FI was an independent maladaptive process of secondary appraisal. FI does seem to be congruent with the concept of emotion-focused coping potential, however, certainty about dealing with a situation emotionally (emotion-focused coping potential) and believing one cannot tolerate it (FI belief) are semantically different. If one is low on emotion-focused coping potential they are reporting an absence of coping potential, whereas FI beliefs could represent a worsening of the appraisal as they represent both an absence of emotion-focused coping potential, and cognitions that infer that they cannot survive the situation. This thesis is the first empirical evidence which begins to highlight FI beliefs as important antecedent cognitions of stress and motivational responses.

In REBT theory four IB categories are thought to be connected to the stress response (Ellis Gordon, Neenan, & Palmer, 1997), and so it is important to attempt to explain why only FI beliefs were predictive of stress in the current thesis and why demandingness, awfulizing, and depreciation performance beliefs were not. Of the four categories of IBs, FI is the only one that directly refers to the ability to cope or tolerate adversity (e.g., “I can’t stand failing”). While individuals may hold demandingness beliefs (e.g., “I must not fail”), awfulizing beliefs (e.g., “It is awful that I failed”) and/or depreciation beliefs (e.g., “I am completely incompetent and worthless due to this failure”) and these beliefs contribute to their stress response, they do not directly refer to one’s ability to tolerate or survive adversity where, arguably, only FI beliefs do and so FI beliefs may be particularly important when a person is adapting to situations in policing where questions of survivability often arise.

FI beliefs may emerge in the police context specifically, as it could be argued that within policing one may be required to tolerate more than the average person, a view that has long since been emphasized in police stress research (Violanti et al., 2017), and was discussed in chapter one. In chapter two it was demonstrated that levels of IBs were higher in the test sample of police personnel than in published norms which may be reflective of an

environment which carries higher expectations (e.g., risk) and a higher need for tolerance. Such expectations may be more easily elevated to irrational beliefs as a person attempts to cope with such expectations. To summarise, FI beliefs emerged as a potentially important antecedent cognition in stress and motivational responses. This finding extends current thinking as it provides a particular focus on a part of REBT theory which may be important to understand in relation to stress and motivation. The finding that FI beliefs are unique antecedents of stress could be unique to the police population due to the high-risk nature of police work or could be a more generalisable finding in relation to stress. Future research could seek to explore and verify this particular finding.

6.2.2 Irrational beliefs negatively impact levels of BPNs satisfaction in police personnel. This thesis provides evidence that supports the claim that higher levels of irrational beliefs are associated with lower satisfaction of BPNs. In Chapter three, an REBT intervention resulted in significant reductions in IBs and significant increases in the satisfaction of BPNs. The association between IBs and the satisfaction of BPNs is also emerging in extant literature (Artiran, Simsek, & Turner, 2020; Devey, Turner, Artiran, & Hobson, 2022; Katip & Yoyen, 2021; Sabanci & Cekic, 2019). This thesis corroborates the association between IBs and BPNs and extends empirical evidence of the association to a high-risk performance context. On closer examination in chapter four, four of the five selected cases showed increases in the satisfaction of BPNs as a result of receiving the REBT intervention. These findings can be explained through the process of identifying and transforming meaning from irrational beliefs to rational effective alternative beliefs, which is the central mechanism of change through which REBT operates. When one can reappraise one's response to adversity as a flexible preference, recognise the limits of the adversity's awfulness, recognise that one can tolerate the adversity, and choose to acknowledge the adversity unconditionally, one's BPNs may be more subjectively satisfied. This may be

because one can respond in a more self-regulating way through, for example, adopting rational flexible preferences and unconditionally accepting ones-self, one can experience more competence in the face of adversity by recognising one's limits and therefore lowering one's expectations (e.g., when seeking perfect outcomes), and relate better to others as there are no absolute requirements for behaviours (e.g., one strongly prefers a desired outcome but does not have to attain it). Of interest in chapter two, the results showed unique patterns of stress in the operational and organisational contexts. Autonomy satisfaction was negatively associated with stress in the operational context and relatedness satisfaction was negatively related to stress in the organisational context. Such patterns highlight the importance of autonomy-supportive environments which foster a stronger subjective experience of BPN satisfaction but with a different emphasis depending on the context. IBs may prevent the satisfaction of BPNs as they mediate the meaning that people make in the face of BPN-satisfying or unsatisfying situations. For example, when a person *believes* that they have to do what they are told (which is counter to the satisfying of their autonomy) in an irrational way, (which would involve a combination of them believing that there is no choice in matters, it is awful to have to do as they are told, they cannot bear being told what to do and that they condemn the person, the situation, and their self because of that situation) they may not have the opportunity of psychological awareness of any self-endorsing quality of that interaction. Through holding IBs their mind might generate thoughts and evaluations which are congruent with their beliefs (DiGiuseppe, 1996) which, regardless of the external situation may be less satisfying of BPNs. Alternatively, if a person interacts with a situation of being told what to do (which is unsatisfying of BPNs) and they respond with a set of rational beliefs (I don't have to do what I'm told but it might be preferential to do so, it is bad but not awful to be told what to do, I can tolerate being told what to do, I accept the person, the situation, and myself and recognise that I can evaluate the situation but not in a global

way, it is possible to promote the satisfaction of one's own psychological needs as one would experience less controlled regulation because of the meaning that they create in that situation.

While the aetiological nature of IBs in perception and meaning-making concerning BPNs has yet to be investigated there is some growing evidence that supports the relationship between IBs and dysfunctional automatic thoughts (Szentagotai & Freeman, 2007; Soflau & David, 2017; Soflau & David, 2019). Automatic thoughts (ATs) are a construct associated with cognitive therapy (CT-Beck; Beck 1964). ATs are surface-level, non-volitional, stream-of-consciousness cognitions (Beck, 1976). In REBT theory core beliefs, be they IBs or RBs, are hypothesized to lead to ATs (DiGiuseppe, 1996; Ellis, 1994; Beck, 2008; Szentagotai & Freeman, 2007). To further elaborate, REBT differentiates between three levels of cognitions, at the first level there are surface-level inferences, at the second level there are evaluative cognitions, and the third level consists of central imperative demands (or preferences) which are schematic representations or expectations of the characteristics of emerging situations (DiGiuseppe et al., 2014; Power & Dalglish, 2016). The first level of cognitions is easily accessed surface cognitions which are related to inference production and ATs (Buschmann, Horn, Blankenship, Garcia, & Bohan, 2018) and are the product of deeper secondary, evaluative cognitions and tertiary, schematic representation cognitions (David, Lynn, & Ellis, 2010). Taking REBT theory into account by placing a greater emphasis on appraisals in terms of the satisfaction of BPNs, if an individual operates with rational schematic representations of emerging situations they will automatically think (at a surface level) in a way that creates meaning that is more supportive of their BPNs.

6.2.3 Irrational beliefs play an important and complex role in impeding self-determined motivation in policing. In terms of self-determined motivation, irrational beliefs appear to play an important and complex role in impeding self-determined motivation as demonstrated in chapters two, three and four of this thesis. This may be because of the central

role that cognition, and more specifically, appraisal (in the form of IBs) plays in the individual's responses to events. As has been noted in the previous section IBs represent cumulative and well-rehearsed cognitive structures which may be triggered in the face of particular, triggering circumstances (DiGiuseppe, 1996). In relation to organismic integration theory (OIT), which is concerned with how external situations are adapted to, IBs are cognitions that may represent a failure to both accommodate, through errors in the assessment of situations (e.g., errors of perception, logic, and pragmatism) and a failure to assimilate, through a lack of ability to allow new information to be brought into alignment with an individual's core beliefs and values (DiGiuseppe, 1996). The joint successful process of accommodation and assimilation represents healthy psychological integration as discussed in SDT (Ryan & Deci, 2017), however, the process through which integration occurs is under-researched in relation to theories of stress, motivation and psychological wellbeing, a point that is explored fully in section 6.4.1b of this chapter.

There is an emerging interest in the role of irrational beliefs in self-determined motivation which has recently stemmed from the domain of sport and exercise psychology (Chrysidis, Turner, & Wood, 2020; Davis & Turner, 2020; Miller, Calder, Turner & Davis, 2019; Turner, & Wood; 2022; Turner et al., 2022) and has begun to be explored in occupational contexts (Turner, Miller, & Youngs, 2022). Chrysidis et al. (2020), Davis and Turner (2020), and Turner and Davis (2019), use idiographic single-case methodologies and have reported meaningful increases in self-determined motivation following REBT interventions indicating that reductions in IBs following REBT interventions reliably increase self-determined motivation. In general, the authors concluded that increases in self-determined motivation were largely due to changes in perceptions of controlled motivation and specifically cited the conceptual similarities between introjected regulation and irrational beliefs which was first theoretically suggested by Turner (2016), although changes in

individual motivation regulation constructs, including introjected regulation, were not reported in their studies. These findings did not align with the findings reported in chapter three where no statistically significant changes in self-determined motivation were observed following the implementation of an REBT intervention with senior police leaders, however, social validation data and idiographic inspection of the findings did demonstrate increases in self-determined motivation, which reveals the complexity of the process. IBs may play a broader role in self-determined motivation which may not be captured through reliance on the self-determination index measure which was used in chapter three of this thesis to capture change. Indeed, IBs could potentially play a role in all forms of motivation regulation and amotivation, as discussed in chapter two the current thesis extends knowledge by broadening Turner's (2016), suggestion beyond introjected regulation alone to an examination of the role of IBs in all forms of motivation regulation.

Further support for the association of IBs and self-determined motivation were reported by Miller, Calder, Turner, and Wood (2022), who reported on the association of IBs, motivation regulation and anxiety of a sample of ultra-marathon runners using a dual phase (cross-sectional and qualitative-narrative approach) mixed method approach. The results reported across both study phases support the association of IBs and controlled forms of motivation and the authors proposed that it is the irrationality in personal narratives that was, largely, responsible for the association. Sophisticated empirical testing of the theoretical association of IBs and self-determined motivation is beginning to take place with Turner et al. (2022), presenting findings of a latent profile analysis approach to understand the role of IBs and motivation regulation in mental and physical health. Theirs also appears to be the first study, beyond the findings reported in chapters two and four of this thesis, which assesses the specific components which make up the construct of self-determined motivation. They reported profiles of greater IBs, greater amotivation, and greater controlled motives

which were associated with poorer psychological and physical health indicators. Beyond the sport and exercise domain, a recent study of an occupational sample tested associations of IBs and self-determined motivation with worker-related mental health variables (Turner, Miller, & Youngs, 2022). Their findings support the emerging findings of recent empirical research and the findings presented in this thesis. Specifically, Turner et al. (2022) have identified high and low irrational engagement profiles. High irrational engagement profiles are seen when individuals report higher IBs, and lower self-determined motivation and are indicative of poorer life satisfaction, persistence, presenteeism, absenteeism, and higher intentions to quit along with greater symptoms of poor mental health, demonstrating the behavioural as well as the psychological impact of holding high irrational beliefs about work. The findings of this thesis align with those reported by Miller et al. (2022) and Turner et al. (2022) in that the findings also suggest a significant association of IBs with self-determined motivation and that such associations are indicative of or related to poorer psychological wellbeing.

This thesis has demonstrated more nuance in the IB and self-determined motivation association that is currently reported in the extant literature. Specifically, the findings reported in chapter two demonstrate that unique patterns of BPNs satisfaction combine to predict specific types of motivation regulation and dysregulation. Those who reported high relatedness and high FI beliefs were associated with significantly higher intrinsic motivation. Furthermore, in chapter four, participants did not show linear and uniform increases in self-determined motivation having received an REBT intervention. Such nuances are challenging to explain and reflect the depth and unique meaning that encounters with motivating or demotivating situations have for individuals. It could be argued that in some cases, intrinsic motivation, introjected regulation, and amotivation could represent extreme assessments of external factors which would then explain the association between IBs and these regulation

types. For example, for some, introjected regulation may relate to extreme self-control (I must perform well), amotivation may relate to an extreme loss of control (My performance is beyond my control), and intrinsic motivation may relate to extreme internalised values (I must make a difference). Such nuances in meaning are difficult to capture through psychometric measures.

6.2.4 The relationship between amotivation and stress. It is not, immediately, obvious that an amotivated person may be susceptible to experiencing high levels of stress, however, the findings in chapter two revealed that stress was strongly associated with amotivation in the context of policing. This is the first empirical evidence to demonstrate the association between amotivation and stress and extend current knowledge by highlighting the potential importance of the stress and amotivation link. Initially, the association between amotivation and stress was a surprising finding as the association is not widely recognised (Yoo & Marshall, 2022), although in chapter one a theoretical model was discussed that proposed that employees who reported greater amotivation were theoretically predicted to experience the most stress (Fernet & Austin, 2014). The mechanism through which amotivation leads to stress was not clearly described in the proposed model. For example, Fernet and Austin, (2014), described amotivation cognitively via perceptions and judgments, (e.g., employees would *perceive* the demands of their job as insurmountable burdens, and they would *judge* that they have inadequate resources to resolve the situation), yet then place an emphasis on external events and motivational energy as antecedents of stress, and overlook the possible impact of cognitive mediation. Furthermore, their model does not appear to be grounded in contemporary stress theory. In a recent cross-sectional study, with graduate students, amotivation had a direct and positive relationship with stress (Yoo & Marshall, 2022). Yoo & Marshall (2022), ground their research in SDT and social cognitive theory (SCT; Bandura 1986) but not in a stress theory. They report that amotivation played a greater role in levels of

satisfaction with their academic experience than extrinsic or intrinsic motivation and that amotivation was positively associated with stress and state that their results align with SCT in that individuals have agency in terms of controlling their feelings, thoughts, and actions, yet, they place an emphasis on the provision of a social context that supports' students motivation, and ignore the option of also emphasising effective cognitive processes in the promotion of optimal motivational states and stress responses in graduate students. This is important because, as noted in previous chapters, it is not always possible to change the social context, particularly in the context of policing.

In another study with academic students, amotivated behaviours were associated with higher stress (Baker, 2004). The author discussed the limitations of the social environment in explaining the association between the two variables as the social climate, if fully responsible for the association between amotivated behaviours and stress, would have concurrently predicted an association between amotivated behaviours and poor performance, which it did not in this sample. Beyond stress associations with amotivation, two studies have demonstrated that amotivation has a bigger impact on psychological wellbeing than autonomous motivation which consists of both intrinsic and effectively internalised external motivation (Nowell, 2017) and that amotivation is consistently associated with poorer subjective wellbeing (Baily & Phillips, 2016). All of the few studies that report associations between amotivation and stress provide unclear mechanisms through which amotivation predicts stress.

The findings of the current thesis are the first to empirically support the proposition that amotivated police personnel were experiencing the most stress, as the findings in chapter two reveal, not only the amotivation and stress connection, but also highlight the connection between various IBs (e.g., depreciation beliefs, and amotivation; amotivation and FI beliefs) and police specific stress. Conceptual similarities can be observed between amotivation and

IBs. When faced with “stressors” in the workplace an amotivated individual is thought to perceive such events as insurmountable burdens and they would evaluate that their resources were inadequate to adjust to the situation (Fernet & Austin, 2014). This definition of amotivation appears to conceptually align with IBs, specifically, FI which, as noted earlier, refers to an individual’s belief in their ability to endure a situation, adapt to a situation, or recover from it; awfulizing can be represented in this conceptualisation of amotivation in the extremely negative connotations which are associated with perceiving events as “burdens”, and underlying demandingness is also represented as when one perceives a burden it may follow that one believes that such burdens should not exist, when they, in reality, do (David, et al., 2002). Furthermore, the fact that a person perceived that they are faced with an unsurmountable burden may lead to global evaluations of themselves, others or the world as outlined in global evaluation/depreciation beliefs.

It is also possible to draw on cognitive appraisal theory (CAT), along with IBs to explain the association between amotivation and stress. Perhaps core-relational themes combine in a certain way to predict amotivation and stress. For example, an encounter or activating event in policing (e.g., lack of resources to effectively solve a crime) could have high motivational relevance or goal (e.g., a police officer cares very much about bringing the perpetrator of a crime to justice) motivational incongruence (e.g., getting justice for the victims of crime is an important goal and the lack of resources prevents goals progress) which may lead to the combination core-relational themes of threat (e.g., the perpetrator remains at large), irrevocable loss and implied demandingness (e.g., the victim will never receive justice, and they must receive justice), and helplessness about that harm or loss along with awfulizing beliefs (e.g., there is nothing that they can do to change the level of resources to solve the crime and this is terrible). Coping might then consist of low emotion-focused coping and frustration intolerance beliefs (e.g., the situation cannot be accepted and cannot be

tolerated) and/or low problem-focused coping (e.g., ruminating about the lack of resources) coupled with low future expectancies and depreciation beliefs (e.g., the police officer has low expectations of helping the future victims of crime which makes them a worthless person) and they may blame themselves, the police organisation, and the criminal justice system (accountability).

6.2.5 REBT is a potentially effective stress and wellbeing management intervention in policing.

Lazarus (1995 p. 3) advocated a “transactional, process, contextual, and meaning-centred approach to stress management” and recognised the focus in the extant literature on stable and unrelated antecedents of stress such as environmental conditions and personality variables. Stress management in the workplace has, in turn, tended to focus on changing the organisational environment or selecting those with the right person-environment fit (Lazarus & Folkman, 1984). As noted in chapter one there remains a focus on the identification of workplace stressors in police stress research. Such approaches may be effective to a certain extent but do not account for all incidences of stress or indeed incidences where experiencing stress has not impeded health or performance. As noted in chapter one, traditionally there have been three main strategies for reducing stress in the workplace. These are first, altering the working conditions so that they are less stressful or easier to cope with (Hay & Oken, 1972). The second is to help those who find adaptation and coping difficult through skills training, e.g., guided imagery and relaxation techniques (Arnetz, Arble, Backman, Lynch, & Lublin, 2013). Third, is a transactional strategy which emphasises both the identification of individual or group relationships within the work setting that are stressful and try to change them based on relational findings, where an emphasis is placed upon the individual or group and the environment as interconnected (Lazarus, 1995).

The advantage of adopting a process and meaning-centred approach in relation to psychological stress in the workplace is that it allows for both environmental factors and individual factors to be taken into account in the stress response (Lazarus, 1995). Furthermore, taking a process and meaning-centred approach aligns with SDT which emphasises a dialectical between the individual and their environment as expressed by the extent to which BPNs are satisfied dynamically (Ryan & Deci, 2000). A potential drawback of intervention research which applies SDT to foster the satisfaction of BPNs is the over-emphasis on social environmental factors and underestimation of the individual meaning-making process and an individual's ability to create meaning which impacts their psychological responses. While there appear to be many benefits to constructing environments which foster psychological wellbeing, and in REBT terms, reduce potential activating events, the nuances of such environments need to be able to respond to the specific requirements of individuals, which are different from person to person and can change, sometimes dramatically, from moment to moment and across time (Lazarus, 1995). It would seem that the complete elimination of potential stressors or potential activating events would be impossible in any context, but, most definitely in policing. Pragmatically, environmental factors can be difficult to change, particularly to change continuously in response to an individual's unique needs. Furthermore, some contexts, particularly policing, inevitably place individuals in inherently hostile (e.g., facing a violent protest), and need-depriving (e.g., lack of resources concerning the volume of work to be done) environments and so it follows that what remains is to place a greater emphasis on developing an individual's appraisal and coping processes.

This thesis focuses on individual appraisal and coping processes, through the application of REBT, and emphasises IB disputation as the main psychological change mechanism. The GABCDE framework is employed to analyse the social and psychological

processes which result in stress and poorer psychological wellbeing. The application of REBT can be thought of as a transactional, process, meaning-making strategy to stress reduction, as espoused by Lazarus (1995), it places importance on identifying critical activating events, as described in chapters four and five, and then identifying and changing irrational beliefs which are connected with those activating events. Once rational and effective alternatives are identified a practical problem-solving stage is entered into which may result in new initiatives which change the environment and reduce further potential activating events where possible (e.g., future mistakes), or psychological adjustments which enable individuals to accept events which cannot, for whatever reason, be changed (e.g., past mistakes).

This thesis supports the hypothesis that adopting such cognitions provides a pathway for individuals to adapt and cope with ever-changing external events in their police-related roles and has a functional impact on their stress response, as may have been demonstrated in chapters three and four by reductions in hair cortisol concentration and the practical significance of applying REBT experienced by the intervention recipients. Individual reductions in HCC and social validation data showed that the REBT intervention had an extensive positive impact on the subjective stress and wellbeing of participants. In chapter two high levels of irrational beliefs were significantly associated with higher stress and chapter five reported on the vast range of adversities within policing where REBT was successfully applied.

It was noted in chapter one that the effectiveness of REBT interventions may be difficult to capture using the more popular research methods in intervention research, which are group-level control designs and based on the statistical findings of chapter three alone, the effectiveness of REBT stress management intervention is difficult to support with complete confidence. This thesis has demonstrated the potential value of focusing more fully on the

idiographic nature of applying psychological stress and wellbeing interventions and has revealed that REBT can have a functional impact on stress and self-determined motivation to the extent that it has been “life-changing” (in a functional way) as described by one participant in chapter three and four, and helped others continue to work in policing following periods of burnout as described in chapter five.

There are other elements of REBT theory that can be emphasised and could add to the effectiveness of interventions. Future research could include measures of rational beliefs with stress responses, particularly in REBT intervention studies, as to date few intervention studies report explicitly on the mechanisms of change (David, Cotet, Matu, Mogoase, & Stefan, 2017), which might include increases in rational beliefs. Rational beliefs (RBs; Dryden & Branch, 2008) are believed to be highly important in developing and maintaining psychological health (Oltean & David, 2018) and there is evidence that RBs act as protective cognitions in stressful situations and can prevent dysfunctional behaviours and emotions (Caserta et al., 2010). Rational beliefs, as noted in chapter one, are flexible evaluative cognitions that can be evidenced through logical, empirical, and pragmatic reasoning (David & Cramer, 2010). The absence or reduction of IBs does not necessarily predict increases in RBs as RBs do not represent the opposite of IBs or the absence of IBs. Balkis & Duru (2019), present a study in which multiple regression analysis demonstrated that IBs were associated with stress and that RBs act as protective factors which relate to the ability to manage the stress of negative life events and supported previous theoretical postulations regarding the role of RBs (David et al., 2005; Ziegler & Leslie, 2003). They concluded that IBs were more potent predictors of stress when levels of RB were low and encouraged practitioners to focus on both IBs and RBs when working with clients. Furthermore, as FI beliefs emerged as particularly important in the stress response, future research could explore FI as a multifaceted construct which includes entitlement which is further delineated into fairness

and gratification, emotional intolerance, discomfort intolerance, and achievement frustration (Harrington, 2007) and deepen understanding of what, if any, particular type of FI is associated with stress in policing or, indeed if another facet of FI emerges as particularly salient (e.g., justice).

In summary, the salient contributions of this thesis are that the results provide the first empirical support that IBs play a significant role in the stress and motivational responses of police personnel, with FI beliefs emerging as particularly important. IBs also appear to impact levels of BPN satisfaction and play a complex and important role in impeding self-determined motivation. Furthermore, this thesis provides the first empirical support for the association between amotivation and stress. Finally, the results of the studies presented in this thesis support the contention that REBT is potentially an effective stress and wellbeing management intervention for the demanding context of policing. Before the implications of this thesis are discussed the next section presents the limitations of the current findings to aid the discussion of the broad range of implications that emerge as a result of the findings reported so far.

6.3 Limitations.

To address the aims of this thesis and ground its findings in a pragmatic research philosophy, a range of applied research methods were used. There are some important limitations associated with the studies in this thesis which can be considered in conjunction with the implications that have emerged. The main limitations are now discussed and offer the potential for future theoretical and research developments.

6.3.1 Measurement. Validated measures were used within the studies presented in this thesis. Having noted this, the studies can be built upon by the addition of measures which capture each variable in more detail. For stress, for example, the police stress questionnaire (McCreary & Thompson, 2006) may only be reflective of stressors in certain contexts and

less applicable to the nuances of policing in different departments and different geographical locations (e.g., urban, and rural). Lack of consistency and thoroughness in stress measurement has been highlighted as a barrier to scientific progress in understanding stress and health mechanisms more clearly (Epel et al., 2018) and self-report measures of stress, similar to those used in chapter two of this thesis, fail to capture variance in physiological stress and biological outcomes. The associations between subjective self-reported stress and physiological stress-related changes are not always experienced consciously or as mentioned in an earlier section or are not reported through an unwillingness to admit the true extent of a stressful encounter.

As the current thesis draws on CAT as a theory of stress a limitation is that CAT-specific measures were not utilised in the studies. As has already been outlined in this thesis, cognitive appraisals are a key component of psychological and physiological responses to potential stressors and several types of appraisals have been identified (Smith & Lazarus, 1993; Smith et al., 1993). In previous research cognitive appraisals have been assessed alongside levels of IBs to assess REBT theory in the context of CAT and ground REBT in a more robust empirically supported theory of stress and emotion to further reveal the mechanisms through which stress and emotion are generated (David et al., 2002; 2005; Chadha et al., 2019). The findings of this thesis could begin to be extended by using measures of appraisal components and IBs alongside police-specific stress measures.

There is also an opportunity to investigate the functional nature of the stress response that one experiences. The concept of a functional stress response stems from the work of Selye (1976) who identified two types of stress, distress and eustress and each type has different consequences in terms of adaptations. Eustress was illustrated by socially constructive adaptive attempts and positive effects and distress was illustrated by destructive aggression and negative effects. Selye's proposal of eustress and distress has not been able to

be supported empirically to date (Bienertova-Vasku, Lenart, & Scheringer, 2020). In parallel Lazarus & Folkman (1984), also proposed two types of psychological stress, threat and challenge. Threat is associated with impairment of performance and challenge is associated with facilitating performance. The extent to which a stress response is functional or dysfunctional can be assessed in models of arousal- regulation. A prominent arousal- regulation theory, which draws on appraisal theory is the biopsychosocial theory proposed by Blascovich & Tomaka (1996) who saw the value in combining research from psychology and neuroendocrinology to understand the stress response in an interdisciplinary manner (Blascovich & Mendes, 2001). Importantly, there is evidence to show different physiological and neuroendocrine responses in response to the psychological experience of challenge versus threat (Seery, 2013) and there may be wellbeing benefits to those who are predisposed or encouraged to experience challenge as opposed to threat states (Lazarus & Folkman, 1984; Seery, 2013). Challenge and threat states have been reliably measured using cardio-vascular indices such as heart rate, cardiac output and total peripheral resistance (Hase, O'Brien, Moore, & Freeman, 2019) and psychometrically (Chadha, Turner, & Slater, 2019; Tomaka, Palacios, Champion, & Monks, 2018) offering a range of approaches to the design of research agendas which can assess stress as a binary construct. Indeed, there is one such research agenda currently proposed concerning police decision-making performance which alludes to the indirect impact that threat states may have on health outcomes in policing, although it is noted that this is currently a gap in the extant research (Kelley, Siegel, & Wormwood, 2019). The addition of challenge and threat states, along with IBs to examine the complex interaction between the cognitive components of affective responses has begun to emerge with athletes (Chadha et al., 2019; Evans et al., 2018) and schoolteachers (Huk et al., 2018) and begins to evidence the impact that IB endorsement has on affective and motivational responses as well as burnout. Future research could examine IBs and REBT in

conjunction with challenge and threat as well as psychological wellbeing outcomes in police personnel to further understand the risk of exposure to police-related incidents over an entire police career.

In addition, further measures of objective stress could be considered to measure psychological, endocrine, and neurological change mechanisms in stress responses. For example, technological advancements are identifying reliable biomarkers of stress such as proteins, enzymes, hormones, chemicals, metabolites, genes, or by-products which are stress biomarkers which can be collected non-invasively through saliva (Dhama et al., 2019). Such technological advances may be able to demonstrate more robustly the mechanism through which psychological stress impacts health and wellbeing and how cognitive processes such as IBs impact the physical adaptive processes in the human body. In policing, including chapter three of this thesis, there are very few studies that have employed objective biomarkers of stress (Giessing et al., 2019). Giessing et al. (2019), used salivary cortisol and alpha-amylase to assess police recruits' responses to simulated critical incidents in terms of stress and performance. In another study biomarkers of stress were used to assess the extent of the stress response, through the observation of changes in salivary cortisol, alpha-amylase, secretory immunoglobulin, and interleukin in virtual reality simulations which might provide a fruitful means of developing psychological skills (Groer, et al., 2010). In another study with police officers, blood samples were taken to measure prolactin, cortisol, and dehydroepiandrosterone sulphate, as markers of physical health to assess the effectiveness of a psychological skills program to reduce stress responses in critical operational police scenarios (Arnetz, Arble, Backman, Lynch, & Lublin, 2013).

Heart rate variability is also used as a physiological objective marker of stress in Giessing et al.'s (2010) study, and as noted above may provide a means of measuring stress in a more detailed fashion (e.g., by identifying physiological differences in challenge and

threat states). Furthermore, physiological measures such as heart rate variability can be measured non-invasively through the use of wearable technology which enables a less inconvenient approach to objective stress measures and allows for repeated measures to monitor physiological stress responses over time (Pernice et al., 2019). Repeated measures might better capture the transactional nature of the stress response (Lazarus, 1995).

In this thesis, levels of irrational performance beliefs were measured as reductions in irrational performance beliefs have been shown to represent a core change mechanism in REBT and offer a contextually relevant measure of IBs in performance settings (Turner et al., 2016). Future research could improve the ecological validity of the measure by pairing police-specific environmental stressors with IB constructs, e.g., in chapters four and five tolerating the risks involved in operational decision-making emerged thematically as particularly stressful for police officers, psychometric constructs could specifically address IBs associated with risk and decision making. Scholars may then be able to ascertain the extent to which cognitions contribute to the stress or motivational response above and beyond the environmental stressor. As noted by DiGiuseppe (1996) it is arguably difficult to fully capture IBs through single-sentence psychometric items, and this thesis has, partially, relied on such psychometric measures. Future research could explore how to overcome this issue by using additional research methods which can capture the cognitive, emotional, and behavioural aspects of irrational beliefs. For a belief to be an irrational belief, a range of conditions needs to be met. The conditions are that the belief is rigid, inconsistent with reality, illogical, and detrimental to the person (Dryden, 2003). Irrationality stems from the quality of the evaluation that occurs at a core or schematic level and refers to absolutistic requirements which can be expressed as emotions, cognitions, behaviours and action tendencies that may only be triggered in the face of a specific activating event (Ellis, David, & Lyn, 2010). Furthermore, IBs can be held subconsciously as tacit schema (David, 2003). It

is possible that observation, qualitative methods, as well as psychometrics, which capture a fuller extent of an IB (e.g., the associated consequences of the IB), could build on the current findings. While REBT theory categorises rational and irrational beliefs it, perhaps overlooks the important elements that create a belief in general, although DiGiuseppe (1996) offers that beliefs are types of schemas, which are complex cognitive structures that represent a person's constructed concept of reality, and behavioural responses to that reality. Szentagotai and Jones (2010), note that a key element of any belief is the degree of conviction with which it is held when it is triggered by an activating event, and can often be revealed by examination of the resulting unhealthy emotional experience, therefore, close examination of the consequences of triggered IBs is called for. Scholars have also urged that stress is measured in context which includes environmental factors, individual factors, personal histories particularly of potential stress exposure, particularly childhood stress and cumulative life stress, current potential chronic stress exposure, and existing protective factors as each element can alter the predictive ability of stress producing mechanisms (Epel et al., 2018).

6.3.2 Absence of BPNs frustration. The studies in this thesis focused on the association of need satisfaction, IBs, motivation, and stress, however, in SDT, there is a distinction between BPN need satisfaction and frustration (Vansteenkiste & Ryan, 2013). SDT proposes that while a lack of need satisfaction does not lead to growth, integration, and wellbeing need frustration can be especially harmful (Bartholomew, Ntoumanis, Ryan, Bosch, & Thogersen-Ntoumanis, 2011) and it may be that need frustration is more congruent with the stress response as opposed to a lack of need satisfaction (Martinent, Guillet-Descas, & Moiret, 2015; Ferrrand et al., 2021). In the context of REBT's GABCDE theory, need frustration could be a consequence (C) of an activating event but also serve as an activating event (A). With this in mind, future research could build on the findings of this thesis by assessing need frustration profiles as well as need satisfaction profiles concerning stress, and levels of IBs.

Intervention studies could examine the impact of REBT interventions on levels of need frustration and need frustration could be operationalised as a controlled variable allowing for the testing of the extent to which IBs (B) predict stress (C).

6.3.3 The process of integration. Although, when combined, REBT theory and SDT recognise the important role of internalisation of rational philosophies for psychological wellbeing and personal growth to occur, the current thesis did not examine, in detail, the processes through which internalisation occurs. In chapters three and four the variation in motivation regulation results could be attributed to individual differences in integrative processes that lead to different levels of internalisation. Although disputation of IBs and homework tasks were used to foster rational philosophies, optimal responses to adversities, and philosophical change, as outlined in REBT (Dryden & Bond, 1994), future research could draw more closely on theories, of how internalisation takes place, such as Cognitive Development Theory (CDT; Piaget, 1950), and systematically explore techniques that may be effective internalisation processes. Drawing on cognitive developmental theory (Piaget, 1950), IBs have been proposed to be types of schemas (DiGiuseppe, 1989; 1996; Muran, 1990). Schemas are cognitive constructs that people create about the world based on their experiences and are often central to a person's experience (DiGiuseppe, 1996). Schemas are complex cognitive structures which represent concepts of reality and behavioural responses to it. Disequilibrium (and perhaps stress) occurs when there is a discrepancy between a schema and actual events. People adapt to this discrepancy through the joint processes of accommodation and assimilation resulting in a changed schema. Understanding IBs as schema, as well as appraisals, could provide insight into how the process of internalisation is effectively supported. Research has attempted to link these two concepts (Szentagotai, Schnur, DiGiuseppe, Macavei, Kallay, & David, 2005). Furthermore, recent research has investigated maladaptive schemas as potential mechanisms through which

psychological distress occurs (Turner, Aspin, & Gillman, 2019). In REBT internalisation is thought to occur through the initial education phase and then, importantly through rigorous repetition of the REBT principles through cognitive and behavioural rehearsal (Grieger & Fralick, 2007). It is difficult to know which specific processes are most effective and CDT can be used to understand the status of the developmental process held by an individual in relation to an emotional or stressful problem and doing so may assist in bringing about more robust change or internalisation. From an SDT perspective, OIT can indicate the type of motivation regulation that is occurring in relation to a client's problems but does not allude explicitly to how internalisation takes place leaving an important gap in the literature.

6.3.4 Context and ecological validity. The current thesis focused on police senior leaders and police personnel in general. Having noted this, police contexts are broad and consist of a wide range of variability of contexts (Davis & Baily, 2017). For example, frontline police officers could come from a roads police unit whose roles include road traffic accident attendance to apprehending dangerous drivers, whereas a cybercrime detective would be office-based and reviewing data. A response officer may work to intervene where a crime is taking place or manage socially unacceptable behaviour. This variation may limit the generalisability of the findings of this thesis in particular contexts or individual situations. Future research could assess the ecological validity of designs and identify the similarities and differences in terms of stress and psychological wellbeing responses. Frustration intolerance and amotivation emerged as particularly important antecedents of stress in the broad police context, however, other antecedents may impact police personnel in different contexts.

6.4 Implications.

In the previous sections various theoretical and conceptual explanations were offered to understand, first, the role of irrational beliefs in the stress responses of police personnel,

and second, to understand the extent to which REBT is an effective approach to stress management and fostering self-determined motivation in policing. Also, the main limitations of the research presented in this thesis were discussed. In this section, the implications of the findings are discussed in relation to theory, research and the application of REBT in the police context. Overall, there is scope for many potential theoretical, research and practical implications which arise as a result of the findings of this thesis. Generally, the findings support the central role of irrational beliefs in the stress response (chapter two) and also support the application of REBT to manage stress and enhance psychological wellbeing in policing (chapters three, four, and five).

6.4.1 Theoretical implications. The findings of this thesis provide an opportunity to add to the practical theory which can help those experiencing stress in police environments. Several theoretical points emerged that could advance the field of stress management in policing. Each point is discussed in this section.

6.4.1a Alignment of related theories. This thesis begins to draw three theories together. REBT, SDT and stress theory underpinned by CAT. Contemporary research has begun to integrate REBT theory with stress research (e.g., David, et al., 2002; 2005; Chadha, Turner, & Slater, 2019) and recognises that IBs can be conceptualised as forms of appraisal and coping cognitions. Both categories of cognitions play an important role in the stress response (Meijen, Turner, Jones, Sheffield, & McCarthy, 2020). REBT constructs have also recently been explored with SDT and REBT constructs such as IBs being aligned with self-determined motivation, and psychological wellbeing for the first time in student-athletes and exercisers (Turner et al., 2022). This thesis also supports the alignment of IBs with the organismic integration constructs of SDT, by demonstrating a positive association between amotivation, and controlled motivation and IBs (chapter two) and increases in self-determined motivation following an REBT intervention (chapter four), but shows, perhaps,

the impact of the context and individual differences on both IB activation and motivation regulation (chapter two), with FI emerging as a particularly important IB category and amotivation emerging as a particularly important motivation category leading to stress in policing. Turner et al.'s (2022) findings did not highlight a specific IB category in relation to motivation or health outcomes for athletes and exercisers. In contrast, other research reports that depreciation beliefs are particularly important antecedents of psychological distress in athletes of ranging levels (Mansell, 2021; Turner, Aspin, & Gillman, 2019). In chapter two, depreciation beliefs emerged as a unique predictor of amotivation but did not emerge as a unique predictor of police stress. Such findings, which scholars could investigate further, could be capturing different appraisal and coping responses in different settings. In a recent study, Turner, Miller, and Youngs (2022), empirically explored the association of work-related variables such as presenteeism, persistence, and turnover intention as well as the more general variables of life satisfaction and mental wellbeing with IBs and motivation regulation using a latent profile analysis approach. Adopting a latent profile analysis approach allowed for the identification of types or groups of people with different composition profiles in terms of IBs and motivation regulation types which are associated with a range of work and life-related outcomes. Their findings suggest that a high rational engagement profile, which was composed of higher levels of IBs, and lower self-determined motivation regulation was indicative of higher stress, among other variables. Higher IBs were also strongly associated with more controlled forms of motivation which align with the findings reported in this thesis.

There are opportunities to theorise further in terms of how stress, SDT, and REBT theories align. As pointed out in the work of Fernet and Austin (2014) the stress response may be mediated through the extent to which an individual is experiencing self-determined motivation. The findings of this thesis support this theoretical assertion; however, this thesis

also reveals the complexity of the motivation processes that individuals encounter. For example, intrinsic motivation could be stress-inducing if combined with irrational beliefs as discussed in chapters two and five of this thesis, in that an over-commitment to one's intrinsic goals can be stress-inducing due to failure to recognise one's limitations or the undermining effects of ego involvement (Plant & Ryan, 1985; Ryan 1982). Ego involvement, an internally controlled form of motivation where individuals pressure themselves to feel secure in a valued social group (Ryan, 1982), serves to undermine intrinsic autonomous motivation when activities that begin intrinsically, such as joining a police organisation to serve and protect the community, become pressured through internal demands (e.g., I want to and therefore I have to solve this crime). Finally, there is an element of identified regulation that indicates a failure to integrate an externally driven value, due to the conflict that may emerge from other competing values (Weinstein, Ryan, Dehann, Przybylski, Legate, & Ryan, 2012). This may be most commonly observed when an individual's work and life commitments clash or when they are faced with what they construe as unacceptable (e.g., unfair media reporting). In such cases, low-stress responses may be a sign of defensive compartmentalisation through identified regulation (Weinstein & Ryan, 2011) and may not, always, indicate functional coping or enhanced wellbeing.

Having noted the apparent congruence between REBT theory, SDT, and stress theories future explorations could develop the combination of theories formally and with rigour as a premature synthesis may take place if the conceptual bases are not clear and there is no replicable data (Ryan, Soenens, & Vansteenkiste, 2018). In this thesis, associations have been observed between various IBs, SDT constructs, and the stress response. In the future, scholars can build on these observed associations to assess more robustly the orderliness, meaning, and value of theory alignment.

6.4.1b Focusing on philosophical change, integration, and internalisation. To date, REBT research has focused on emotion and stress models and their alignment with REBT (Chadha, Turner, & Slater, 2019; David et al., 2002; 2005). A focal point which may have emerged from the application of REBT in clinical settings. The ultimate aim of REBT interventions, particularly from a non-clinical, performance psychology perspective, is to help people to change their internal philosophies so that their core beliefs generate a range of rational inferences, healthy negative emotions (in the face of negative circumstances) and functional behaviours (Ellis, 1993). In REBT this process is known as philosophical change (Ellis, 1963; Kinney, 2000). In SDT there appear to be similar processes called internalisation. Internalisation and integration occur when one has accommodated, assimilated and carried out effective behaviours without external controls (Ryan & Deci, 2017; Weinstein, Przybylski, & Ryan, 2013). There may be a theoretical alignment of philosophical change, as proposed by REBT, and organismic integration, as proposed by SDT, however, the cognitive mechanism through which integration occurs in SDT is not well defined (Bauer, King, & Steger, 2017). Understanding integrative processes have an impact on the form that psychological interventions take (Ryan, 1995). For example, if a practitioner believes that there is a biological tendency towards integration, as espoused in SDT (Ryan & Deci, 2017), psychological interventions tend to take the form of facilitating and nurturing such tendencies, whereas, if no such tendency exists then interventions are oriented towards training, shaping, and directing and can be thought of as more controlled. In SDT the process of integration is theoretically grounded in the belief that spontaneous integrative tendencies exist and draws, in part, on the developmental psychology of Piaget (1971). In REBT irrationality is believed to have a biological basis also (Ellis, 1976), and the processes of disputing irrational beliefs and building rational beliefs in their place may play a critical role in providing a pathway towards integration when external events do not initially align with

internal expectations. As previously noted, DiGiuseppe (1996) proposes that irrational beliefs are conceptualised as schemas, that is when irrational beliefs occur cognitively and biologically over-assimilation occurs and there is a failure to create new concepts through accommodation. Maladaptive schema and irrational beliefs have been examined in relation to psychological distress in athletes (Turner, Aspin, & Gillman, 2019), however, a focus on philosophical change or internalisation is not currently set out in applied research as a goal of interventions explicitly, and perhaps a scholarly exploration of the mechanisms through which the internalisation and/or philosophical change process occurs may glean applied directions for practitioners.

6.4.1c Depreciation beliefs as a multi-dimensional concept. Depreciation beliefs are not, seemingly, associated with stress in the police context, however, amotivation is (see chapter two). Amotivation can refer to cognitions that involve global and personal helplessness (Deci & Ryan, 2013) and this observation may indicate that there would be merit in examining the depreciation construct more carefully so that all forms of depreciation and evaluation are assessed. Depreciation beliefs can also represent categories such as contingent worth, which is not necessarily a global evaluation, for example in the face of a failure at work such as a failed promotion an individual may endorse that they are a failure in that particular situation (e.g. I am a rubbish interviewee) and that this is associated with their worth contingently (because I am rubbish interviewee I am worthless in that situation) but not a total failure in other areas of their work (I'm still a good police officer) and life (I'm still a good parent). Holding this perspective may impede their career progression. Contingent worth as opposed to global evaluation may represent a nuanced construct that could have an impact on stress, motivation, and psychological wellbeing particularly if one's self-efficacy is contingent on one's self-worth (DiGiuseppe, Doyle, Dryden, & Bacx, 2014). Additionally, depreciation beliefs are further categorised to the self or others and refer to life events (Ellis,

David, & Lynn, 2010) and even evaluations of whole organisations (see chapter five), yet measures do not necessarily reflect the range of beliefs that GE represents, and this could be leading to important oversights in research findings. It could be that, as with FI beliefs (Harrington, 2007), depreciation beliefs are multi-faceted and related to discrete problems.

6.4.2 Research Implications. Due to the scarcity of research which explores the influence of REBT constructs in relation to the stress response, motivation, and psychological wellbeing in policing, and generally in organisational contexts, scholars may wish to examine a wide variety of research questions. The most important in relation to this thesis is now discussed.

6.4.2a Extending the generalisability of the findings. In terms of the current thesis, future research could focus on exploring the association of stress and self-determined motivation in other police environments considering the global prevalence of police stress to assess the extent to which IBs and other REBT constructs may be antecedents of the stress response and psychological wellbeing. Recent research in Nigeria (Nwokeoma et al., 2019; Onyishi, Ede, Ossai, & Ugwuanyi, 2020) indicates that REBT can be applied in different geographical police contexts. Cross-cultural studies are important as cultural differences can result in nuances in what is experienced as stressful in a particular culture and appraisal, and coping mechanisms can differ (Lazarus, 1995). Furthermore, the extent to which BPNs are satisfied can differ according to cultural norms (Church et al., 2013). One difference which might be of interest in this context is that, within the U.K., policing occurs through a philosophy of consent where the police service is deemed to be servants of the community as opposed to being a coercive arm of the state (Oxford, 1984). Such differences may be important in assessing stress responses and interventions across cultures where different policing ideologies result in differences in the lived experience of police personnel (Martin,

2014). Furthermore, within U.K. police forces there is a broad range of roles that combine to form a single police organisation, as discussed in the research limitations section.

6.4.2b Broadening the range of research methods and designs. A range of research methods should be used to assess REBT constructs from many angles and explore the pragmatic applied research questions that help to inform policy and practice. Such research may include longitudinal exploration and repeated measures of stressful encounters so that the transactional nature of the stress process can be captured more fully. During a stressful encounter, the appraisal and coping processes can change over time and so single-time point research designs may offer limited direction for pinpointing effective and efficient interventions in stress management. Coping by seeking social support, for example, appears to be unstable over time and could be heavily influenced by the environmental conditions of a stressful encounter (Lazarus, 1995). Such information can influence the formulation of interventions which focus on promoting ease of accessing social support in the environment, by removing barriers to support access, or emphasising and refining post-incident debriefing routines. Adding behavioural outcome variables and expanding stress variables would build on the current findings as applied researchers could consider designing approaches which capture the change process in more tangible terms such as behavioural and emotional/stress-related dependant variables, e.g., safety-seeking behaviours in unhealthy anxiety. Measures which capture the quality of stress responses such as measures of challenge and threat could help delineate healthy and unhealthy integrative processes, something that has been proposed by other scholars in the field of sport psychology (Meijen, Turner, Jones, Sheffield, & McCarthy, 2020).

Irrational and rational beliefs in relation to internal and external motivations could also be explored using a broader range of qualitative approaches to capture the emotion and stress responses which may be consistently related to irrational, rational beliefs and self-

determined motivation in police contexts. The value of conducting qualitative research in relation to stress is that it can enable a more accurate capture of the complexity of applied contexts (Smith, 2006) and can inform the development of psychometric measures (Schonfeld & Farrell, 2010). Furthermore, a disadvantage of psychometric tests is that work contexts can affect responses to specific variables as participants may respond in socially desirable ways (Harris, 1995) and defensive responses including impression management and self-deception are challenging to overcome (Barone, 1995). Anonymous reporting can help to overcome the issue of impression management (Barone et al., 1988; Roselione & Barone, 1988) but the issue of self-awareness or self-deception is harder to overcome (Barone, 1995). It is possible that by adding qualitative approaches, repression and sensitisation bias can be explored by observations of contradictions and conflicts in the data, as was discussed in chapter four of this thesis, where participant one in the case study qualitatively reported difficulty in applying REBT principles and yet positive psychometric and stress biomarker outcomes were observed.

A particularly interesting point that has emerged from this thesis is the low-stress response associated with identified regulation reported in the cross-sectional study reported in chapter two. Identified regulation has been associated with both functional and dysfunctional responses (Vansteenkiste & Ryan, 2013). Dysfunctional responses such as defensive compartmentalisation could be associated with an avoidance coping style perhaps because one holds beliefs about their ability to face certain adversities. Such responses are energy-consuming and may lead to a misinterpretation of identified regulation results as more functional than other forms of external regulation. In this situation increases in self-determined motivation may only represent a shift from one form of undesirable motivation regulation to another, rather than an improvement in self-determined regulation. Applying a broader range of qualitative methods may make such nuances observable. In extant REBT

literature, there is little qualitative research which examines REBT constructs, theory, and application. In a recent systematic mapping review of the application of REBT with athletes, the authors suggest that as the use of REBT with the specific population of athletes is a growing field and more rigorous and innovative qualitative research was called for to complement more traditional empirical methods (Jordana, et al., 2020).

Furthermore, investigations which focus on those who work in the same police environment, who report low stress, low levels of IBs, high RBs, and high self-determined motivation could help in understanding the relationship between stress, motivation and rational or irrational beliefs further. This sample was identified in chapter two as the low-stress quartile. A further qualitative investigation of this type of sample could aid understanding of the coping strategies that support a more optimal stress response in the face of a police career and can further elucidate and support the application of specific strategies at specific times. For example, constructs such as resilience, hardiness, and psychological capital have gained growing attention in extant literature (Fletcher & Sarkar, 2013) and may be interpreted as a possible antidote to stress. Yet in policing research, a critical systematic review found no empirical support for fostering such concepts (Janssens, van der Velden, Taris, & Veldhoven, 2018). The authors report that there is much variation in the variables tested and that such variables cannot be supported as strong predictors of the effective functioning of police officers.

6.4.2c A focus on performance. While the central aim of the current thesis is on REBT, stress, and self-determined motivation, the impact of a focus on applying REBT to promote psychological wellbeing could also be explored from a performance impact perspective. High stress is often implicated in poor functioning and performance in police officers (Nisar & Rasheed, 2020). Future research could follow that of the sport domain where IBs are also associated with performance effects, as well as wellbeing outcomes (e.g.,

Wood, Barker, & Turner, 2017). Stress has been implicated in performance improvements and deterrents in policing (Perez- Floriano & Gonzalez, 2019) and as a missing element in terms of research into critical incident decision-making performance in policing (Kelley, Siegel, & Wormwood, 2019). This thesis has demonstrated that IBs are significant cognitive antecedents of stress and motivation in policing, therefore, there is scope for assessing the impact of IBs and REBT in relation to police performance. There is emerging evidence of the link between IBs and performance in sport (Maxwell-Keys, Wood, & Turner, 2022; Mesagno, Tibbert, Buchanan, Harvey, & Turner, 2021; Turner, Kirkham, & Wood, 2018; Wood, Barker, Turner, & Sheffield, 2017). For example, Mesagno, Tibbert, Buchanan, Harvey, and Turner (2021), found that IBs were tentatively associated with considerable underperformance (choking) in a simulated, high-pressure sport scenario, but that the relationship between IBs and performance was not straightforward. This is potentially an important finding that could be explored within performance enhancement interventions in the police context. The complexity of the IB and performance connection is further evidenced in sport psychology literature through studies which have examined the use of self-talk (Turner, Kirkham, & Wood, 2018; Wood, Turner, Barker, & Higgins, 2017). Turner et al., (2018), found that the putting performance of golfers was significantly more accurate when using rational versus irrational self-talk which contradicted earlier findings of Wood, Turner, Barker, and Higgins (2017) who found no differences in performance when using rational, irrational, or no self-statements in a golf putting task, hazard perception task, and breath holding task under experimental conditions. Another recent study with match officials evidenced that IBs reduced and decision-making performance improved through decreased decision- reinvestment, following an REBT intervention (Maxwell-Keys, Wood, & Turner, 2022). Maxwell-Keys et al's. (2022), study could be closely aligned with police decision-making as match officials are, arguably, policing the in-play behaviours of a sports event and

both match officials and police personnel are charged with maintaining performance standards whilst encountering challenging moments and certainly, decision rumination, focusing on the past, and when decisions were inaccurate, were topics discussed in the REBT interventions presented in chapters four and five of this thesis.

The complex and seemingly contradictory interactions of IBs and performance may be reflected in motivation regulation types where controlled motivation brings about acute but short-term mobilisation of effort (Ryan & Deci, 2017). Future research could also examine IBs and performance through the context of SDT to further assess the impact of performance on wellbeing. IBs have been associated with performance improvements as well as deteriorations in performance (Mesagno et al., 2020). The motivational nature of IBs has been discussed as a possible reason for this (Wood, Barker, Turner, & Higgins, 2017). In such instances, athletes have reported continuing in their performance endeavours at the risk of harming themselves, e.g., continuing to perform when injured, maintaining a sense of self-worth, and may place performance outcomes above their wellbeing (Miller, Calder, Turner, & Wood, 2022). When such performance philosophies are adopted culturally, and for prolonged periods, they could foster chronic stress, be detrimental to long-term wellbeing and increase the risk of performance failures, however, delineating functional performance behaviours, and functional wellbeing behaviours can be difficult. For example, a police officer may willingly risk their wellbeing to save another's life and may find it difficult to maintain long-term wellbeing if they inadvertently decided to prioritise their wellbeing over prioritising their performance in a high-threat situation, as is evidenced in the concept of survivor guilt (Fimiani, Gazzillo, Dazzi, & Bush, 2021). Survivor guilt is conceptualised as a powerful motivator of pro-social behaviour to rectify relational imbalances but can sometimes result in extreme self-sacrificing behaviours and be a source of long-term psychological suffering (Haidt, 2012).

6.4.3 Practical Implications. The findings of this thesis combine to reveal several practical implications. The practical implications are presented by first assessing the most important from an organisational perspective and then by focusing on the practical implications in individual consultation sessions.

6.4.3a Sources of Stress in policing. The findings of this thesis suggest that emphasising the cognitive process may be effective in helping individuals manage their stress, motivation, and psychological wellbeing in the context of policing. This is because in REBT, SDT, and CAT it is recognised that environmental factors do play a role in the stress and motivation response as activating events, but that cognition also plays an important role, through rational or irrational beliefs, in creating and maintaining stressful and dysfunctional responses. When strategies are developed to support the ongoing wellbeing of police personnel they should include, if not emphasise, REBT education programs throughout the hierarchical organisational structure of policing, from initial training of recruits to senior leaders. Specific programs addressing pervasive stressful experiences such as managing risk or dealing with the media as discussed in chapter four could inform the grouping strategies for such programs as suggested by Lazarus (1995), although initial interviews could take place to reveal and prioritise such groups. Furthermore, and most importantly for policing, when the environment cannot be changed to reduce stress (e.g., attending to a crime in progress) cognitions, in the form of coping potential (Smith & Lazarus, 1993), become the only means through which functional and psychologically supportive outcomes can be attained. According to CAT two types of coping potential can be developed, emotion-focused coping and problem-focused coping, both are concerned with reducing differences between the situation and a person's preferences in a given situation and motivations (Folkman & Lazarus, 1988; Kimble, 1990; Smith & Lazarus, 1990) problem-focused coping potential is the evaluation of a person's ability to act on the situation by bringing or keeping it congruent

with a person's goals and preferences. Emotion-focused coping is the evaluation of a person's ability to adjust emotionally to the situation through altering perceptions, expectations, and beliefs about the situation. In any given situation it might be fruitful to understand effective emotion-focused coping strategies from an REBT perspective for two reasons. First reducing IBs can promote emotion-focused coping by changing, perceptions, expectations, and beliefs when external events (e.g. past events, such as making a mistake) and second it is possible that more effective action can be taken to bring an adverse situation in line with goal progress, through problem-focused coping, once an optimal amount of emotion-focused coping has occurred. The findings in chapters two, three, four, and five suggest that the appraisal or meaning created in a person-environment encounter is crucial in the resulting response and so teaching this element of REBT theory alone could have a major impact on the psychological wellbeing of police personnel. Recently, researchers have begun to examine how one's belief about what generates emotional responses impacts their vulnerability to emotional disturbance with findings suggesting that a recognition that one is involved in the generation of emotional responses leads to better psychological health outcomes (Turner et al., 2021; Turner, Chadha, & Wood, 2022). In REBT practice early sessions focus on educating clients that they can play an empowering role in their emotional responses is an important early first step in the therapeutic process (DiGiuseppe, Doyle, Dryden, & Bacx, 2014). While, where possible, it is important and ethical to create efficient and effective working environments, the findings of this thesis suggest that a greater emphasis could be placed on psychoeducation which demonstrates the importance of one's cognitive processes in relation to psychological wellbeing, and supports the suggestions made by other scholars in the field of police stress research (e.g. Papazoglou & Andersen, 2014; Andersen et al., 2015). Furthermore, greater emphasis could be placed on training all police personnel rather than a focus on police officers alone, as the findings in this thesis

demonstrated that police officers and staff experience similar stress response levels (chapters two & four). A similar observation has been reported in sport environments with scholars advocating performance psychology support for support staff such as coaches, sport science practitioners, and sports medics as well as athletes (Arnold, Collington, Manley, Rees, Soanes, & Williams, 2019). Indeed, sport support staff described similar stressors to police occupational stressors such as relationship issues, issues concerning organisational structure, and contractual and performance development issues and are therefore also vulnerable to the detrimental effects of stress.

6.4.3b Psychology Programs in policing. It is not clear the extent to which there are effective, and evidence-based psychology programs in police organisations. There is a lack of research evidence which guides policymakers and organisational leaders around the structure of psychology programs that would support the promotion of psychological skills training such as training in REBT skills in policing. As has been seen in the sport domain organisation-wide programs have helped support both the ongoing wellbeing and performance of athletes (Henriksen, 2015; Cole & Martin, 2018). Practitioners working in policing could adopt a broader, organisational approach to promote and facilitate the ongoing application of psychological skills, including REBT skills. Turner (2016), recommended that approaches with a legacy impact and broader influence on reducing IBs and promoting RBs could include interventions that involve the whole environment. Such programs could be designed by drawing on evidence. For example, in a recent commentary King, et al. (2022), critically explored how key stakeholders within micro (e.g. home, peers, line managers) and macro (e.g., stakeholders, politicians in policing, the media) environments contribute to the development, maintenance, and strengthening of irrational beliefs and how irrational beliefs can be systematically weakened and rational beliefs strengthened. Their guidance translated to a police environment might include systematic education programs which teach the basic

propositions of REBT, the challenging of irrational language, a systematic program of IB screening, and placing a greater emphasis and feedback on the processes of performance. It is possible that drawing on research which fosters autonomy-supportive environments (Ryan & Deci, 2000) would also offer fruitful pathways for fostering rational environments by combining autonomous interpersonal interactions with rational interactions.

6.4.3c A focus on multifaceted FI and motivation regulation types to foster the therapeutic process. When applying REBT idiographically the findings of this thesis, particularly those discussed in chapter two draw attention to the practical benefit of investigating frustration intolerance beliefs in a multifaceted way, by drawing on the categories outlined by Harrington (2007). Doing so may assist in the efficient identification of IBs when applying REBT for stress management in policing. Furthermore, this thesis demonstrates the advantage of drawing on SDT to inform the application of REBT. Specifically, practitioners could identify clients' self-determined motivation regulation types and the extent to which they are controlled or autonomy supportive. Currently, REBT theory does not delineate motivation qualitatively and practitioners may not easily recognise when controlled forms of client self-determined motivation impede progress in terms of identifying critical activating events, disputing IBs and fostering rational alternatives. These could emerge as forms of resistance (Ellis, 2002) as the client might not immediately see the value in applying REBT to their problems and experience a lack of intrinsic or identified regulation about the process. Practitioners and clients could, inadvertently, draw on traditionally controlled types of motivation (e.g., rewards) to foster the integration of rational philosophies and not recognise how such approaches could undermine successful therapeutic change for their clients due to reliance on external and introjected regulation, or clients may feel helpless to change their beliefs and so experience amotivation in the therapeutic process. Practitioners could explore

more autonomy-supportive frameworks through which the benefits of effective new beliefs can be integrated as outlined by Ryan & Deci (2008).

6.4.3d Beyond stress management - recognising the universality of REBT. This thesis has explored the application of REBT in a non/sub-clinical context, that is, as a stress management intervention and most REBT research is focused on clinical contexts such as PTSD, anxiety, and depression. REBT could also be applied as critical thinking and problem-solving tool as adopting a rational perspective in the face of the complex challenges often faced in strategic policing. For example, the promotion of rational beliefs could help destigmatise certain areas of policing (e.g., in the promotion of equality and inclusion strategies or foster behaviour change in the adoption of innovative digital policing strategies). This, perhaps, is the main advantage of applying REBT from a performance psychology approach, as the emphasis is on reducing the symptoms of stress *and* on the scope of a psychological intervention's ability to facilitate optimal performance across a wide variety of contexts and scenarios. This may be because REBT promotes the process of disputation and helps individuals reflect on the sources of their perspectives (e.g., their personal epistemologies, DiGiuseppe, Doyle, Dryden, & Backx, 2014) through applying critical thinking skills. Indeed, REBT can be viewed as a philosophy of living as well as a psychotherapeutic approach (Matweychuk, 2021).

6.5 Conclusion.

This thesis makes a novel contribution to police stress and REBT literature. This thesis shows, for the first time, that levels of irrational beliefs can predict stress and self-determined motivation in U.K. police personnel. This thesis also shows that REBT interventions are both suitable and effective in decreasing IBs, hair cortisol concentration (a biomarker of stress), increasing BPNs and increasing levels of self-determined motivation in police personnel. The application of REBT as a stress management intervention is supported

in this context. In addition, this thesis highlights the role of frustration intolerance and amotivation as particularly important concerning the experience of higher levels of stress. In light of the evidence in this thesis and previous research, it may be that REBT intervention effects are best captured through adopting single-case experimental research designs as opposed to more traditional group-level approaches as the processes involved in stress management and psychological adaptation are often dynamic and unique to each individual and group level assessment has tended to mask the nuances of the optimal application of the approach. In addition, underpinned by research showing the association between IBs and CAT constructs (David et al., 2003; 2005; Chadha et al., 2019), a key direction for future researchers is to elucidate the alignment between REBT theory and CAT so that the mechanism through which stress is generated can be further understood, specifically concerning motivational processes which foster psychological adaptation and wellbeing. The key message delivered in this thesis is that irrational beliefs have a major impact on stress and motivation responses in police personnel. This does not mean that working conditions do not have an impact on wellbeing and should be ignored but recognises a human being's potential ability to functionally adapt to the adversities that a career in policing can present. Police personnel are exposed to potentially stressful occurrences regularly in the line of duty. Developing psychological skills through the application of REBT, to such occurrences has the potential to have a major impact on their long-term health and wellbeing as they navigate their careers in policing. In summary, this thesis has made an original and significant contribution to the understanding of how REBT and IBs influence the stress response and motivation of police officers and police staff in a U.K. police force.

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APPENDIX 1 : RECRUITMENT INFORMATION, QUESTIONNAIRES CHAPTER 2



Performance Psychology Cross-Sectional Questionnaire

Information About this Study

Dear Sir/Madam

I am a researcher under the supervision of Dr Jamie Barker and Dr Martin Turner at the School of Life Sciences and Education (Sport Psychology) at Staffordshire University.

What is the purpose of the research project?

The aim of this research project is to explore the relationship between experiences of stress, the type of beliefs individuals may hold and wellbeing.

Am I suitable for the research project?

The study requires that you are a serving police officer or staff member and are in good health.

What does the research project involve?

Initially, you are only required to answer the following questions. We may, in due course, invite you to participate in a further research project but will contact you directly if this is the case.

Do I have to take part?

Your participation in this research project is voluntary and you are at liberty to refuse to commence the questionnaire or withdraw at any time during the entire duration of the questionnaire. Following data collection, we will use your data to evaluate the results and so your data will no longer be able to be withdrawn. You will have 30 days following your participation in the project to request for your data to be withdrawn.

What are the benefits of taking part?

Your participation will contribute to a greater understanding of how an individual's beliefs influence emotional states and performance within the scientific literature and may inform the development of training protocols which address the effective management of stress.

Are there any possible risks in taking part?

No, the questions address common stress and wellbeing-related topics, and your responses are strictly confidential. Should you have any concerns please do not hesitate to contact me. My email address is jennifer.jones@research.staffs.ac.uk

What will happen to my results and information?

Your data will be seen by the lead researcher, Jenni Jones, and project supervisors Dr Jamie Barker and Dr Martin Turner; however, your personal details and questionnaire details will be anonymised, and your identity will be protected. The results of the research study may be published, but all your details will be kept confidential and will be stored on a password-protected secure database

Will I be debriefed?

Yes. At the end of your participation, you will be debriefed with information about the research. You will also be given the opportunity to voice any queries, or concerns or request further feedback regarding the project.

Who has reviewed the research project?

The Faculty Ethics Panel at Staffordshire University has reviewed the study.

Who can I contact if I have any further questions regarding the study?

If you have any questions concerning the research or your participation in this study, please contact me via email: jennifer.jones@research.staffs.ac.uk.

Sincerely

A handwritten signature in black ink, appearing to read 'J. Jones' with a stylized flourish at the end.

Jenni Jones

Consent Form

Please indicate in the circles below as appropriate. If you do not agree with any of the statements, unfortunately you will not be eligible to take part in the research project and are not required to complete the rest of the consent form.

I confirm that I have read and understood the information relating to the research project "Examining the relationship between police stress, irrational beliefs and psychological wellbeing", and that I have had the opportunity to ask questions regarding it.

Agree (1)

I understand that my participation is voluntary and that I may withdraw my consent and discontinue participation up to the point of data analysis without further consequences.

Agree (1)

I understand that following collection of my data I have 30 days to ask for my data to be withdrawn. I understand that following the 30 days limit I will no longer be able to withdraw any data relating to my participation.

Yes (1)

I agree that psychometric measures will be taken and used only for this research project. All data will be stored safely on a password-protected computer.

Agree (1)

I am currently in good health and feel able to participate.

Agree (1)

I agree to take part in the above study.

Agree (1)

About you

In this section we will collect data that allows us to match all your data together. You are reminded that your personal details will be kept confidential at all times.

Which police organisation do you work for?

Beliefs Scale

Here is a set of statements that describe what some people think and believe. Read each statement carefully, and then decide how much you agree or disagree with it by selecting the appropriate response.

	<i>Items</i>	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
1	I can't stand not reaching my goals	1	2	3	4	5
2	If I face setbacks it goes to show how stupid I am					
3	I can't tolerate it when I fail at something that means a great deal to me					
4	I need my manager to act respectfully towards me					
5	I have to be viewed favorably by people that matter to me					
6	It is appalling if others do not give me chances					
7	If decisions that affect me are not justified, it shows that I am worthless					
8	If I am not given opportunities, then it shows that I am not a worthwhile person					
9	I need others to think that I make a valuable contribution					
10	I am a loser if I do not succeed in things that matter to me					
11	I have to be respected by the members of my team					
12	I can't bear not getting better at what I do					
13	I absolutely should not be snubbed by people that matter to me					
14	If my position in my team/role was not secure, then it would show I am worthless					
15	I can't bear not being given chances					
16	It's awful to not be treated fairly by my peers					
17	It's terrible if the members of my team do not respect me					
18	I must not be dismissed by my peers					
19	I couldn't stand it if my competencies did not continually develop and improve					
20	I can't stand failing in things that are important to me					
21	It's awful if others do not approve of me					
22	Decisions that affect me must be justified					
23	It would be terrible to be dismissed by my peers					
24	If my competencies did not continually develop and improve, it would show what a failure I am					

Occupational Motivation Scale.

Using the scale below, please indicate to what extent each of the following items corresponds to one of the reasons for which you are presently practicing your sport.

1. For the pleasure I feel in living exciting experiences.	1	2	3	4	5	6	7
2. For the pleasure it gives me to know more about the job that I Practice.	1	2	3	4	5	6	7
3. I used to have good reasons for doing this job, but now I am asking myself if I should continue doing it	1	2	3	4	5	6	7
4. For the pleasure of discovering new training techniques	1	2	3	4	5	6	7
5. I don't know anymore; I have the impression of being incapable of succeeding in this job.	1	2	3	4	5	6	7
6. Because it allows me to be well regarded by people that I know.	1	2	3	4	5	6	7
7. Because, in my opinion, it is one of the best ways to meet people.	1	2	3	4	5	6	7
8. Because I feel a lot of personal satisfaction while mastering certain difficult techniques.	1	2	3	4	5	6	7
9. Because it is absolutely necessary to have a job if one wants to have financial security.	1	2	3	4	5	6	7
10. For the prestige of being part of this organisation	1	2	3	4	5	6	7
11. Because it is one of the best ways, I have chosen to develop other aspects of myself.	1	2	3	4	5	6	7
12. For the pleasure I feel while improving some of my weak points.	1	2	3	4	5	6	7
13. For the excitement I feel when I am really involved in the activity	1	2	3	4	5	6	7
14. Because I must do job to feel good myself.	1	2	3	4	5	6	7
15. For the satisfaction I experience while I am perfecting my abilities.	1	2	3	4	5	6	7
16. Because people around me think it is important to be in this job.	1	2	3	4	5	6	7
17. Because it is a good way to learn lots of things which could be useful to me in other areas of my life.	1	2	3	4	5	6	7
18. For the intense emotions I feel doing a job that I like.	1	2	3	4	5	6	7
19. It is not clear to me anymore; I don't really think my place is in this job.	1	2	3	4	5	6	7
20. For the pleasure that I feel while executing certain difficult tasks.	1	2	3	4	5	6	7
21. Because I would feel bad if I was not taking time to do it.	1	2	3	4	5	6	7
22. To show others how good I am good at my job	1	2	3	4	5	6	7
23. For the pleasure that I feel while learning training techniques that I have never tried before.	1	2	3	4	5	6	7

24. Because it is one of the best ways to maintain good relationships with my friends.	1	2	3	4	5	6	7
25. Because I like the feeling of being totally immersed in the activity	1	2	3	4	5	6	7
26. Because I must do my job.	1	2	3	4	5	6	7
27. For the pleasure of discovering new performance strategies.	1	2	3	4	5	6	7
28. I often ask myself; I can't seem to achieve the goals that I set for myself.	1	2	3	4	5	6	7

Opportunity to participate.

I may be inviting individuals to participate in projects which aim to test forms of psychological skills assessment and training. Please complete this section if you would be willing to participate. (your personal details will be confidential and not shared within your organisation)

Information about you.

Name (1) _____

DOB (2) _____

Age (3) _____

Contact Telephone Number (4)

Email Address (5) _____

Position (6) _____

Department (7) _____

Thank you for completing the questionnaire.



Participant Debrief Sheet

Thank you for participating in the research project. The purpose of this study is to investigate the influence that holding certain beliefs can have on your levels of stress, and psychological wellbeing. This study is important because certain psychological theories, propose that it is what people believe about events, (not the events themselves), that leads to their experience of stress and levels of psychological wellbeing. In this research project, we asked participants to complete a questionnaire, which measures the strength of the types of beliefs people hold as well as their recent experience of stress, levels of motivation, and their psychological wellbeing.

Following the result of scores on this questionnaire we expect to find that those who report higher levels of irrational beliefs on questionnaire to show higher stress levels and lower levels of motivation than those who score lower levels of irrational beliefs on the questionnaire. If you would like to learn more about the theory and research in this topic area, I can share some references with you.

Finally, in light of the information you have received I would like to remind you that all the data we have collected will be securely stored and kept confidential. You are still able to withdraw from this research project up to 30 days from today (as dated on the consent form). After this date, your data will be collected together with other participants and analysed statistically. If you wish to withdraw your data, please contact me via jennifer.jones@research.staffs.ac.uk and we will remove all of the data you have provided from the study provided you inform me within the given time frame.

If you would like to voice any other concerns or queries regarding this research project with a relevant academic staff member at Staffordshire University please contact Dr. Jamie Barker – Associate Professor of Applied Performance Psychology (J.B.Barker@staffs.ac.uk) or Dr. Martin Turner, Senior Lecturer in Sport & Exercise Psychology (M.Turner@staffs.ac.uk). If you would like to receive a copy of the results, we can email them to you at the end of the study.

If you feel that you are experiencing any stress following your participation in the research project, you are able to seek further support from the occupational health team within Hampshire constabulary. Another option is to contact service provided by the NHS, via your general practitioner or online via www.nhs.uk

Again, thank you for your participation in my research. If you have, any questions you can ask me now or you can contact me, Jennifer Jones at jennifer.jones@research.staff.ac.uk, at any time.



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Our ref: BS/pad

4 May 2017

Dear Jennifer

I am writing to confirm that Hampshire Constabulary is in agreement regarding the research project that you and your colleagues at the Faculty of Health Sciences at Staffordshire University propose to deliver. This has been approved by our Chief Officer Group and Force Wellbeing Board.

We give permission for our employees to act as participants in this project but equally understand that you will ask them all for their individual consent as well. The scope of participation in the project has been clearly explained and we are in a position to support recruitment of participants.

Yours sincerely

B D Snuggs
T/ Assistant Chief Constable
Crime, Criminal Justice and Intelligence



www.hampshire.police.uk

Deaf? Non-emergency text **07781 480999**

For crime and community information www.hampshirealert.co.uk

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APPENDIX 2: SUPPLEMENTARY DATA FOR CHAPTER 2.

Table A2.1. Descriptive statistics, mean M and (standard deviation SD) of the total sample split by role category and gender.

Variable (n)	Participants			Male			Female		
	Total (356)	Officers	Staff	Total	Male Officers	Male Staff	Total	Female Officers	Female Staff
Age (145)	42.88 (8.22)	42.27 (10.66)	42.77 (10.67)	42.67 (6.68)	43.49 (5.42)	37.78 (10:87)	43.07 (9.24)	42.27 (8.17)	43.95 (10.41)
Yrs. of serv (219)	16.08 (7.03)	17.53 (6.16)	12.78 (7.79)	16.97 (6.61)	17.78 (5.75)	12.64 (9.05)	15.47 (7.55)	17.20 (6.69)	12.84 (9.05)
PS- OP (356)	3.80 (1.21)	3.25 (1.14)	2.77 (1.18)	3.02 (1.21)	3.15 (1.16)	2.89 (1.26)	3.13 (1.22)	3.37 (1.11)	2.74 (1.16)
PS-Occ (356)	6.74(1.32)	3.90 (1.29)	3.53 (1.22)	3.71 (1.37)	3.87 (1.34)	3.53 (1.42)	3.72 (1.29)	3.95 (1.24)	3.53 (1.18)
Autonomy	6.14 (0.57)	4.47 (0.49)	4.43 (0.56)	4.48 (0.43)	4.47 (0.51)	4.56 (0.51)	4.47 (0.31)	4.47 (0.46)	4.40 (0.57)
Competence	4.83 (0.54)	3.89 (0.42)	3.89 (0.50)	3.81 (0.54)	3.85 (0.39)	3.94 (0.51)	3.96 (0.51)	3.94 (0.45)	3.88 (0.50)
Relatedness	5.25 (0.46)	4.43 (0.42)	4.38 (0.46)	4.45 (0.46)	4.43 (0.45)	4.37 (0.42)	4.42 (0.44)	4.46 (0.38)	4.38 (0.48)
Intrinsic	3.13 (1.20)	3.19 (1.16)	3.01 (1.25)	3.16 (1.28)	3.94 (1.19)	2.64 (1.21)	3.40 (1.23)	3.40 (1.11)	3.11 (1.26)
Identified	2.32 (1.01)	2.40 (1.03)	2.14 (0.94)	2.23 (1.78)	2.22 (1.04)	1.91 (0.78)	2.51 (0.99)	2.64 (0.98)	2.20 (0.98)
Introjected	3.05 (1.12)	3.09 (1.09)	2.93 (1.09)	3.11 (1.20)	3.02 (1.07)	3.36 (1.3)	3.01 (1.02)	3.17 (1.12)	2.81 (1.01)
External	3.05 (1.46)	3.14 (1.45)	2.87 (1.46)	3.08 (1.45)	3.05 (1.42)	2.70 (1.40)	3.18 (1.46)	3.27 (1.49)	2.92 (1.48)
Amotivation	2.49 (1.38)	2.44 (1.36)	2.53 (1.49)	2.63 (1.52)	2.57 (1.40)	2.75 (1.59)	2.33 (1.36)	2.27 (1.30)	2.48 (1.47)
DEM	26.16 (3.28)	26.07 (3.03)	26.82 (3.38)	26.31 (3.56)	25.88 (3.09)	27.29 (3.81)	26.49 (2.84)	26.30 (2.95)	26.70 (3.29)
FI	25.58 (3.93)	25.42 (3.76)	26.01 (3.79)	25.06 (4.05)	24.77 (3.66)	26.21 (4.15)	26.10 (3.64)	26.27 (3.76)	25.96 (3.73)
AWF	24.19 (3.79)	24.16 (3.79)	24.71 (3.56)	24.13 (4.26)	23.79 (3.82)	24.21 (3.96)	24.75 (3.42)	24.65 (3.72)	24.85 (3.48)
DEP	17.89 (5.73)	17.28 (5.66)	18.54 (5.54)	16.90 (6.16)	16.67 (5.76)	17.93 (5.95)	18.34 (5.32)	18.08 (5.44)	18.70 (5.48)

Note. Yrs. of serv= years of service; PS-OP= police stress – operational; PS-OCC= police stress-occupational; Intrinsic=intrinsic motivation.

Identified= identified regulation; Introjected= introjected regulation; External= external regulation; DEM= demandingness; FI= Frustration intolerance; AWF= awfulizing; DEP= depreciation.

Table A2.2

Normative comparisons stress, irrational belief, and basic psychological needs scores in a police sample.

Variable	M _{norm}	M	M _{diff}	CI 95%	t
Stress- Op	3.26	3.08	-0.18*	-0.54 -0.31	t(355) -2.81
Stress - Occ	3.53	3.72	0.19*	0.33-0.51	t(355) 2.70
Dem	23.36	26.16	2.8*	3.14-2.46	t(355) 16.12
FI	23.05	25.58	2.53*	2.94-2.12	t(355) 12.14
Awfulizing	21.28	24.19	2.91*	3.30-2.51	t(355) 14.47
Dep	16.03	17.89	1.86*	2.46-1.27	t(355) 6.14
Autonomy	3.15	4.37	1.22*	1.28-1.56	t(336) 38.93
Relatedness	3.89	4.36	0.47*	0.52-0.42	t(336) 18.40
Competence	3.74	3.75	0.01	0.07- -0.04	t(331) 0.48

Note. *= significant differences compare to published norms

Table A2.3

Normal distribution, skewness, and kurtosis of variables associated with stress, BPNs, motivation, and IBs

	n	M(SD)	Skewness	Kurtosis
PS-OP	356	3.08 (1.21)	0.28	-0.71
PS-OCC	356	3.72 (1.32)	-0.01	-0.72
Autonomy	337	4.37 (0.57)	-0.13	-0.01
Comp	332	3.75 (0.54)	-0.08	-0.55
Rel	337	4.36 (0.46)	-0.21	-0.53
Intrinsic	254	3.13 (1.20)	-0.03	-0.89
Identified	254	2.32 (1.01)	0.35	-1.01
Introjected	254	3.05 (0.17)	0.17	-0.71
External	254	3.05 (0.49)	0.49	-0.94
Amot	254	2.49 (1.38)	0.63	-0.79
Dem	356	26.16 (3.28)	0.02	-0.59
FI	356	25.58 (3.94)	-0.11	-0.76
Awf	356	24.19 (3.79)	-0.03	-0.55
Dep	356	17.89 (5.73)	-0.04	-0.89

Note. PS-OP = operational police stress score, PS-OCC= occupational police stress score; Comp= competence satisfaction score; Rel= relatedness score; Intrinsic= intrinsic motivation score; Identified= identified motivation score; Introjected= Introjected regulation score; External=external regulation score; Amot= amotivation score; Dem= demandingness score; FI= Frustration intolerance; Awf= awfulizing; Dep= depreciation.

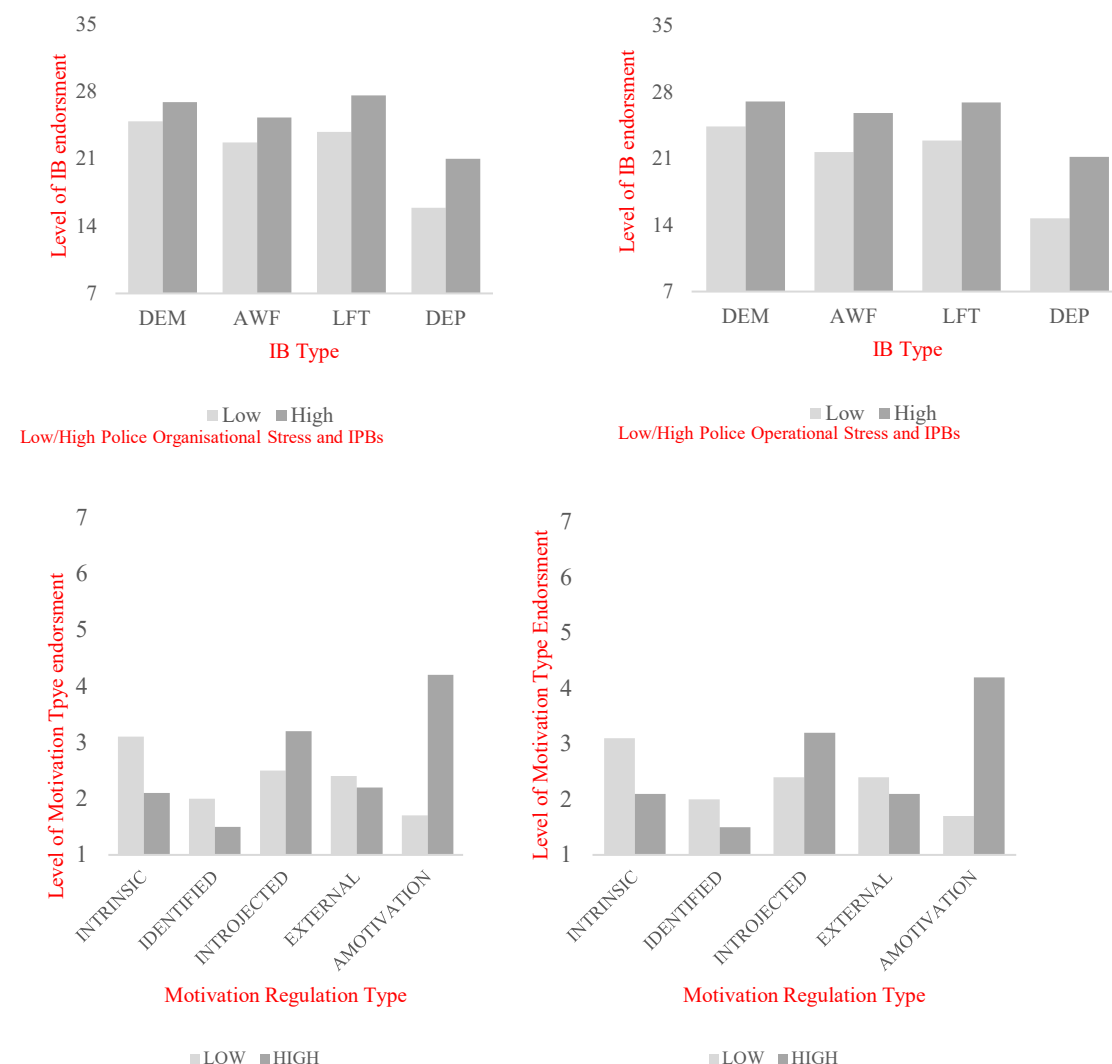
Table A2.4

Categorisation of the 10% highest and lowest stress scorers into high and low-stress groups.

		<i>n</i>	<i>Score</i>
High Stress	Operational	38	> 4.84
	Organisational	37	> 5.46
Low stress	Operational	34	< 1.54
	Organisational	35	< 1.81

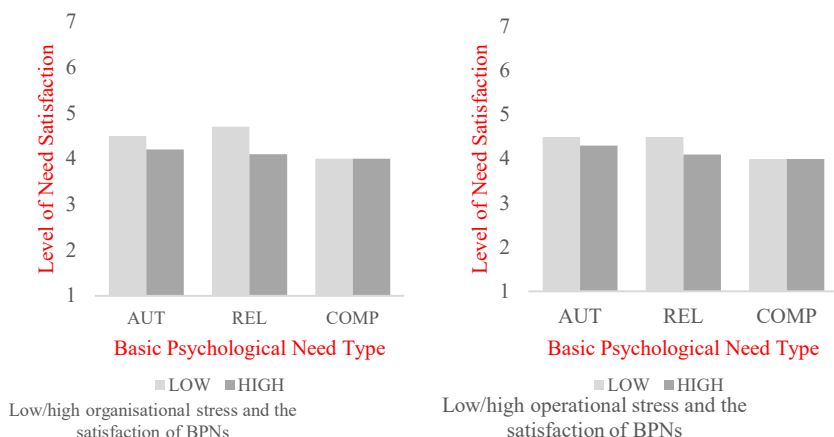
Note. Operational= operational police stress; Occupational= occupational police stress.

Figure A2.1



Low/high organisational stress and motivation

Low/high operational stress and motivation



Graphical representations of high and low-stress scores concerning irrational beliefs, motivation, and the satisfaction of basic psychological needs *Note.* IPBs= irrational performance beliefs; DEM= demandingness; AWF= awfulizing; FI= Frustration intolerance; DEM= demandingness ; Low= low stress; High= high stress; Intrinsic= intrinsic motivation ; Identified= identified regulation ; Introjected= introjected regulation ; External= external motivation ; AUT= autonomy ; REL= relatedness ; COMP= competence.

Figure A2.2.

Graphical representation of the curvilinear relationship between police operational stress scores years of service (N= 318).

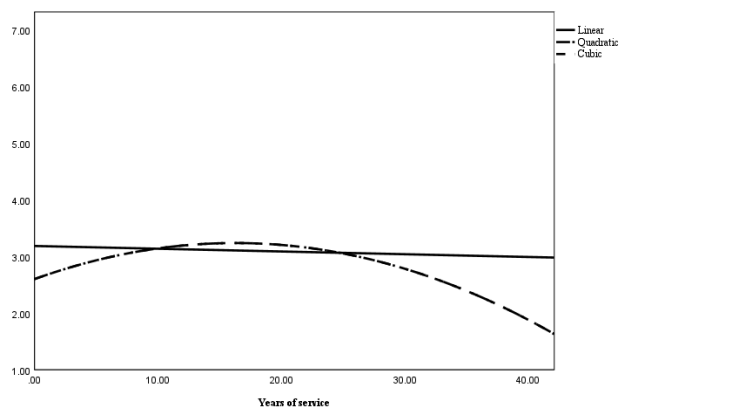


Figure A2.3.

Graphical representation of the curvilinear relationship between police organisational stress scores and years of service (N=318).

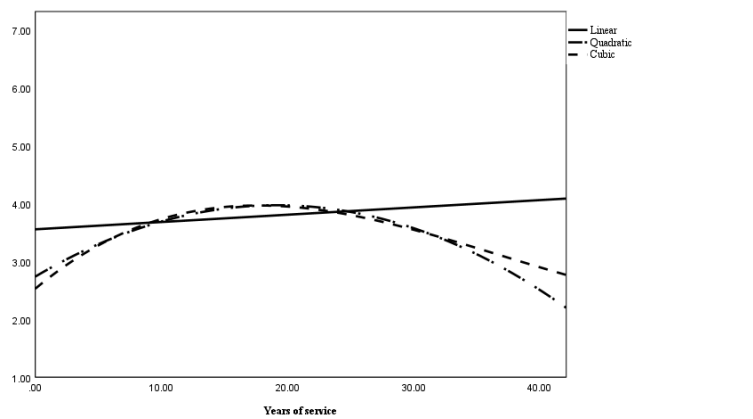


Table A2.5a.

Hierarchical linear regression model of intrinsic motivation in U.K. police professionals.

	β	t	Unstandardized B	F
<i>Step 1</i>				2.18(3,215)
Gender	0.14	1.85	0.38	
Years of service	-0.04	-0.50	-0.01	
Role category	0.14	1.85	0.36	
<i>Step 2</i>				5.11(6,212)***
Gender	0.15	2.18*	0.36	
Years of service	-0.06	-0.91	-0.10	
Role category	0.12	1.71	0.32	
Autonomy	0.02	0.31	0.05	
Relatedness	0.30	4.21***	0.82	
Competence	0.02	0.24	0.04	
<i>Step 3</i>				3.71(10,208)***
Gender	0.13	1.83**	0.30	
Years of service	-0.04	-0.58	-0.01	
Role category	0.11	1.49	0.27	
Autonomy	0.02	0.21	0.04	
Relatedness	0.29	3.93***	0.79	
Competence	0.02	0.34	0.06	
Demandingness	-0.11	-1.11	-0.04	
FI	0.21	2.26*	0.07	
Awfilizing	0.06	0.53	0.02	
Depreciation	-0.09	-1.09	-0.02	

Note. FI= Frustration intolerance. * $p < .05$, ** $p < .01$, *** $p < .001$

Table A2.5b.

Hierarchical linear regression model of identified regulation in U.K. police professionals.

	β	<i>t</i>	Unstandardized B	F
<i>Step 1</i>				3.53(3,215)
Gender	0.19	2.7*	0.39	
Years of service	-0.02	-0.28	0.00	
Role category	0.41	2.55*	0.41	
<i>Step 2</i>				5.13(6,212)***
Gender	0.18	2.69*	0.36	
Years of service	-0.05	-0.28	-0.01	
Role category	0.18	2.49*	0.39	
Autonomy	0.06	0.84	0.19	
Relatedness	0.22	3.13***	0.52	
Competence	0.10	1.58	0.24	
<i>Step 3</i>				3.2(10,208)***
Gender	0.18	2.57**	0.37	
Years of service	-0.06	-0.84	-0.01	
Role category	0.17	2.39*	0.38	
Autonomy	0.07	0.90	0.13	
Relatedness	0.21	2.83**	0.49	
Competence	0.11	1.65	0.25	
Demandingness	-0.06	-0.62	-0.20	
FI	0.00	0.02	0.00	
Awfulizing	0.04	0.37	0.01	
Depreciation	-0.40	-0.48	-0.01	

Note. FI= Frustration intolerance. * $p < .05$, ** $p < .01$, *** $p < .001$

Table A2.5c.

Hierarchical linear regression model of introjected regulation in U.K. police professionals.

	β	t	Unstandardized B	F
<i>Step 1</i>				0.38(3,215)
Gender	-0.004	-0.06	-0.01	
Years of service	-0.02	-0.30	-0.003	
Role category	0.074	0.99	0.18	
<i>Step 2</i>				1.45(6,218)
Gender	-0.01	-0.12	-0.20	
Years of service	-0.04	-0.57	-0.06	
Role category	0.78	1.05	0.19	
Autonomy	0.12	1.57	0.25	
Relatedness	-0.05	-0.60	-0.11	
Competence	0.15	2.16**	0.36	
<i>Step 3</i>				(10,208)4.19***
Gender	-0.50	-0.73	-0.11	
Years of service	0.03	0.48	0.01	
Role category	0.08	1.08	0.18	
Autonomy	0.06	0.80	0.12	
Relatedness	0.01	0.13	0.02	
Competence	0.12	1.83	0.30	
Demandingness	0.13	1.28	0.05	
FI	0.13	1.44	0.03	
Awfulizing	0.16	1.49	0.05	
Depreciation	0.01	0.15	0.00	

Note. FI= Frustration intolerance. * $p < .05$, ** $p < .01$, *** $p < .001$

Table A2.5d.

Hierarchical linear regression model of external regulation in U.K. police professionals.

	β	t	Unstandardized B	F
<i>Step 1</i>				2.19(3,215)
Gender	0.08	1.06	0.22	
Years of service	0.02	0.30	0.004	
Role category	0.11	1.40	0.33	
Total				
<i>Step 2</i>				2.91(6,212)*
Gender	0.63	0.9	0.18	
Years of service	-0.007	-0.9	-0.001	
Role category	0.063	1.29	0.30	
Autonomy	0.01	0.16	0.03	
Relatedness	0.22	3.05**	0.75	
Competence	0.09	1.29	0.28	
Total				
<i>Step 3</i>				2.19(10,208)**
Gender	0.05	0.75	0.16	
Years of service	0.02	0.31	0.00	
Role category	0.10	1.34	0.31	
Autonomy	-0.01	-0.17	-0.04	
Relatedness	0.25	3.28***	0.83	
Competence	0.17	-0.17	0.25	
Demandingness	0.12	1.13	0.05	
FI	0.03	0.35	0.01	
Awfulizing	0.00	0.01	0.00	
Depreciation	0.01	0.12	0.00	

Note. FI= Frustration intolerance. * $p < .05$, ** $p < .01$, *** $p < .001$

Table A2.5e.

Hierarchical linear regression model of amotivation in U.K. police professionals.

	β	t	p	Unstandardized B	F
<i>Step 1</i>					0.86(3,215)
Gender	-0.30	-1.48	0.14	-0.30	
Years of service	-0.01	-0.54	0.59	-0.01	
Role category	-0.16	-0.73	0.47	-0.16	
<i>Step 2</i>					10.4(6,212)***
Gender	-0.11	-1.69*	0.09	-0.30	
Years of service	-0.03	-0.49	0.63	-0.006	
Role category	-0.03	-1.69	0.67	-0.90	
Autonomy	-0.37	-0.56	0.58	-0.10	
Relatedness	-0.41	-6.15***	0.00	-1.23	
Competence	0.23	3.80***	0.00	0.73	
<i>Step 3</i>					11.61(10,208)***
Gender	-0.13	-2.04	0.04	-0.36	
Years of service	-0.01	-0.09	0.93	0.00	
Role category	-0.02	-0.29	0.77	-0.06	
Autonomy	-0.06	-0.86	0.39	-0.16	
Relatedness	-0.36	-5.31***	0.00	-1.15	
Competence	0.20	3.22***	0.00	0.62	
Demandingness	0.08	0.86	0.39	0.04	
FI	-0.01	-0.09	0.93	0.00	
Awfulizing	0.00	0.03	0.98	0.00	
Depreciation	0.18	2.39*	0.02	0.05	

Note. FI= Frustration intolerance. * $p < .05$, ** $p < .01$, *** $p < .001$

Table A2.6a.

Hierarchical linear regression model of operational stress in U.K. police professionals.

	β	t	Unstandardized B	F
<i>Step 1</i>				3.78(3,215)
Gender	0.06	0.78	0.13	
Years of service	-0.11	-1.63	-0.19	
Role category	0.24	3.29***	0.61	
<i>Step 2</i>				5.89(6,212)***
Gender	0.52	0.78	0.12	
Years of service	-1.02	-1.51	-0.02	
Role category	0.26	3.63***	0.65	
Autonomy	-0.12	-1.76	-0.28	
Relatedness	-0.23	-3.21**	-0.61	
Competence	0.10	1.55	0.26	
<i>Step 3</i>				5.69(11,207)***
Gender	0.90	1.36	0.21	
Years of service	-0.09	-1.40	0.02	
Role category	0.26	3.86***	0.67	
Autonomy	-0.12	-1.71	-0.27	
Relatedness	-0.09	-1.14	-0.23	
Competence	0.02	0.32	0.06	
Intrinsic	-0.01	-0.09	-0.01	
Identified	0.00	0.02	0.00	
Introjected	0.04	0.56	0.04	
External	-0.02	-0.23	-0.02	
Amotivation	0.32	4.14***	0.27	

<i>Step 4</i>			6.21(15,203)***
Gender	0.35	0.54	0.04
Years of service	-0.03	-0.54	-0.03
Role category	0.26	3.92***	0.26
Autonomy	-0.15	-2.28*	-0.15
Relatedness	-0.07	-0.93	-0.07
Competence	0.02	-2.28	0.02
Intrinsic	-0.12	-1.12	-0.11
Identified	0.94	1.02	0.09
Introjected	-0.05	-0.74	-0.05
External	-0.02	-0.24	-0.02
Amotivation	0.26	3.48***	0.26
Demandingness	0.02	0.23	0.02
FI	0.26	3.03**	0.26
Awfulizing	0.06	0.61	0.06
Depreciation	0.02	0.31	0.02

Note. Intrinsic= intrinsic motivation; Identified= identified motivation; Introjected= introjected regulation; External= external motivation; FI= Frustration intolerance. * $p < .05$, ** $p < .01$, *** $p < .001$

Table A2.6b.

Hierarchical linear regression model of occupational stress in U.K. police professionals.

	β	t	Unstandardized B	F
<i>Step 1</i>				1.45(3,215)
Gender	0.03	0.38	0.07	
Years of service	0.03	0.48	0.01	
Role category	0.13	1.78	0.37	
<i>Step 2</i>				7.16(6,212)***
Gender	0.03	0.47	0.08	
Years of service	0.06	0.83	0.01	
Role category	0.15	2.21*	0.43	
Autonomy	-0.06	-0.89	-0.16	
Relatedness	-0.36	-5.13***	-1.05	
Competence	0.09	1.37	0.25	
<i>Step 3</i>				8.67(11,207)***
Gender	0.08	1.23	0.20	
Years of service	0.07	1.16	0.01	
Role category	0.16	2.45*	0.44	
Autonomy	-0.06	-0.88	-0.14	
Relatedness	-0.19	-2.64**	-0.55	
Competence	-0.02	-0.32	-0.06	
Intrinsic	-0.00	-0.04	-0.00	
Identified	-0.00	-0.01	-0.00	
Introjected	0.09	1.25	0.10	
External	0.00	0.02	0.00	
Amotivation	0.40	5.48***	0.37	
<i>Step 4</i>				10.2(15,203)***
Gender	0.02	0.31	0.47	

Years of service	0.13	2.31*	0.02
Role category	0.15	2.50*	0.42
Autonomy	-0.09	-1.49	-0.23
Relatedness	-0.17	-2.64*	-0.51
Competence	-0.02	-0.28	-0.05
Intrinsic	-0.13	-1.43	-0.14
Identified	0.12	1.28	0.14
Introjected	-0.01	-0.14	-0.01
External	0.00	0.04	0.00
Amotivation	0.34	4.96***	0.32
Demandingness	0.0	0.53	0.02
FI	5	4.99***	0.13
Awfulizing	0.39	-0.65	-0.02
Depreciation	-0.06	-0.16	-0.00
	-0.01		

Note. Intrinsic= intrinsic motivation; Identified= identified motivation; Introjected= introjected regulation; External= external motivation; FI= Frustration intolerance. * $p < .05$, ** $p < .01$, *** $p < .001$

APPENDIX 3 : RECRUITMENT INFORMATION, QUESTIONNAIRES, CHAPTER 3

**Information Form**

Dear Sir/Madam

Thank you for taking the time to read this information sheet. I am a Doctoral Researcher under the supervision of Dr Jamie Barker and Dr Martin Turner in the Faculty of Health Sciences at Staffordshire University.

What is the purpose?

The aim of this study is to explore the influence of a performance-coaching program on psychological and behavioural responses in relation to stress levels and psychological wellbeing. We are interested in investigating the impact that performance coaching can have within the Police Force.

Am I suitable for the study?

The study requires that you are in good health and are not currently diagnosed with any mental disorder. If you have any conditions known to affect cortisol levels such as Addison Disease, Cushing Syndrome, are, or could be pregnant you will not be suitable for participation in this study. You need to have hair of at least 3 CM in length at the back of your head both at the beginning and at the end of the project (approximately 10 weeks later) as we need to take hair samples once at the beginning of the project and once at the end of the project.

What does it involve?

Your participation in this coaching program will begin with the completion of a questionnaire designed to understand some of your beliefs, motivation and level of resilience. Following this, we will ask you to allow us to cut a small amount of hair from the back of your head. This will allow us to measure levels of cortisol (the stress hormone). Only a small amount of hair is required. It will not be noticeable following cutting. You need to have hair of at least 3 CM in length at the back of your head both at the beginning and at the end of the project (approximately 10 weeks later). We need to take hair samples once at the beginning of the project and once at the end of the project. Following the collection of your hair, we will split the participants into two groups. One group will be asked to record a weekly video diary. Each diary entry is to be no longer than a minute in length and address the question "How has your week been?" The other group will start a program of weekly performance coaching sessions that will each last around 30 minutes. Before each session, members of the second group will be asked to provide the same video diary entries as explained for the first group.

The final part of the project aims to assess any long term changes in your performance following your participation in the project. This will involve you completing a short questionnaire at a time 6 months following the completion of your initial project participation. You will be asked to note a small range of performance and wellbeing related questions and your line manager will also be asked to complete a short questionnaire to validate any changes that have been observed following the course of performance coaching.

Do I have to take part?

Your participation in this coaching program is voluntary and you are at liberty to refuse to commence the task or withdraw at any time during the entire duration of the data collection. You are not required to give a reason should you wish to withdraw. Following data collection, your data will be used to evaluate the procedure used and will no longer be able to be withdrawn. All data will be aggregated and anonymised, which is why individual data cannot be withdrawn once the process of data analysis commences.

What are the benefits of taking part?

Your participation will provide you with an insight into your thoughts, feelings and behaviours within your work and daily life. As well as this, the mental skills intervention will aim to develop your helpful thoughts and behaviours which will develop the way you manage adversity. Your participation will also contribute to a greater understanding of how an individual's beliefs will influence emotional states and performance within the scientific literature.

Are there any negative consequences to taking part?

We do not expect any adverse effects as a result of taking part. It is, however, possible that exposure to the questionnaire or training may be distressful/overwhelming for some participants. If at any point you do feel uncomfortable, upset or distressed please inform the researcher and appropriate action will be taken.

What will happen to my results and information?

Your data will be seen by the lead researcher (Jennifer Jones) and project supervisors Dr Jamie Barker and Dr Martin Turner. However, your details and questionnaire details will be anonymised and no individual identifying information will be provided. The results of the research study may be published, but all your details will be kept confidential and will be stored on a password-protected secure database; if you would like to withdraw your data, the information will be deleted immediately but it cannot be deleted once analysis of the dataset has begun.

Will I be debriefed?

Yes, at the end of your participation you will be thoroughly debriefed with information about the research as a whole and what to do if you would like to voice any queries, or concerns or request any further feedback regarding the project.

Who has reviewed the study?

The study has been reviewed by the Faculty Ethics Panel, Staffordshire University.

Whom can I contact if I have any further questions regarding the study?

If you have any questions concerning the research or your participation in this study, please contact me via email: jennifer.jones@research.staffs.ac.uk.

Sincerely

A handwritten signature in black ink, appearing to read 'J. Jones' with a stylized flourish at the end.

Jennifer Jones, MSc., MBPsS. Lead Researcher.



Consent Form

Please tick the appropriate boxes. If you do not agree with any of the statements, unfortunately, you are excluded from the study and are not required to complete the rest of the consent form:

	Agree
I am currently in good health and am not diagnosed with an illness.	<input type="checkbox"/>
I am not currently diagnosed with a mental illness.	<input type="checkbox"/>
I am not currently pregnant	<input type="checkbox"/>
I have not been diagnosed with any cortisol-related illness such as Cushing syndrome or Addison disease	<input type="checkbox"/>

Please tick the following boxes:

I confirm that I have read and understood the information form for the project and have had the opportunity to withdraw participation and/or ask questions.	<input type="checkbox"/>
I understand that my participation is voluntary, and I understand that I may withdraw my consent and discontinue participation at any time, without further consequences.	<input type="checkbox"/>
I understand that my data can be removed from this study only up to the point where data analysis begins.	<input type="checkbox"/>
I agree that psychological, and hair samples will be taken and used only for this study only at Staffordshire University. All data will be stored safely on a password-protected computer and the confidentiality of my data is assured.	<input type="checkbox"/>
I agree to take part in the above study.	<input type="checkbox"/>

.....
Name of Participant

.....
Signature

.....
Date

.....
Name of Researcher

.....
Signature

.....
Date

Participant Debrief Sheet

In this research project, we were interested in how a Rational Emotive Behaviour Therapy intervention, which looks to reduce irrational beliefs and enhance rational thinking, will affect your resilience and stress. We would expect individuals who have received the intervention to display more functional emotions and behaviours; to be more resilient and show a reduction in the amount of stress they experience than those who did not receive the intervention.

Specifically, we looked at how your levels of cortisol (the stress hormone) changed over the duration of the project by analysing your hair sample. We would expect that the group that received the performance coaching would show lower cortisol levels after receiving the intervention and that the program will also have an ongoing positive impact on psychological wellbeing and experience of stress.

Thank you for taking part in this research project.

Finally, in light of the information you have received you are still able to withdraw from this study. If you wish to do so, please contact me via jennifer.jones@research.staffs.ac.uk and all of the data you provide will be excluded from the study. If you would like to voice any other concerns or queries regarding this study with a relevant academic staff member of Staffordshire University please contact Dr Jamie Barker – Associate Professor of Applied Performance Psychology (J.B.Barker@staffs.ac.uk) or Dr Martin Turner Lecturer in Sport & Exercise Psychology (M.Turner@staffs.ac.uk). If you would like to receive further details as to the findings of the project, then please do not hesitate to contact me.

Yours Sincerely,



Jennifer Jones, MSc., MBPsS. Lead Researcher.

APPENDIX 4: SUPPLEMENTARY DATA FOR CHAPTER 3

Table A4.1. Changes in dependent variables across time and between groups.

Variable	REBT			Control			<i>F</i>	η^2
	Time 1 M(SD)	Time 2 M(SD)	Time 3 M(SD)	Time 1 M(SD)	Time 2 M(SD)	Time 3 M(SD)		
Irrational beliefs	92.96 (9.04)	79.85 (10.99)	72.88 (16.53)	92.44 (2.55)	90.45 (2.41)	87.36 (2.86)	6.12*	.23
SDI	1.84 (17.94)	6.89 (13.82)	6.27 (16.58)	0.856 (16.12)	-3.46 (21.58)	0.97 (16.09)	1.04	.08
BPN	32.27 (4.00)	33.00 (3.28)	34.21 (3.43)	31.91 (3.39)	30.05 (5.03)	31.05 (3.46)	1.52*	.19
Competence	31.16 (4.59)	32.63 (4.54)	33.83 (4.43)	30.49 (4.60)	28.71 (6.42)	29.33 (4.53)	3.57*	.07
Autonomy	28.76 (4.67)	30.08 (4.01)	31.09 (3.36)	29.16 (3.95)	27.56 (5.28)	28.93 (4.12)	1.34	.03
Relatedness	36.74 (5.28)	36.63 (3.59)	37.78 (3.69)	38.23 (4.32)	35.56 (5.49)	36.11 (4.46)	3.87*	.08
Cortisol Conc. pg/mg	8.26 (5.98)	-	7.86 (7.26)	10.01 (11.51)	-	10.09 (12.19)	.499	.01

Note. * $p < .01$

Table A4.2. Themes identified from thematic analysis of social validation data.

Themes	Sub-themes	Extract examples
Reduction in irrational thinking	Reappraisal	<p>I have tried to reflect on events from a more rational mindset so to avoid a negative response and inflicting stress on myself.</p> <p>It gave me the understanding to see things and think things through differently. Seeing challenges as opportunities and that feeling of fear around change should be seen as being brave.</p> <p>It did very much allow me to be more measured in how I thought about things and responded.</p>
	Clarity of thought	<p>I have used the ABC model at work and at home to help understand and rationalise behaviour and thought. I have focused more on my goals, and I am more conscious of language in my interactions with others. This has significantly helped me approach issues at work.</p> <p>It enabled me to think more clearly, become more balanced and measured in my assessment of what is going right and wrong in my approach to work.</p> <p>Clear on my goals, strategies etc.</p>
Reductions in Stress	Experiencing pressure without stress	<p>This came at a particularly stressful time for me and assisted me in coping and recovering from heightened levels of anxiety and stress.</p> <p>I was able to make sense of how I was feeling and recognise what a difficult period I had been through, and this enabled me to ensure I was proportionate in my response to myself.</p>
	Increased ability to cope	<p>The experience was a little relief for a new tool kit and way of working in an otherwise overwhelming world where we are just coping and not improving personally or as a Force.</p> <p>More able to deliver and also cope with whatever was thrown at me.</p> <p>I feel I have the tools to help me diffuse that more effectively, limiting the impact.</p> <p>More able to cope</p> <p>More able to cope with whatever was thrown at me</p>
Increased psychological wellbeing	Satisfaction of BPNs	<p>I have focused more on my goals, and I am more conscious of language in my interactions with others. This has significantly helped me approach issues at work.</p> <p>I recognise how valuable it has been to my wellbeing.</p> <p>Just thank you for listening and providing me with mental tools to improve my performance.</p>

	Competence	<p>I have been able to take on new challenges and push myself outside of my existing comfort zone.</p> <p>I have suffered with a lack of confidence for a long time which is not in keeping with my career progression or the way I am often seen by others. The sessions helped me to look at the areas which troubled me and appreciate the positive elements of the work I carried out every day and the many positive facets of my life. I feel that this has assisted in my happiness and confidence in my ability to deliver at work.</p> <p>The coaching let me reflect on how I perform and what I could consider trying to make improvements.</p> <p>This course gave me the confidence to confront my fears, my lack of confidence in my abilities and what I needed to do to improve my performance and abilities.</p> <p>I learnt a range of techniques to improve my confidence and also my performance under pressure.</p> <p>Happy, positive and more able to deliver and also cope with whatever was thrown at me.</p> <p>I have the learning and have benefitted from the experience; I have flourished in my work and home life during the period since the course - I do not think that is a coincidence.</p> <p>I honestly believe it helped me settle into my role a lot quicker than if I had been left to my own devices.</p> <p>I have a lot of positive attributes to bring to my role and that no one could do it better than I was.</p> <p>More able to deliver</p>
	Relatedness	<p>I was able to make sense of how I was feeling and recognise what a difficult period I had been through, and this enabled me to ensure I was proportionate in my response to myself.</p> <p>I realized everyone had been in the same boat at one time or another.</p> <p>This has significantly helped me approach issues at work.</p>
	Autonomy	<p>More at ease with myself.</p> <p>Identifying my personal goals has been incredibly helpful and I can see that.</p> <p>I now prioritise work according to that without even thinking.</p> <p>I was able to make sense of how I was feeling and recognise what a difficult period I had been through, and this enabled me to ensure I was proportionate in my response to myself.</p> <p>Once the course had finished, I felt far more in control of my life and career.</p>
Psychological Consequences	Emotion	<p>Positive, good to be challenged and supported.</p> <p>Really positive</p> <p>Exhilarated, reflective and ambitious.</p> <p>Informed, interested and a bit more knowledgeable and thoughtful.</p> <p>Uplifted and positive.</p> <p>Happy, positive</p>

		<p>I was able to let certain issues go more easily.</p> <p>Elated, more positive, exciting</p>
	Motivation	<p>Empowering</p> <p>Lifted</p> <p>Empowered</p> <p>Motivated to do my job.</p>
Client Experience	Positive/Critical	<p>A really useful process, thank you.</p> <p>Probably the most useful and practical development experience of my career.</p> <p>The practical element and philosophy approach, for me, had great application to the Police and like services.</p> <p>The practitioner provided me with the guidance I needed to be able to sit back and consider situations in a different way. This really helped and I use it on a daily basis.</p> <p>I couldn't recommend this type of coaching highly enough.</p> <p>I was open minded about the whole thing, but very happy with the outcome.</p> <p>I found the coaching sessions to be a new and different experience, I valued the challenging dynamic of them in a safe environment. It was far more beneficial an experienced then I expected.</p> <p>A really worthwhile program. The practitioner helped me rationalise a lot of anxiety I had.</p> <p>I thought it was superb and am very interested in the outcomes.</p>
	Areas for intervention enhancement	<p>I do think you need to feel the flames of not coping or not achieving to try this. It just makes sense, but you do need your own examples to work through and apply the framework.</p> <p>I found it difficult to commit the time needed to get the most from the sessions.</p> <p>I found it difficult to get fully involved throughout and because I struggled to understand the concepts, I was not encouraged to make the time available.</p> <p>It took me a session or two to work out what they were really about and how they could help. That may be a reflection on working for the police where we are used to very tactical and transactional conversations.</p>

Additional change over time analyses

Competence. The mixed-methods ANOVA revealed a significant medium-large ($\eta^2 = .07$) effect for time*group, $F(2, 44) = 3.568, p = .032$. Pairwise comparisons for the REBC group revealed that there was a significant increase ($t = 2.86, df = 21, p = .009$) from time 1 ($M = 31.16, SD = 4.59$) to time 3 ($M = 33.83, SD = 4.43$). There were no significant differences between any of the other time points. Pairwise comparisons for the control condition revealed that there was no significant difference between any of the time points.

Autonomy. The mixed-methods ANOVA revealed no significant ($\eta^2 = .03$) effect for time*group, $F(2, 44) = 1.343, p = .266$. Pairwise comparisons for the REBC group revealed that there was a significant increase ($t = 2.75, df = 22, p = .012$) from time 1 ($M = 28.76, SD = 4.67$) to time 3 ($M = 31.09, SD = 3.36$). There were no significant differences between any of the other time points. Pairwise comparisons for the control condition revealed that there was no significant difference between any of the time points.

Relatedness. The mixed-methods ANOVA revealed a significant medium-large ($\eta^2 = .08$) effect for time*group, $F(2, 44) = 3.872, p = .024$. Pairwise comparisons for the REBC group revealed that there were no significant differences between any of the time points. But pairwise comparisons for the control condition revealed that there was a significant decrease ($t = 3.21, df = 24, p = .004$) from time 1 ($M = 38.23, SD = 4.32$) to time 2 ($M = 35.56, SD = 5.49$), and a significant decrease ($t = 3.35, df = 26, p = .027$) from time 1 to time 3 ($M = 36.11, SD = 4.46$).

In summary of the additional analyses, there were some increases over time for competence and autonomy in the REBC group, and whilst no significant changes occurred for relatedness in the REBC group, participants in the control group report a decrease over time.

APPENDIX 5: SUPPLEMENTARY DATA FOR CHAPTER 4

Table A5.2. Participant 1 means and percentage change for all variables across time points.

Measure	Baseline	Mid-Point	Post Intervention	Baseline to post- Intervention %change
Irrational Beliefs				
Demandingness	34	30 (-11.76%) ^a	31 (+3.33%) ^b	-9.9%
FI	28	25 (-10.71%) ^a	12(-52.00%) ^b	-57.14%
Awfulizing	31	24 (-22.58%) ^a	24 (0%) ^b	-22.58%
Global Evaluation	11	7 (-36.36%) ^a	7 (0%) ^b	-36.36%
SDI	-2.33	2.67 (+214.59%) ^a	4.00 (+49.81%) ^b	+271.67%
Intrinsic Mot.	13.33	15.33 (+15.00%) ^a	11(-26.09%) ^b	-17.48%
External Reg.	19	19 (0%) ^a	14 (-26.32%) ^b	-26.32%
Introjected Reg.	7	7 (0%) ^a	4 (-42.86%) ^b	-42.86%
Identified Reg.	5	8 (+60%) ^a	8 (0%) ^b	+60%
Amotivation	4	5(+25%) ^a	4 (-25%) ^b	0%
Autonomy	29	31(+6.89) ^a	33(+6.45%) ^b	+13.79%
Competence	34	30(-11.76) ^a	34(+11.76%) ^b	0%
Relatedness	35	34(-2.86%) ^a	37(+8.82%) ^b	+5.71%
HCC.	3.93	-	3.15	-19.85%

Note. ^aBaseline to mid-point session % change, ^bmid-point session to post-intervention.

Table A5.3. Participant 2 means and percentage change for all variables across time points.

Measure	Baseline	Mid-Point	Post- intervention	Baseline to post- intervention %change
Irrational Beliefs				
Demandingness	28	28 (0%) ^a	25 (-10.71%) ^b	-10.71%
FI	27	27 (0%) ^a	22 (-18.52%) ^b	-18.52%
Awfulizing	25	25 (0%) ^a	20 (-20%) ^b	-20.00%
Global Evaluation	14	14 (0%) ^a	11 (-.43%) ^b	-21.43%
SDI	9.67	21.33 (120.58%) ^a	19.33 (-9.38%) ^b	+99.89%
Intrinsic Mot.	15.33	19.67 (28.31%) ^a	19.67 (0%) ^b	+28.31%
External Reg.	16	11 (31.25%) ^a	11 (0%) ^b	+31.25%
Introjected Reg.	7	9 (+28.57%) ^a	9 (0%) ^b	+28.57%
Identified Reg.	10	12 (+20%) ^a	10 (-20%) ^b	0%
Amotivation	4	5 (+25%) ^a	5 (-25%) ^b	+25.00%
Autonomy	31	34 (+9.67%) ^a	34 (0%) ^b	+9.67%
Competence	28	36(+28.57%) ^a	35 (-2.77%) ^b	+25%
Relatedness	37	40(+8.11%) ^a	39 (-2.5%) ^b	+5.41%
Hair Cortisol Concentration.	4.74	-	6.19	+30.59%

Note. ^aBaseline to mid-point session % change, ^bmid-point session to post-intervention.

Table A5.4. Participant 3 means and percentage change for all variables across time points.

Measure	Baseline	Mid-Point	Post- intervention	Baseline to post- intervention %change
Irrational Beliefs				
Demandingness	31	26 (-16.13%) ^a	29 (-11.54%) ^b	-6.45%
FI	25	28 (-12%) ^a	33 (+17.86%) ^b	+32.00%
Awfulizing	28	26 (-7.14%) ^a	28 (+7.69%) ^b	0%
Global Evaluation	11	19 (+72.73%) ^a	15 (-21.05%) ^b	-36.36%
SDI	-7.33	7.52 (+202.59%) ^a	11.89 (+58.11%) ^b	+262.21%
Intrinsic Mot.	9.94	17.67 (+77.77%)	21.33 (+20.71)	+114.59%
External Reg.	14.38	9 (-37.41%)	13 (+44.45%)	-9.59%
Introjected Reg.	11.69	15 (+28.31%)	14 (-6.67%)	+19.76%
Identified Reg.	6.78	4.87 (-28.17%)	15 (+208.01)	+121.24%
Amotivation	3.96	4.34 (+9.59)	9.39 (+116.36)	+136.36%
Autonomy	32	30 (-6.25%)	34 (+13.33%)	+6.25%
Competence	36	35 (-2.78%)	37 (+5.71%)	+2.78%
Relatedness	45	37 (-17.78%)	39 (+5.13%)	-13.33%
Hair Cortisol Concentration.	6.73	-	7.51	+11.59%

Note. ^aBaseline to mid-point session % change, ^bmid-point session to post-intervention

Table A5.5. Participant 4 means and percentage change for all variables needs across time points.

Measure	Baseline	Mid-Point	Post-intervention	Baseline to post-intervention %change
Irrational Beliefs				
Demandingness	29	21 (-27.59%) ^a	10 (-52.38%) ^b	-65.52%
FI	27	16 (-40.74%) ^a	10 (-37.5%) ^b	-62.96%
Awfulizing	27	19 (-29.63%) ^a	9 (-52.63%) ^b	-66.67%
Global Evaluation	14	9 (-35.71%) ^a	7 (-22.23%) ^b	-50%
SDI	-5.67	19.98 (+452.38) ^a	19.02 (-4.80%) ^b	+435.45%
Intrinsic Mot.	15.67	18 (+14.87%)	9.87 (-45.17%)	-37.01%
External Reg.	10	10 (0%)	11.17 (+11.7%)	+11.70%
Introjected Reg.	13	9 (-30.77%)	11.02 (+22.45%)	-15.23%
Identified Reg.	15	18 (+20%)	8.05 (-55.28%)	-46.33%
Amotivation	23	7.51 (-67.35%)	12.31 (+63.91%)	-46.48%
Autonomy	14	27 (+48.15%)	30 (+11.11%)	+114.29%
Competence	21	30 (+42.86%)	28 (-6.67%)	+33.33%
Relatedness	31	41 (+32.26%)	41 (0%)	+32.26%
Hair Cortisol Concentration.	9.30	-	6.02	-35.27%

Note. ^aBaseline to mid-point session % change, ^bmid-point session to post-intervention

Table A5.6.
Participant 5 means and percentage change for all variables across time points.

Measure	Baseline	Mid-Point	Post- intervention	Baseline to post- intervention %change
Irrational Beliefs				
Demandingness	29	24 (-17.24%) ^a	20 (16.67%) ^b	-31.03%
FI	27	15 (-44.45%) ^a	15 (0%) ^b	-44.45%
Awfulizing	25	15 (-40%) ^a	16 (+6.67%) ^b	-36.00%
Global Evaluation	20	14 (-30%) ^a	13 (-7.14%) ^b	-35.00%
SDI	-0.33	9 (+307.89%) ^a	9 (0%) ^b	+2827.27%
Intrinsic Mot.	12.33	11 (-10.79%)	11 (0%)	-10.79%
External Reg.	12	9 (-25%)	10 (+11.11%)	-16.67%
Introjected Reg.	13	7 (-46.15%)	5 (-28.57%)	-61.54%
Identified Reg.	10	11 (+10%)	10 (-10%)	0%
Amotivation	5	4 (-20%)	4(+20%)	-20%
Autonomy	24	29 (+20.83%)	36.02 (+24.21%)	+50.08%
Competence	26	36 (+38.46%)	35 (-2.78%)	+34.62%
Relatedness	37	37 (0%)	40 (+8.11%)	+8.11%
Hair Cortisol Concentration.	5.02	-	3.39	-32.37%

Note. ^aBaseline to mid-point session % change, ^bmid-point session to post-intervention.