

Expectancy biases and the Dark Triad traits:

Longitudinal associations with subjective

well-being and social and moral values

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well-being and social and moral values

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Abstract

This doctoral study investigated the influence that expectancy biases have upon characteristic qualities of the Dark Triad. Inspired by a study which exposed narcissism as the sole facet of the Dark Triad to express a positive pattern of expectancy biases (Jonason et al., 2018), reflected within a positive association to optimism and a negative association to hopelessness, the current thesis explored the possibility that this division plays an influential role in other scenarios where narcissism displays a more positive inclination. First, the investigation examined how expectancy biases operated through narcissism's facets, revealing that the positive affiliation to optimism activates through the grandiose sub-factor. Subsequent investigations considered the potential for expectancy biases to influence two other areas wherein narcissism diverts from the Dark Triad – subjective well-being (Egan et al., 2014) and social and moral value systems (Jonason et al., 2015; Kajonius et al., 2015). Key findings revealed that hope, rather than optimism, had a more stable mediating effect upon narcissism's subjective well-being. Additionally, expectancy biases had no effect upon social values. Regarding the Dark Triad's moral foundations, hopelessness revealed itself as having the most stable mediating effect, though the impression was minor. However, whilst narcissism has previously demonstrated positive moral behaviour (Jonason et al., 2015), this project found no direct association, suggesting that these behaviours represent a superficial, self-serving morality. The key implication of this suggests that oscillations in optimism may be an ancillary effect of variations in self-esteem, where moral choices are preferred when the narcissist experiences damage to self-esteem.

Chapter 1 - Introduction

In psychology, trait theory posits that recurring dispositional moods, attitudes and behaviours can be collated to form specific personality dimensions, which are stable both over time and across varying situations (Maltby et al., 2017). These traits are generalisable, and can be used to categorise people based upon the degree to which they exhibit either a specific or numerous different traits.

Naturally, traits are used as descriptors for all areas of human nature. For example, positive elements can be conveyed using words such as “altruistic,” “emphatic” and “compassionate,” all of which resemble socially desirable, admirable, and inspirational qualities indicative of an aspirational sort of character. In a similar manner, traits serve as functions to describe the more negative, socially malevolent aspects of human nature.

The fifth edition of the Diagnostic Statistic Manual (American Psychiatric, 2013) (DSM-5) contains many personality disorders which can have devastating effects upon an individual. Yet, as distressing as these can be, the manner in which these individuals behave, because of their disorders, can have ruinous interpersonal consequences for the people they encounter. One particularly interesting personality concept concerning the socially malevolent aspects of human nature which, despite association with clinical personality disorders, focuses more upon specific attributes of individual traits is the Dark Triad.

The conceptual model of the Dark Triad was first coined in the article “*The Dark Triad of personality: Narcissism, Machiavellianism, and psychopathy*” by Paulhus and Williams (2002), who evaluated both the similarities and differences of the three traits within a normal population. These three traits, as referenced in the title of the article, each have a rich empirical history of their own, whose conceptual origins can stretch back centuries. However, the key distinction between Paulhus and Williams’ investigation and the vast bodies of literature encapsulating each trait is that the Dark Triad model functions using the non-pathological

versions of the traits. Naturally, such a thing can only occur once subclinical, or “normal,” versions of each trait, and the subsequent instruments for measurement, were properly established (Christie & Geis, 1970; Lilienfeld & Andrews, 1996; Morf & Rhodewalt, 2001; Raskin & Hall, 1979).

The advent of the Dark Triad was a turning point for the research of socially malevolent personality traits. The conceptual association of three inter-linked, yet clearly distinct traits encouraged the stream of a considerable number of publications exploring the darker potential of personality that may be unaffiliated with a clinical psychopathology. Or, at the very least, whose levels of which do not warrant a clinical diagnosis. Furthermore, the notion of a “dark personality” has extended to include other malicious traits, such as sadism (Buckels et al., 2013). This has also received the suggestion that researchers consider a broader conceptualization of dark personality that extends beyond the simple antagonistic and externalizing features and behaviours of the traits (Marcus & Zeigler-Hill, 2015).

A good proportion of studies dedicated to the Dark Triad seek to explore the areas in which the traits both converge and vary in how they interact with other psychological constructs. The primary aim of this investigation is to observe unique associations between the traits and expectancy biases and whether any variations correlate to differing dispositional outcomes. To achieve this requires not only an understanding of the specific characteristics of the three traits in isolation, but also how they interact as a conceptual model. To this end, this literature review shall first focus upon the intricacies of narcissism, Machiavellianism, and psychopathy, to be followed by the Dark Triad, in order to identify the areas in which the three traits display similarities and differences.

This shall then lead to a discussion regarding which expectancy biases, i.e., the typical manner wherein individuals perceive future events and the impact that they will have upon the person, shall be the focus of the present study, and what patterns of expressions are typically

endorsed by the Dark Triad traits. Naturally, this investigation is also concerned with how expectancy biases may influence outcome criteria. Therefore, this review shall focus upon how expectancy biases may influence the Dark Triad's intrapersonal dispositions through subjective well-being; and the impact upon interpersonal perspectives, including social and moral value systems.

Narcissism

Narcissism was first developed as an aspect of personality within a clinical capacity, taking its name from a Greek myth, in which an individual purports a distinct set of grandiose attitudes toward oneself. These include self-love, self-admiration, and self-aggrandizement coupled with a general defensive orientation which includes megalomania, idealization, denial and projection (Freud, 1957; Raskin & Hall, 1979, Raskin & Terry, 1988).

When constructing the narcissistic personality inventory, the most prominent measure for the assessment of individual differences in narcissism (Raskin and Terry, 1988), Raskin and Hall (1979) utilised specific criteria to characterise the trait. These included a grandiose sense of one's self-importance; preoccupation with fantasies of unlimited success, power, and brilliance; exhibitionism; entitlement; indifferent or furious responds to criticism; a willingness to exploit others and a distinct lack of empathy. The narcissistic personality originates from these clinical criteria, creating a moderated version then applied to the wider, non-clinical population (Campbell et al., 2002; Emmons, 1987). The commonly accepted narcissistic trope resembles an individual who purports a sense of grandiosity and inflated self-worth (Maltby et al., 2017), whilst also employing a range of intra- and inter-personal strategies to nurture and maintain these superior impressions. Because of the narcissism's egocentrism, individuals exhibiting the "grandiose," or "oblivious" (Gabbard, 1989) version of the trait strive for maximum promotion of self-worth and enhancement (Campbell et al., 2000; Morf et al., 2011)

whilst remaining unconcerned for the commitment and maintenance of interpersonal relationships. This is more apparent when the relationship operates as a source of intimacy rather than a means of self-promotion (Sedikides et al., 2002).

Whilst the empirical development of narcissism remains firmly grounded within a clinical perspective, sub-clinical narcissism is an alternative version of the trait which is expressed “normally” throughout the general population. As such, healthy individuals who are otherwise free from psychopathology may demonstrate a degree of narcissism as a regular personality trait (Emmons, 1987; Rhodewalt & Morf, 1995; Waston et al., 1984). Indeed, colloquial references to narcissism portend to this sub-clinical form, whereas the clinical version utilises the more descriptive “Narcissistic Personality Disorder” (NPD) (American Psychiatric Association, 2013). Though sub-clinical narcissism may be considered more normal due to its prevalence among widespread populations, it functions in a similar manner to its clinical counterpart, albeit to a lesser degree. Consequently, the archetypal facets which are most commonly associated with NPD, such as grandiosity, entitlement, dominance, and superiority, are expressed in a similar manner by the sub-clinical variety (Paulhus & Williams, 2002). Subsequently, sub-clinical narcissism will also extol the more commonly observed interpersonal features of NPD, including a lack empathy, a dearth of close relationships, and a strong desire for the admiration and attention of others (Raskin & Hall, 1988; Watson, 1984).

The maladaptive qualities of narcissism become more apparent when observing behaviours in interpersonal interactions. Although narcissism occasionally expresses adaptive intrapersonal qualities, such as being inversely related to daily sadness and dispositional depression (Sedikides et al., 2004), the prevailing interpersonal issues are the evident factor to the dysfunction of the trait (Back et al., 2013). A prime example is their deficient empathy (Watson et al., 1984; 1991). Empathy is a complex interpersonal phenomenon which,

ultimately, facilitates an understanding of the feelings of another (Bloom, 2017), commonly utilised through an affective, cognitive, or motivational component (Zaki, 2017).

The most basic operation of empathic function is when the individual witnessing an emotional display perceives the appropriate emotion, internalises it and, to some degree, experiences a similar affective state (Hatfield et al., 1994). From an evolutionary perspective, this process served to facilitate the prosocial and cooperative behaviours needed to increase the odds of survive (Schulz, 2017). Cognitive empathy, however, greater resembles a method of mental perspective taking (Smith, 2006), allowing for the comprehension of another's mindset without necessarily sharing their emotions.

However, when regarding narcissism there is an observable deficit of emotional rather than cognitive empathy (Ritter et al., 2011). This means that whilst narcissists are quite capable of understanding another's perspective, they struggle to sympathise with the emotions they are witnessing, much less be able to emulate or reflect. This has recently received more attention, drawing the conclusion that, if forcibly motivated, narcissists can become more empathic when they take another's perspective (Hepper et al., 2014). That the reason for their low empathy is grounded in motivation, rather than ability, reveals the antagonistic dimension of narcissism. The key to this antagonism may be founded within distrust of others and heightened threat perception (Burgmer et al., 2021), predicting less concern with social responsibility. This can lead to the narcissist being less inclined to operate by typical social conventions (Watson & Morris, 1991), which is a prominent cause to the interpersonal struggles.

Though interpersonal empathy levels can be a leading factor regarding the perceptions of narcissistic relationship quality (Khodabakhsh & Besharat, 2011; Ulloa et al., 2017), an empathic deficit is not the sole reason for the failure of narcissistic relationships. Prior research on narcissism and romantic relationships indicates that narcissism predicts romantic appeal and success in dating or short-term relationships, yet encounters serious issues over time (Campbell

et al., 2006). This is logical considering that narcissism is negatively related to commitment within romantic relationships (Campbell & Foster, 2002), maintains an agentic sexual nature (Foster et al., 2006), and combines assertive self-enhancement and antagonistic self-protection (Wurst et al., 2017). The last point is achieved by encouraging the positivity of one's self-view by seeking social admiration whilst simultaneously protecting oneself from a negative self-view by derogating others.

Ironically, considering narcissism's lack of commitment, they are particularly prone to bouts of envy. Traditionally, envy was frequently attributed to narcissism's grandiose features as a reaction towards ego-threatening, upward comparisons, resulting in hostile, self-serving reactions (Bogart et al., 2004; Pincus & Lukowitsky, 2010). However, Krizan and Johar (2012) suggest that it may be the vulnerable features of narcissism which facilitate envy, an emotion seemingly at odds with the central narcissistic tenant of superiority, which itself is likely to encourage a self-enhancing tactic rather than capitulating to envy (Campbell et al., 2000; Morf & Rhodewalt, 2001). Rather, when the vulnerable narcissist allows feelings of inferiority to surpass their self-absorption, their sense of entitlement would cause them to view the achievements of others as unmerited, as the accomplishment of others reflects poorly upon their own, the subsequent emergence of incompetence generating bouts of envy (Krizan & Johar, 2012). This, coupled with the propensity to experience psychological distress (Miller et al., 2007), could potentially wreak havoc within a relationship if such comparisons are made with a romantic partner.

This discrepancy between narcissistic attitudes highlights one of several phenotypical issues in conceptualizing the trait (Cain et al., 2008; Pincus & Lukowitsky, 2010). However, following an initial attempt at phenotypic synthesis (Akhtar & Thomson, 1982) and a series of subsequent discussions and empirical study (Rose, 2002; Given-Wilson et al., 2011; Wink, 1991), a two-factor model for narcissism finally emerged consisting of two independent

constructs of grandiose and vulnerable narcissism (Ronningstam, 2009). This distinction was a significant addition to the literature because the manner in which the two converge and differ illuminates the complexity and episodic nature of narcissism (Gore & Widiger, 2016).

Grandiose narcissism encapsulates “typical” narcissism due to the overt application of characteristic behaviours, including displays of superiority, grandiose fantasies, elevated levels of extraversion and exhibitionism (Akhtar & Thomson, 1982; Cain et al., 2008; Pincus & Lukowitsky, 2010; Ronningstam, 2009; 2016; Waelder, 1925), whilst also purporting enhanced levels of agency and positive self-assessments (Bradlee & Emmons, 1992; Campbell, 2001). Contrasting this is vulnerable narcissism, which differs significantly in its manner of expression. Contrary to stereotypes, vulnerable narcissism is prone to insecurities and anxiety, and displays defensiveness as a mechanism to obscure feelings of inadequacy. Whilst grandiose narcissism basks in the attention of others and actively seeks dominion, those with vulnerable narcissism are often shy, inhibited, inclined towards shame and are hypersensitive towards perceived criticism or failure (Ronningstam, 2009), making them overly bitter and defensive. This, by comparison to the narcissistic stereotype, makes the vulnerable narcissist socially passive and purposefully avoidant of interaction with others due to an introverted lack of self-confidence, probably in the attempt to avoid potential damage to an already fragile self-image (Miller et al., 2011; Wink, 1991).

Whilst the two types of narcissism appear to be antithetical, they represent two sides of the same coin. Their most noteworthy commonality is how they react towards an attack upon their self-esteem. Narcissists possess a variant called discrepant high self-esteem (Zeigler-Hill, 2006), a fragile form of self-esteem characterized by high-explicit yet low-implicit self-esteem. Whilst implicit self-esteem is based on experiential, unconscious self-appraisal (Greenwald & Banaji, 1995), the reliance upon high explicit self-esteem means that self-esteem perseveres through conscious, positive feelings and thoughts about the self, as well as interpretations and

re-evaluations of events that reflects positively upon the individual's self-image. In effect, the individual crafts their own self-esteem through deliberate, purposeful effort. This creates speculation that narcissistic self-esteem, although high, is extraordinarily vulnerable to challenge. This means that narcissistic self-esteem requires both constant validation and a degree of self-deception in order to be maintained. For instance, narcissists appear to show higher self-esteem when they are in position to demonstrate dominance over others (Brown & Zeigler-Hill, 2004), the opportunism of which supports the idea that their impression of superiority requires conscious effort. However, when they experience a challenge to self-esteem they frequently respond with disproportional anger, empirically referred to as "narcissistic rage" (Kohut, 1972). This reaction is characterised by expressions of anger and hostility in response to minor provocations, triggered by feelings of shame and inferiority from the exposure of one's flaws or deficiencies. This disproportional aggression often becomes displaced, meaning their ire frequently lands upon little annoyances or even unconnected, innocent parties (Krizan & Johar, 2015; Vaknin, 2001).

Because of vulnerable narcissism's natural inclination towards shame, guilt, envy, and reactive anger (Freis et al., 2015; Krizan & Johar, 2012; 2015; Pincus et al., 2014), an argument exists that narcissistic rage is a predominant feature of vulnerable rather than grandiose narcissism (Krizan & Johar, 2015). However, this does not discount grandiose narcissists use of aggression as retribution upon ego threats, since it is evident that they do (Bushman & Baumeister, 1998; Baumeister et al., 2000; Locke, 2009). Displays of aggression are positively correlated with levels of narcissism, whilst simultaneously reducing the threshold for the triggering criteria (Reidy et al., 2010). Therefore, the issue with applying narcissistic rage to the grandiose narcissist appears to be one of semantics, with the word "rage" implying that anger, aggression, and hostility are used openly and freely. Various studies have shown that grandiose anger typically occurs in response to a specific threat, explicitly, competition failure

over interpersonal ego-threat (Besser & Priel, 2010; Rhodewalt & Morf, 1998). Interestingly, Atlas and Them (2008) observed that individuals exhibiting grandiosity are both less sensitive to criticism in scenarios without obvious performance failure, as well as expressing an eagerness to seek out performance feedback. A characteristic which would seem at odds with the idea of uncoordinated anger as retaliation to questions of competence. Furthermore, narcissistic rage seems unsuited to the grandiose narcissism model due to its second contributory element: shame. Since grandiose narcissists are more resilient regarding shame responses (Pincus & Lukowitsky, 2010), such as envy and guilt (Krizan & Johar, 2012; Montebanocci et al., 2004), outbursts of aggression would be proactive, instrumental, and deliberate compared to the reactive, displaced aggression purported by the narcissistic rage hypothesis (Krizan & Johar, 2015). As such, grandiose narcissism may use aggression as a tool, whereas vulnerable narcissism's anger and aggression are reactionary (Jones & Paulhus, 2010; Valashjardi & Charles, 2019)

Ultimately, interactions and relationships with narcissists increase the likelihood of long-term interpersonal costs (Campbell & Campbell, 2009). Whilst there may be short-term benefits of interaction with narcissists, excessive exposure can lead to antagonism, hostility, and aggression. The issue for the narcissist is that the primary source of self-enhancement is through interactions with others, yet the continual need to self-enhance is often a cause of contention, accompanied with the constant possibility of ego-threat. Ultimately, narcissistic behaviours maintain the metaphor to the Greek tale which spawned its very conception, in that Narcissus' continual pining over his reflection caused him to neglect looking after himself, which led to his eventual demise (Spotnitz & Resnikoff, 1954). Consequently, the narcissists continual need for admiration and validation of their own perceived superiority, coupled with the fragility of their self-esteem, eventually lead to personal difficulties in the long run.

Machiavellianism

The personality trait of Machiavellianism is aptly described by a quote from its namesake, Niccolò Machiavelli - "Men are so simple and so much subject to present needs that a deceiver will never lack victims for his deceptions" (Machiavelli, 2008, p. 83). Following a siege of his home city of Florence, Machiavelli's attempts to ingratiate himself with the new Medici principality ultimately failed. However, the advice he imparted within his book "The Prince," espoused tactics prioritising expediency over the virtues of trust, honour, and decency (Wilson et al., 1996) whilst maintaining that consistent attempts of employing such values may prove a ruinous policy for a ruler in the long-term (Skinner, 2000).

Machiavellianism entered the psychological nomenclature following a review of political leaders who seemed ill-suited for the position they occupied, yet had achieved higher positions of office nonetheless. Christie and Geis (1968) identified four distinct characteristics which were typical of this group - 1) a relative lack of emphatic affect in interpersonal relationships; 2) deficient conventional morality, adopting utilitarian rather than moral views; 3) a lack of gross psychopathology, exhibiting an instrumental rather than rational view of others; and 4) low ideological commitment, unconscious focus on task completion rather than long-term ideological goals (Christie & Geis, 1968). High scorers on the MACH-IV, the most prominent measuring tool for the trait (Christie & Geis, 1970), are also identifiable by their reliance upon interpersonal manipulation, which they believe to be the key instrument to achieving success (Furnham et al., 2013; Jones & Paulhus, 2009). The routine use of manipulation is in fact the most prominent identifier for an individual purporting Machiavellianism (Furnham et al., 2013), which quite appropriately encapsulates the Machiavellian mantra of the end justifying the means.

Aside from a penchant for manipulation, Machiavellianism demonstrates a variety of other characteristics. They often display detachment from others, are resistant to social

influence, maintain suspicion of other people's motives and whilst synchronously withholding their own personal agendas. Furthermore, they are highly persuasive in discourse, being able to sway others to align with their motives, are often willing to change positions within an argument and will habitually tell others what they want to hear rather than the full truth (Christie & Geis, 1968; 2013; Nelson & Gilbertson, 1991; Vleeming, 1979), all in the name of self-enhancement. To this end, they are less inclined to share information with others (Liu, 2008), a tactic used to facilitate their manipulations when such information is important, giving them the ability to adjust a scenario to extract the most benefit themselves or are fully prepared to exact revenge upon people who have caused them a prior injustice (Wilson et al., 1996). The consistent use of strategic behaviour for selfish gain (Czibor & Bereczkei, 2012) is indicative of a sensitivity to read social situations (Bereczkei et al., 2013), through an ability to assess a social dilemma and evaluate the best course of action to achieve the maximum benefit to themselves. Furthermore, they often experience little to no guilt or remorse for breaking rules, often being able to rationalise their behaviour to themselves afterwards (Murphy, 2012).

Machiavellianism is frequently characterised by extrinsic motivation (Bagozzi et al., 2013), wherein behavioural patterns are encouraged by external, typically material, goals. McHoskey (1999) found that Machiavellians endorse this form of motivation over others as their measure for personal success is often financial. However, he also found that Machiavellianism has a willingness to utilise antisocial behaviour as a method of goal achievement. Examples of such behaviour are characteristically associated with self-promotion, such as cheating on an exam, plagiarism, and stealing; but also include elements related to other personality disorders, such as vandalism, frequent intoxication, promiscuity, and driving while intoxicated. To complement this collection of anti-social behaviours, Machiavellianism also displays negative correlations to more prosocial elements of personality. For example, there is a negative correlation between Machiavellianism and the

Honesty-Humility factor of the HEXACO personality structure (Lee & Ashton, 2005), specifically with the “fairness” and “sincerity” facets, which suggests an inclination towards deceitful behaviour and a disregard for maintaining equality with others. This coincides with a similar relationship with the Big Five traits “Agreeableness” and “Conscientiousness” (Jakobwitz & Egan, 2006; Lee & Ashton, 2005), insinuating the idea that High-MACHs are both interpersonally detached from others as well as lacking in diligence.

The pragmatic emotional detachment that typifies Machiavellianism (Rauthmann, 2012) manifests in an interpersonal “coldness,” which may facilitate and aid typical Machiavellian attitudes and behaviours. A lack of concern for ethics and the emotional well-being of others would be paramount for the success for strategic manipulation (Jones, 2016). To accompany this, Machiavellianism is often observed to be deficient in emphatic response (Al Ain et al., 2013; Jonason et al., 2013; Petrides et al., 2011; Wai & Tiliopoulos, 2012), and theory of mind (Ali & Chamorro-Premuzic, 2010; Bagozzi et al., 2013; Barlow et al., 2010; Esperger & Bereczkei, 2012; Lyons et al., 2010), whilst also possessing poor emotional intelligence (Ali et al., 2009; Austin et al., 2007; Nagler et al., 2014; Zhang et al., 2015). This combination of shortcomings insinuates an individual who generally struggles to intuitively identify another person’s emotions or perspective whilst simultaneously experiencing issues with social competencies (Pilch, 2008). This creates a somewhat ironic paradox for the Machiavel, as their willingness to utilise emotional manipulation to aid their schemes (Austin et al., 2007; Nagler et al., 2014; Petrides et al., 2011) may be hindered by the disconnectedness they experience to their own emotions (Austin et al., 2007). The incongruity may be exacerbated by a disdain for social cooperation (Paal & Bereczkei, 2007) and a lack of concern with forming social relationships (Ináncsi et al., 2015; Lyons & Aitken, 2010). The latter of which could provide a useful platform which, if explored further, may bolster their preceptive abilities through more frequent exposure and the opportunity to practise.

One exception to this limited emotional capacity is that of negative affect, as individuals higher in Machiavellianism may be more adept at recognizing negative emotional states (Ali & Chamorro-Premuzic, 2010; Bagozzi et al., 2013). This may be due to heightened familiarity with experiencing negative affect (Ali et al., 2009), as they still struggle to take another's perspective (Bagozzi et al., 2013).

Despite these deficits, the Machiavellian individual can still maintain success in emotional manipulation (Nagler et al., 2014). Esperger and Bereczkei (2012) explored whether spontaneous mentalisation, the purposeful intent to achieve a representation of another's mindset, was more prevalent in Machiavellians. A positive correlation occurred between spontaneous mentalisation and Machiavellianism, suggesting that the success achieved in interpersonal manipulation was a result of a conscious effort, and that understanding of another's mindset can be achieved through practise, rather than intuition. The process of Machiavellian manipulations could be a combination of spontaneous mentalisation to ascertain a person's perspective and emotional state (Esperger & Bereczkei, 2012) and analysis of social clues evaluating behaviours of potential targets (Czibor & Bereczkei, 2012). Furthermore, their natural opportunism allows them to proceed when the situational context permits amoral behaviour whilst avoiding punishment (Bagozzi et al., 2013; Barbaranelli et al., 2018; Jones & Paulhus, 2017).

Machiavellianism, despite correlations with the Dark Triad traits narcissism and psychopathy (Paulhus & Williams, 2002), distinguishes itself by not having a clinical variant or putative subtypes. This has caused contention surrounding the legitimacy of the trait, with some arguing that Machiavellianism is merely the expression of some nuanced behaviours of psychopathy (Miller et al., 2017; Persson, 2019; Vize et al., 2018), or other personality dysfunctions such as borderline, paranoid, negativistic, and antisocial personality disorders. The fact that these conditions all incorporate interpersonal manipulation and social

domineering to some degree adds merit to this argument. These assembled disorders create a diverse group, the purveyors of which manipulate for a variety of reasons (McHoskey, 2001), yet each incorporate the core of Machiavellianism. Miller et al. (2017) argue that, specifically considering psychopathy, the high correlations between the two traits mean that, when the substantial variance is removed, there is very little variation left for Machiavellianism to exist.

However, there are elements which distinguish themselves as being more specifically Machiavellian. For instance, Machiavellianism scores lower on extraversion and openness (Jonason et al., 2010), which matches their more reserved nature. Furthermore, Machiavellians view themselves as low on dominance, gregariousness, and openness (Rauthmann, 2012), a pattern which does not conform to psychopathy. Indeed, Machiavellians may justify their behaviour through a generally cynical view of the world, complemented by negative self-models in global misanthropic views. For example, Machiavellians believe that everyone in the world, including themselves, are purely out for themselves. This means that they can easily defend their behaviour as they believe others would be just as willing to act in the same manner, and that it is prudent to manipulate others than to eventually be manipulated themselves (Jones & Paulhus, 2009).

A more observable distinguishing quality is Machiavellianism's more cautious attitude, examples of which occur in a multitude of areas. For instance, Machiavellianism appears to be less recklessly impulsive, preferring to focus and consider implications before acting upon a situation (Kiire et al., 2020; Malesza, & Kalinowski, 2019). This is keenly observed in their choice of aggression style, in which Machiavellianism utilises a more considered, proactive form of aggression over reactive (Dinić & Wertag, 2018). This suggests that the use of aggression is only considered to be suitable in certain conditions, which mandates a period of planning and preparation (Szabó, & Jones, 2019). Caution is also a factor in Machiavellian life strategies. For example, Machiavellianism has a negative association towards short-term sexual

behaviour (Jones, & de Roos, 2017), maintains an aversion towards various forms of risk-taking behaviour (Grover & Furnham, 2021; Sekścińska & Rudzinska-Wojciechowska, 2020) and utilises long-term, stealthy attacks over rambunctious brute force (Kiire et al., 2020). These all insinuate a predilection towards premeditation over reaction and instils a definite sense of opportunism.

The practise of opportunism perfectly encapsulates Machiavellianism's natural scheming, whose crimes of opportunity typically present maximum benefits and require minimal cost or risk (Spitzer et al., 2007). Individuals higher in Machiavellianism appear to be responsive to ethical violations only when it suits them, choosing whether to adhere and flout rules on a conditional basis. For example, they are unlikely to report observed unethical practises unless there is an opportunity for personal gain (Dalton & Radtke, 2013). The assessment of a given situation would weigh up the options of the most beneficial mode of action, whether that be participating in the unethical behaviour themselves or opting to report on others. The outcome would hinge upon whether the latter may benefit them more than the risk of punishment if they pursued the former. Furthermore, previous literature that found Machiavellian individuals would spy on co-workers with the intention to achieve a competitive intra-company advantage (Macrosson & Hemphill, 2001). Individuals higher in Machiavellianism are similarly unconcerned with information technology violations of ethics when they have the skills to perpetrate such crimes. However, they are highly concerned with Internet privacy and related ethical concerns when they lack the specific skills to achieve success (Stylianou et al., 2013).

Whether Machiavellianism is merely a sub-facet of psychopathy remains to be seen. However, despite the confusion surrounding the trait, it is important to maintain its initial conceptualisation. Selfishness is, ultimately, the core of Machiavellian motive, and as such its more observable qualities, strategy, calculation, and manipulation, mean that Machiavellian

individuals are more likely to pursue goals with a long-term yet highly profitable underpinning. The capacity for unethical behaviour means that Machiavellianism has a unique relationship with destructive behaviour due to its conniving and strategic predilections. Furthermore, its subclinical nature means that the trait may be overlooked, with behaviour being attributed towards more prevalent, identifiable psychopathologies.

Psychopathy

Psychopathy first appeared in clinical psychological literature with Hervey Cleckley's (1941) book, "*The Mask of Sanity*," written as an attempt to clarify a distinction within the psychological nomenclature regarding psychopathy. Cleckley identified a subset of mental patients who, despite their admittance for maladjustment, appeared devoid of the typical anxiety or psychosis. From a judicial standpoint, this raised concerns that these otherwise competent people were attempting insanity pleas as a means to avoid harsher sentences for their crimes. The chief aim of the book was to discern a clear impression of the elements which constructed the psychopathic paradigm. This would allow the people who frequently experience contact with psychopaths, such as lawyers, social workers, and law enforcement, to be able to identify and understand the type of individual they were dealing with.

Cleckley's experience led to the development of early characteristics defining psychopathy. These included superficial charm and reasonable intelligence, dishonesty and insincerity, lack of remorse, indifference to interpersonal relations and failure to follow a stable life plan. The list paints a picture of an individual who is primarily egocentric, lacks insight, judgement and reliability, and is focused upon their own personal goals whilst remaining apathetic if not disdainful of others.

The disregard which psychopathy attributes to others is maintained by their characteristic emotional deficit. A general discrepancy is often observed in both intra- and

interpersonal emotional processing, resulting in a cold, aloof persona which appears relatively resilient to affective states. As such, psychopaths struggle to recognise facial expressions and vocal tones (Blair et al., 1995; Dawel et al., 2012; Hastings et al., 2008; Kosson et al., 2002; Stevens et al., 2001), particularly those with a negative valence, such as fear, disgust and sadness (Blair et al., 2004; Kosson et al., 2002; Dolan & Fullam, 2006). The insufficient capacity for emotional recognition is paralleled by their deficient empathic capability. In a manner similar to narcissism, psychopathy appears to display a general impairment of affective empathic function, but with a relatively intact capability for cognitive empathy when compared to controls (Blair, 2005; Jones et al., 2010; Mullins-Nelson et al., 2006; Wai & Tiliopoulos, 2012). Whilst this may seem at odds with the general conception of psychopathy (Hare, 1980; Lilienfeld & Andrews, 1996), further work which focused upon empathic function regarding specific affective states found greater deficits to negative affect emotions. Specifically, psychopathy has an impaired ability identifying statements and scenarios which others would consider frightening (Marsh & Cardinale, 2012). Threats for example, cause fear, the ignorance of which will cause impaired judgments about how acceptable it is to intentionally frighten people. Deficient fear responding, such as deficits in threat detection and responsivity (Hoppenbrouwers et al., 2016), has been considered as the root of psychopathic personality traits, the propensity for which is also linked to the increased risk for engaging in antisocial behaviour (Lykken, 1995), as well as emotional attacks (Sest & March, 2017), and sadism (March, 2019).

This deficit for specific empathic type and valence should serve as a caution against reductionist statements regarding psychopathy and its supposedly characteristic dearth of global empathy. At the facet level, primary psychopathy has been associated with public displays of prosociality whilst harbouring an inverse association to anonymous and altruistic prosociality (White, 2014). Whilst altruism is an inherently empathic quality, primary

psychopathy's extrinsic nature (Glenn et al., 2017; Jonason & Webster, 2012) and more effective grasp upon cognitive empathy will allow them to maintain an illusion of prosociality for their own benefit.

The development of the Psychopathy Checklist (PCL) (Hare, 1980) focused empirical attention upon these specific psychopathic subtypes, separating them from characteristics of anti-social personality disorder and typical criminal social deviance (Hare, 1999). Since its iteration, the PCL has proven to be an effective tool in predicting criminal, violent and anti-social conduct (Leistico et al., 2008; Salekin et al., 1996) as well as predicting recidivism (Edens et al., 2007; Walters, 2003). The later revised edition (Hare et al., 1991) consists of two factors (Harpur et al., 1988). The first of which, named "*Selfish, callous, and remorseless use of others,*" was seen to reflect core personality traits; whilst the second, named "*Chronically unstable and antisocial lifestyle*" reflected the predilection towards antisocial behaviour. These two factors reflect distinctive psychopathic behaviour patterns, commonly referred to as primary and secondary psychopathy (Cleckley, 1941; Lykken, 1995).

Primary psychopathy reflects interpersonal and affective facets, often being described as egocentric, deceitful, and irresponsible, exhibiting superficial charm and shallow affect. They typically manifest a strong emotional deficit alongside a noticeable lack of empathy. Because of this, they show no concern for the feelings of others, allowing them to cheat, lie and steal with impunity, justifying their behaviour with flippant excuses and a staggering lack of remorse or guilt (Yildirim & Derksen, 2015). Indeed, they may be forthright about feeling no remorse, verbally minimising any damage they may have caused, passing off the experience as a life lesson for their victim (Hare, 1999). Secondary psychopathy encompasses social deviance, characterized by general impulsivity, irresponsibility, alongside criminal and antisocial behaviour (Lykken, 1995). Whilst external behaviour is a predominant indicator, there is also ubiquitous disinhibition, alongside negative affectivity; a trait that most would not

regard as specific to psychopathy. Furthermore, whilst primary psychopathy is characterised by a constitutional emotional deficit, secondary psychopathy appears to experience an environment-contingent emotional disturbance (Yildirim & Derksen, 2015).

Both forms of psychopathy are intrinsically linked to poor behaviour, including inadequate school performance, erratic employment history, frequent legal problems, deficient marital/romantic sustainability, and interpersonal conflict. Despite this, support for the distinct varieties has been prolific (Dean et al., 2013; Newman et al., 2005; Patrick et al., 2006; Vaughn et al., 2009), maintaining that the cause for the divergence is etiological (Skeem et al., 2003).

The etiological underpinnings for the psychopathic facets have long appeared to be divergent. Specifically, primary psychopathy is considered more heritable whereas secondary psychopathy is more attributable to environmental factors (Skeem et al., 2003). This claim has been considered accurate because of primary psychopathy's apparent constitutional deficit and secondary psychopathy's symptomatic nature. This implies that the anti-social temperament of secondary psychopathy is derived from some form of environmental affront, such as parental rejection, overindulgence or overly harsh punishment, inadequate intelligence, psychotic thinking - typical attributes which can set an individual on a path towards chronic misbehaviour (Edens et al., 2008; Lykken, 1995). However, in the wake of several studies which profess comparative heritability levels (Blonigen et al., 2006; Krueger et al., 2009), Hicks et al. (2012) posits the concept of the gene-environment correlation. This refers to the non-independence between a person's genotype and their environmental experiences (Scarr & McCartney, 1983). Specifically, how a person's genotype mediates the degree to which they seek exposure to environmental risk factors. Hicks et al. (2012) suggest that the facets of psychopathy exhibit similar heritability yet differ upon genetic factors. In theory, the genetic factors can be passive (i.e., a child is born to anti-social parents and is brought up in a tumultuous environment), active (the individual seeks out certain environments) and evocative (the

individual elicits certain responses from the environment) (Scarr & McCartney, 1983). The genetic risk factors associated with secondary psychopathy, (typically passive) account for increased risk of exposure to multiple forms of environmental adversity, whereas primary psychopathy's genetic factors (more active) maintain general independence regarding exposure to environmental risk. It is argued, therefore, that secondary psychopathy is more "reactionary" in nature, as its proponents are greater disposed to emotional turmoil and anxiety. Simply put, the inclination towards antisocial behaviour purported by secondary psychopaths is typically a direct response to an external stimuli (Kimonis et al., 2012).

The establishment of psychopathic phenotypes is important when considering that the underlying behavioural motivation may be different despite the similarity of outcome. Considering violence as an example, due to its high association to psychopathy (Cornell et al., 1996; Flight & Forth, 2007; Glenn & Raine, 2009; Laurell et al., 2010; Porter & Woodworth, 2006; Vitacco et al., 2006; Walsh et al., 2009), primary psychopathy displays a stronger association to instrumental violence, which is characterised as premeditated and proactive, utilising the act of violence as a tool to achieve a specific end result rather than for the sake of violence itself (Berkowitz, 1993; Cornell et al., 1996). Conversely, secondary psychopathy maintains a greater association to reactive violence (Lillard et al., 2017), typically invoked by an emotional response to a provocation. Although this does not mean that primary psychopaths categorically refrain from reactive violence, and vice-versa (Cornell et al., 1996), or even that they show less criminality. It does, however, highlight a pattern establishing primary psychopath's preference for non-violent crime (Hicks et al., 2010). To be more precise, it suggests that violent acts committed by primary psychopaths are both less frequent and severe than those of secondary psychopaths, a pattern indicated by studies on the nature of violence (Tapscott et al., 2012).

In a similar manner to narcissism, psychopathy purports a subclinical variant that possesses no qualitative deviation from the clinical. Essentially, the difference separating these two forms is one of degree, not of kind. To this end, the subclinical psychopath maintains the same inclinations towards dysfunctional behaviour, experiences the same pattern of affect and possesses a similar cognitive array as clinical psychopathy, yet all are substantially less pervasive or extreme in their expression (LeBreton et al., 2006). Because of this diminished severity, subclinical psychopathy emerges much more frequently within the general population, with base rates of occurrence ranging from 5-12% (Pethman & Erlandsson, 2002) compared to clinical psychopathy's 1% (Hare, 1999). As such, there is a far greater potential for psychopathic behaviours to occur within everyday activity.

Whilst the conduct of a subclinical psychopath may not be as severe as their clinical counterpart, the ultimate recipient of their dysfunctional behaviour is still likely to experience misfortune for their association. For instance, subclinical psychopathy maintains a largely negative array of behaviour within romantic relationships. This includes negative perceptions and potentially violent treatment of partners (Williams et al., 2005), associations to attachment anxiety and avoidance (Mayer et al., 2020), and greater association to poor relationship quality and active prowling in secondary subclinical psychopathy (Unrau & Morry, 2019). Furthermore, the presence of subclinical psychopathy can draw out negative attitudes in a romantic partner, causing long-lasting damage to interpersonal trust, self-esteem, and the capacity for developing attachment to others in the future (Babiak et al., 2007). This, combined with the attachment anxiety experienced by subclinical psychopaths (Mayer et al., 2020), means that an actor-partner effect may be established. Within which certain psychopathic behaviours can exacerbate attachment-avoidance levels in both the psychopath and their partners (Savard et al., 2015).

The core characteristics of subclinical psychopathy include an arrogant and deceitful interpersonal style, deficient affective experience, and an impulsive and irresponsible behavioural style (LeBreton et al., 2006). Furthermore, they maintain a diminished capacity for affective empathy (Lockwood et al., 2013), are blind to personal responsibility and ethical issues (Valentine et al., 2017), and frequently utilise deceptions (Rose & Wilson, 2014), whilst subclinical versions of primary and secondary psychopathy also maintain a similar pattern to the clinical version's expression of aggression (Crawley & Martin, 2006; Falkenbach et al., 2008; Jones & Paulhus, 2010).

Despite this, an argument has been made which endorses the adaptive attributes of subclinical psychopathy. Because the subclinical psychopath may possess a less severe impetus for anti-social behaviour, meaning that their indulgences into poor behaviour may be less extreme (LeBreton et al., 2006), there is a potential for the less destructive descriptors for psychopathy to take on an adaptive quality. This appears to relate specifically to subclinical primary psychopathy, as they appear to enjoy an abundance of the traits which may seem socially desirable, such as inter-personal charm, self-confidence, and an enthusiastic drive (Ray & Ray, 1982). Furthermore, primary subclinical psychopathy has been associated to entrepreneurial tendencies (Wilson & McCarthy, 2011) and is frequently observed to attain senior positions within respected companies (Spencer & Byrne, 2016). Whilst this serves to support the notion of "successful psychopathy" (Babiak & Hare, 2007), wherein a modest psychopathic tendency can provide the necessary tools to thrive in corporate culture, it would be remiss to fully advocate psychopathy as an adaptive quality. Though psychopathy's adaptive qualities, desire for self-enhancement and measure of aggression will improve the odds of attaining senior positions, the tactics that they may utilise to get there (Gervais et al., 2013; Lyons et al., 2013) and the detrimental effect that their personalities may have upon sub-

ordinates (Boddy, 2006; LeBreton et al., 2006; Spencer & Byrne, 2016) indicate that, ultimately, psychopathy will still maintain negative interpersonal consequences.

Naturally, psychopathy is a condition which is far more complex than the caricature which it is often depicted. Whilst the intricacies of the clinical variant have been explored to great effect, the subclinical adaptation has received far less standalone consideration. This is an interesting omission of focus, considering that a less severe yet significantly more widespread version could have a potentially huge impact upon social interactions, societal infrastructure, and perceptions towards archetypes of success. However, this oversight may have been resolved with psychopathy's adoption into the Dark Triad model (Jones & Paulhus, 2002), a shift which placed significantly more empirical focus upon this more prevalent, subclinical version.

The Dark Triad

The Dark Triad is the conceptual collection of the subclinical versions of these three interrelating traits – narcissism, Machiavellianism, and psychopathy (Paulhus & Williams, 2002). Development of this model occurred following observed associations between the clinical forms of said traits (Hart & Hare, 1998), associations which received further validation upon the introduction of sub-clinical trait measures (Gustafson & Ritzer, 1995; McHoskey, 1995; McHoskey et al., 1998).

Prior to Paulhus and Williams' (2002) study, there had been a certain level of speculation that the three traits were one and the same (Glenn & Sellbom, 2015; McHoskey, 1995; McHoskey et al., 1998), due to a degree of conceptual resemblance and the theoretical overlap of common measures (Furnham et al., 2013). The argument for equivalence stems from literature which detailed empirical associations utilising non-clinical measures, creating links between Machiavellianism and psychopathy (McHoskey et al., 1998), narcissism and

psychopathy (Gustafson & Ritzer, 1995), and Machiavellianism with narcissism (McHoskey, 1995).

Of course, there are several features which link these traits together. For example, when considering the Big 5 personality traits, narcissism and psychopathy both present positive associations to extraversion and openness, which is represented in characteristic behaviours such as their approach-motivation (Foster & Trimm, 2008) and boldness (Poy et al., 2014). Another Big 5 example considers psychopathy and Machiavellianism, which both express a deficit in conscientiousness. However, the Big 5 also provides an opportunity to display how the traits differ. For example, whilst narcissism and Machiavellianism fail to show a significant association with neuroticism, psychopathy maintained a marginal negative correlation, which is consistent with the typical characterization of an absence of anxiety (Hare, 1991). Although there have been some inconsistencies between the results reported by Paulhus and Williams and other literature, Machiavellianism's conscientiousness levels (Collison et al., 2018) and psychopathy's association to openness being such examples (Ross et al., 2004), the main point of Paulhus & Williams' (2002) study is that the three traits making up the Dark Triad are

distinctive enough to warrant separate means of measurement. Though this distinction should probably be apparent by the general characteristics of the traits - psychopathy being associated with callousness, impulsive thrill-seeking, and criminal behaviour; narcissism with grandiosity, egocentrism, and a sense of personal entitlement; and Machiavellianism being typified by strategic manipulation, they have frequently been marked with a certain degree of commonality. For example, all three appear within the second quadrant of the interpersonal circumplex (Jones & Paulhus, 2011; Wiggins, 1979; Wiggins & Broughton, 1985). This construct provides a means of creating a two-dimensional representation of a particular interpersonal space, which can be organised, theoretically, as a circle. Figure 1 provides an

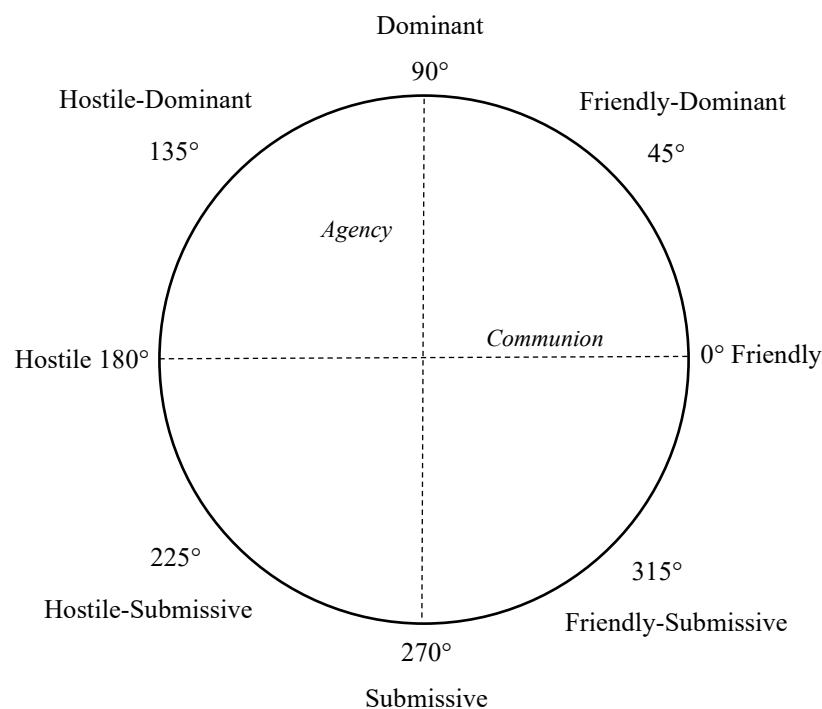


Figure 1 A generic interpersonal circumplex, including dimensions, categories, and polar coordinates. From “Exploring personality with the interpersonal circumplex,” by M. B. Gurtman, 2009, *Social and Personality Psychology Compass*, 3(4), 601–619. Copyright 2016 by APA

example of this model.

The two intersecting dimensions are referred to as “Agency” and “Communion.” The first of these, Agency, encompasses the capacity for becoming individuated, which consists of elements such as dominance, power, status, and control, and has a spectrum of dominant to

submissive. Contrastingly, Communion encompasses the capacity for becoming connected to others. This includes the capacity for love, affiliation, union, and friendliness, which has a similar spectrum of hostile to friendly. The elements of the opposing poles are merged to establish eight variables (e.g., Hostile, Hostile-Dominant, Friendly-Dominant etc), upon which interpersonal variables are mapped depending upon how they correspond to these elements (Gurtman, 2009; Horowitz, 2004). The second quadrant, which houses the Dark Triad traits, is characterised by high-agency and low-communion criteria. This space is typically inhabited by individuals who can be variously characterized as arrogant, calculating, callous, manipulative, as well as possessing unmitigated agency: a concept which places emphasis upon personal achievement to the detriment of interpersonal connectedness (Jones & Paulhus, 2011). These qualities are, of course, significantly correlated with the more salient features of the Dark Triad traits.

The unification perspective, therefore, suggests that the separate traits serve as predictor variables which reflect a larger, superordinate Dark Triad trait (Jonason et al., 2009; Jonason & Webster, 2010; Jones & Paulhus, 2011; McHoskey, 1995; McHoskey et al., 1998), or even that narcissism and Machiavellianism are mere facets or features of psychopathy (Glenn & Sellbom, 2015). A recent study extrapolated upon this perspective, suggesting that there exists a core personality construct which pertains to all malevolent, socially questionable behaviour, referred to as the “Dark Factor of Personality” (Moshagen et al., 2018). This progression of the unification perspective posits that socially malevolent personality characteristics, the Dark Triad included, are specific manifestations of behaviour derived from a general dispositional tendency for amoral and unethical practises. The specific characteristics represent the individual differences of the Dark Factor, where traits such as Machiavellianism and narcissism serve as the materialisation of an individual’s intricate, unique expression of their dark personality, instead being distinct personality traits.

Empirically, the unification perspective receives support from evolutionary arguments, according to which the Dark Triad traits are associated with adaptive mating strategies (Jonason & Buss, 2012; Jonason et al., 2009; Jonason et al., 2012), as well as exploitative short-term mating (Jonason & Webster, 2010). However, this argument can be considered reductionist, and whilst Paulhus and Williams (2002) found that the traits certainly appear to be inter-correlated, with correlation coefficients ranging from .25 to .50, this association was not powerful enough to support the notion that the three traits were mere expressions of one superordinate trait. As such, they exhibit uniqueness when compared to other measurable elements of personality. For example, in the tests they conducted within Paulhus and Williams (2002) study, the only commonality between all three traits was a low result on the Big 5 characteristic of agreeableness (Jakobwitz & Egan, 2006). Though this is evident in their observable self-centredness, and may be a catalyst for interpersonal conflict, the fact that they do not unify in a similar pattern of association to the other characteristics gives more precedent to the contrary perspective of uniqueness.

One important point to consider when utilising the Big Five model in Dark Triad research is the issue of its struggles to comprehensively account for socially malevolent personality traits (Book et al., 2015; Lee & Ashton, 2005; Paunonen & Jackson, 2000). Fortunately, a similar pattern has been observed with another prominent model of personality, the six-dimensional HEXACO model¹ (Lee and Ashton, 2004). In a comparable fashion to the Big 5, Dark Triad associations to this model supports the conceptual affiliations whilst simultaneously highlighting areas in which the traits do not overlap. The three traits converge upon the Honesty-Humility element, defined by a spectrum of traits such as sincerity and modesty versus greed, deceit, and conceit. Low scores upon this factor appear to form the core

¹ The HEXACO model is a six-factor model of personality, wherein the name is an acronym derived from the names of contributing factors. These are (H)onest-Humility, (E)motionality, E(X)traversion, (A)greeableness, (C)onscientiousness, and (O)penness to experience.

of dark personality traits (Lee et al., 2013), as low Honesty–Humility represents the willingness to pursue personal gains at the expense of others, particularly involving resources such as money, sex, and power. It is in the examination of the relationships between the Dark Triad and the other HEXACO factors that the uniqueness of each trait becomes more apparent. Whilst all three traits are associated with low Honesty-Humility, only Machiavellianism is associated with low extraversion, though it shares a low score on agreeableness with psychopathy. Psychopathy itself also exhibits low levels of emotionality and conscientiousness, making it the trait with the highest number of negative personality associations. Narcissism was distinct in showing the only positive association out of the model, that being, unsurprisingly, with extraversion (Lee & Ashton, 2014). Comparable examples occur frequently within Dark Triad literature. Life history strategy, for example, is a mid-level evolutionary theory i.e., theories which are consistent with general evolutionary theory, but focus upon specific functional domains (Buss, 2011) - based upon how an organism harvests energy from the environment and allocates it towards the maintenance of survival and reproduction strategies. Because the collected energy is finite, to sustain a successful strategy individuals must budget what energy they have available, never spending more than they have. Allocation of such a budget will inevitably require trade-offs, forcing the individual to decide upon the relative value of the various avenues to spend their allocated energy. Acquiring an “expensive” item would mean giving up on others, so that consumption today may entail less tomorrow. The fundamental aspect of life history theory is how an organism strategizes its energy consumption to maximise their fitness (Del Giudice et al., 2016; Wilson, 2000). Within psychology, life history theory observes how personality traits should cluster strategically to solve adaptive tasks in response to the stability or harshness of socioecological and environmental conditions (Rushton, 1996). The individual differences in these clusters dictate behaviours which support either a slow or a fast life strategy, with a slow strategy endorsing a secure attachment pattern, supportive

communication patterns (Olderbak & Figueredo, 2009) a general psychological disposition for long-term strategizing (Gladden et al., 2009), and more effort towards long-term mating (Figueredo et al., 2005).

Research suggests that the Dark Triad endorses a more selfish fast life strategy, wherein individuals engage their energy into attaining their desires quickly, such as mating effort and reproduction, with the subsequent trade-offs being less investment with the results and consequences of their behaviour (Del Giudice & Ellis., 2016). The fast life strategy, therefore, is more often associated with antisocial means and methods, hence the strong correlation with the Dark Triad (McDonald et al., 2012). The Dark Triad, through an egocentric prerogative, certainly encompasses personality indicators of a faster life strategy, as evidenced through diminished self-control (Jonason and Tost, 2010), a short-term mating disposition (Jonason et al., 2009; Jonason and Kavanagh, 2010), impulsivity (Jones and Paulhus, 2011) and other manifestations of selfish, antisocial behaviour. The key assumption is that being less constrained by the typical social conditioning and prosocial norms that are necessary for a functional involvement within a society results in an attitudinal inclination to simply pursue goals and desires without considering the impact, submitting to instant gratification whilst disregarding future planning. However, following a collection of studies which focused upon several psychosocial outcomes, it appears that the Dark Triad model does not fully converge upon a fast life history strategy. Whilst psychopathy certainly seems to be suited to the short-term exploitation (Lee & Ashton, 2013) and other malevolent actions suggestive of egocentric gratification (Kiire, 2017), the other two traits often report mixed results. Machiavellian tendencies for exploitation, as an example, would assumedly match the category of fast-life strategy. In some cases, Machiavellianism does indeed meet this assumption, such as correlations with elements of impulsive anti-sociality, entitlement, unrestricted socio-sexuality, and aggression (McDonald et al., 2012) alongside attributes such as a lack of self-control

(Jonason & Tost, 2010) and a willingness to use others for personal gain. However, there are other sources suggesting that Machiavellianism, in fact, endorses a slower, more methodical approach (Jonason et al., 2010) demonstrating lower levels of impulsivity (Jones & Paulhus, 2011) and a degree of constraint in using aggression when provoked. An inconsistent link between low conscientiousness and the Dark Triad (Book et al., 2015) suggests that malevolent practises are equally as likely to be motivated by long-term, careful, strategic preferences, maintained by individuals who are willing to pass up short-term exploitative opportunities as a method to build enough trust to make a larger, more lucrative long-term exploitation. Potential for this process is reinforced by Machiavellian's characteristic long-term planning (Jones & Paulhus, 2010). As such, it may be the case that only the more self-detrimental aspects of Machiavellianism may point towards a fast life strategy.

Narcissistic life strategy appears to follow a similar trend to Machiavellianism, in that it meets certain criteria for fast-life strategy but appears to generally follow a slow-life strategy (Book et al., 2015; Jonason et al., 2010; McDonald et al., 2012). However, a distinction occurs when observing at a facet level, as grandiose narcissism appears to remain in the slow-life category whilst vulnerable narcissism is associated with fast-life strategies (McDonald et al., 2012). This may be because vulnerable narcissism shows greater affiliation with the lifestyle facets i.e., emotional and behavioural dysregulation, of secondary psychopathy (Schoenleber et al., 2011), which may amount for the short-term gratification with substance abuse and aggression. Whilst grandiose narcissism may indulge in fast-life behaviours like short-term mating and reactionary aggression, the absence of specific indicators, such as poor self-control (Jonason & Tost, 2010), may indicate the influence of low anxiety and emotional stability upon the contemplation of future consequences, a factor not endorsed by a fast-life strategy. The association with grandiose narcissism and fast-life behaviours, such as a disposition for short-term mating, may be a result of how the behaviours are perceived. Whilst not being examples

of what might be considered “good” behaviour, neither are they particularly “dark” manifestations of life history strategies. Although repeatedly seeking consensual sex may come with its own set of dramas, it has less potentially severe consequences compared to enacting overt, the use of deliberate aggression within romantic relationships (Kiire, 2017) being a prime example. If investigations into the Dark Triad regarding life history strategy are approached from the original remit of resource budgeting, narcissism, particularly the grandiose sub-facet, appears to have the strongest disposition catering towards a slow-life strategy.

Naturally, the Dark Triad shows elemental distinctions in more specific areas. Childhood and adolescent delinquency are prominent predictors for further dysfunction in adulthood (Kazdin, 1992; Loeber et al., 2000), the study of which is often associated with facets of personality. Chabrol et al. (2009) found that after partialling out the influence of the control variables, psychopathy and sadistic traits remained significantly related to delinquency, but only in boys. For girls, Machiavellian traits appeared to be a protective factor from delinquency. Subsequent studies have resulted differently, establishing a more prominent relationship between delinquency and Machiavellianism (Muris et al., 2013; Pechorro et al., 2019), equal to that of psychopathy. Narcissism, however, remained the weakest association. This pattern continues when progressing forward from juvenile delinquency to criminality in adulthood (Azizli et al., 2016). This scenario repeats itself when considering aggression levels, which have been seen known to progress into future manifestations of antisocial and criminal behaviour when expressed during youth (Derzon, 2010; Schaeffer et al., 2003; Viemerö, 1996). Aggression is another area which highlights separation in the Dark Triad traits. Since the Dark Triad intercorrelates with a variety of other anti-social tendencies, it stands to reason that the use of aggression would be a particularly important tactic for achieving goals. There are two main types of aggression - the hot-headed, affective, and impulsive reactionary aggression, which occurs as a response to provocation; and the cold-blooded, instrumental, and

premeditated proactive aggression, which occurs to satisfy and objective (Poulin & Boivin, 2000). As is to be expected, psychopathy has the strongest affiliation to both proactive and reactive aggression (Barlett, 2016; Jonason et al., 2015) as well as behavioural dysregulation, which permits psychopaths to impulsively engage in antisocial and potentially violent behaviour (Lau & Marsee, 2013). Machiavellianism also predicts both proactive and reactive aggression (Barlett, 2016), though to a lesser degree to psychopathy, and is prone to emotional instead of behavioural dysregulation (Lau & Marsee, 2013). So, whilst it may not be as impulsive in aggressive behaviour, a propensity for anger, worry and hostility may inspire aggressive reactions to provocation, as a tangent to typically strategic uses (Jones & Neria, 2015).

Narcissistic aggression occurs primarily in a reactionary form due to the susceptibility to ego-threat following the perception of insults (Atlas & Them, 2008; Baumeister et al., 2000; Thomaes et al., 2009). The use of aggression is employed as a face-saving tactic, directed towards the target who initiated the ego-threat, with the intent to bolster their image to any potential witnesses, or to deter others from replicating the actions which lead to ego-threat. Furthermore, it has the intrapersonal quality of reinforcing the narcissistic individual's positive self-concept (Morf & Rhodewalt, 2001; Vazire & Funder, 2006). Though this is clearly a maladaptive method, it plays into narcissism's issues with emotional dysregulation (Lau & Marsee, 2013). It is worth noting that, despite the response to ego-threat, narcissism shows the least dispositional aggression out of the model and is negatively associated with hostility (Jones & Neria, 2015). Furthermore, when analysis converges upon a facet level, it seems that vulnerable narcissism serves as a positive predictor for both aggression types, whilst grandiose narcissism negatively predicts aggression (Knight et al., 2018). *Narcissism – The brightest “dark” trait?*

When reviewing the literature on the distinctions that occur between the Dark Triad and a collection of typical behavioural features, one discrepancy within the model comes to light. A pattern emerges which places narcissism as the lowest in the hierarchy regarding objective “darkness,” which at face value appears to encourage the idea that this is the least malevolent of the three traits.

Of course, at facet level, this becomes more nuanced due to the association between vulnerable narcissism and psychopathy (Schoenleber et al., 2011), so it may be that the grandiose facet of narcissism holds this position. Regardless, this pattern occurs frequently enough within Dark Triad literature firstly to become noticeable, then to a point where it became predictable. However, this distinction may occur in different valences, materialising in some areas through either a lack or lower association with a malevolent practise, or with an observable association to more positive features. For example, narcissism, when comparing scores with psychopathy and Machiavellianism, shows weaker associations to social dominance (Hodson et al., 2009); less severe deficits in both cognitive and affective empathy (Ali et al., 2009); and comparatively weak links to four different bullying types (Baughman et al., 2012). Furthermore, narcissism is largely unrelated to moral disengagement (Egan et al., 2015), especially when associated to antisocial behaviour over time in developmental stages (Sijtsema et al., 2019), meaning that as the narcissistic child grows older, changes in antisocial behaviour does not cause an increase of moral disengagement. This is not to say that narcissism is not abstaining from malevolent practise, as they would exonerate their antisocial conduct just as fervently as Machiavellianism and psychopathy, but they do not disregard their morality in the same fashion. A division with moral perspective is also quite consistent within the literature. The Dark Triad traits appear to harbour more utilitarian moral views (Djeriouat & Trémolière, 2014; Karandikar et al., 2019) as well as conservative beliefs on social issues (Arvan, 2013) which is reflective of their generally greater emotional callousness (Bartels &

Pizarro, 2011). Whilst narcissism is certainly present in this pattern, its approach to moral dilemmas appears, in practise, to be comparatively less cruel or indifferent. This suggests that, in terms of behaving in a morally positive fashion, a narcissist is more likely to make a socially desirable choice (Bartels & Pizarro, 2011; Jonason et al., 2015), despite being somewhat ambivalent towards the potential harm sustained by others (Djeriouat & Trémolière, 2014). The adoption of this pattern of moral choices is inspired by the concerns for self-enhancement (Jonason et al., 2015), an individualistic approach to gain social approval by acting “correctly” when presented with a morally troubling situation rather than a value system governed by genuine morals.

Though it may be self-serving, the inclination towards moral behaviour appears in contexts other than hypothetical moral dilemmas. For example, overall, narcissism does not seem to lie as much as Machiavellianism and psychopathy (Azizli et al., 2016), and lies that are told were intended for self-promotional purposes rather than spite (Jonason et al., 2014). Furthermore, narcissism does not draw any of the sort of satisfaction or pleasure from telling lies that psychopathy experiences (Baughman et al., 2014), which implies that the act of lying is not for the thrill of being purposefully deceitful. Other studies have suggested that narcissistic deception is directed more towards the self than others. Indeed, narcissism appears to exhibit more self-deception than intentional dishonesty (Jones & Paulhus, 2017; Wright et al., 2015), often finding lying to be unacceptable unless it were for self-promotion of self-objectification purposes (Fox & Rooney, 2015). This is in stark contrast to psychopathy and Machiavellianism, the former of which will use deceitful tactics in most situations (Azizli et al., 2016; Jones & Paulhus, 2017) and often for no reason (Jonason et al., 2014). Though the latter will lie frequently, it would typically occur only when the context suited them, such as opting for high-stakes risks when they stood a chance to achieve something of significant magnitude, or if they were ego-depleted i.e., when engaged in a demanding task which utilises

more executive resources (Schmeichel, Vohs, & Baumeister, 2003). This results in their lies becoming more reckless, as they become incapable of resisting the urge to lie or cheat (Azizli et al., 2016; Jones & Paulhus, 2017). *Benefits of narcissism?*

Aside from merely displaying a lower association to a socially disruptive tendency, narcissism has also been related to a number of positive elements. For one, grandiose narcissism was associated with greater satisfaction with life, general happiness (Egan et al., 2014), a more positive view of the past (Birkás & Csathó, 2015) and an aversion to self-hate guilt (Giammarco & Vernon, 2015), all of which are expressed to some degree by Machiavellianism and psychopathy. As such, they purport more positive, affiliative humour styles, as opposed to the aggressive and self-defeating humour of psychopathy and Machiavellianism (Martin et al., 2012; Veselka et al., 2010); an association with functional impulsivity, which accounts for more venturesome social engagement over poor behavioural self-regulation (Jones & Paulhus, 2011); and a generally positive view of oneself, if indeed coupled by a rather neutral view of others (Rauthmann, 2012). This positive view of the self can generate reflective opinions in which they categorize themselves as good leaders (Furtner et al., 2011), allowing for constructive thought patterns and visualizing successful performances. Evidence of this can be seen in their success in high-level management roles through implementing dynamic strategies and undertaking bold, attention seeking actions (Chatterjee & Hambrick, 2007). This boldness may be associated to a link that narcissism has with self-esteem. The Dark Triad appears to have an inconsistent relationship with self-esteem. In some regards, it appears to have a positive association as a unified construct. However, this positive association occurs through Machiavellianism and psychopathy's shared variance with narcissism (Jonason et al., 2010), which in other instances it appears to show a negative association between all three traits (McCain et al., 2015). This may seem surprising considering the narcissist's grandiosity and sense of self-worth, especially in this modern age of social

networking where external validation is effectively pruned through ubiquitous self-aggrandizement on social media sites (McCain et al., 2016). However, the association between narcissism and problematic social media use (Kircaburun et al., 2019) may also signify its use as a narcissistic tool for bolstering self-esteem, and the potential addictions that can develop through consistent use to satisfy or reinforce a depleted ego. This contributes towards an established relationship between narcissism and unstable self-esteem (Zeigler-Hill, 2006).

Whilst typical expression of narcissistic self-esteem may be high, it has a fragility exemplified by the aggression they display when experiencing an ego threat (Baumeister et al., 2000; Krizan & Johar, 2012; 2015). Referred to as “discrepant high self-esteem,” characterized by high explicit self-esteem but low implicit self-esteem, this type of self-esteem harbours inconsistencies between comparative levels of conscious feelings of self-liking (Kernis & Paradise, 2002) and automatic, unconscious self-evaluations (Schimmack & Diener, 2003). Whilst this means that though a narcissist may approach their daily life with purposeful positive regard for themselves, there may be a latent degree of self-doubt and insecurity hiding underneath the mask of grandiosity. Undoubtedly, this effect may mitigate when controlling for narcissism’s heterogeneity (Dickinson & Pincus, 2003), as the negative elements of self-perspective are linked with vulnerable over grandiose narcissism.

Nevertheless, because of the area where narcissism scores highly, explicit self-esteem, it is possible that the conscious reinforcement of self-worth, regardless of any unconscious insecurities, may aid in the motivation for affective, prosocial behaviour. A conceivable notion is that elements of fragile self-esteem, such as the need for validation (Deci & Ryan, 1995), may encourage a narcissist to behave in a positive manner to ingratiate themselves with others to maintain their positive self-image, at least in the short term. This is evinced in their comparatively stable capacity for moral behaviour (Azizli et al., 2016; Bartels & Pizarro, 2011; Giammarco & Vernon, 2014). Of course, moral behaviour as a method of protecting a moral

identity rather than acting as a foundational pillar of a self-concept and moral character, a dimension referred to as symbolization (Hardy & Carlo, 2011), reflects the self-serving, agentic nature of narcissism perfectly (Campbell et al., 2002; Jonason et al., 2010). Whilst this may sound insipid, as it implies that the implementation of prosocial behaviour is a tool to maintain an appearance morality rather than reflecting genuinely good intentions (Kauten & Barry, 2014), it is important to reflect that Machiavellianism and psychopathy comparatively share no such link to self-esteem or morality (McCain et al., 2015; Zuo et al., 2016), meaning that this behaviour, as motivationally twisted as it is, resolves with a somewhat adaptive outcome. The result of these distinctions is that narcissism appears to be the “brightest” of the Dark Triad traits, both from a review of multiple characteristics as well as from layperson perspectives (Rauthmann & Kolar, 2012; 2013). This is an opinion which has been conveyed markedly within Dark Triad literature, even to the point where some have suggested that narcissism should be removed from the model, to be replaced by a dual trait “Dark Dyad” structure (Egan et al., 2014; Kowalski et al., 2016; Pailing et al., 2014; Rogoza & Ciecuch, 2018).

This separation appears to occur when analysis include an option for a measure of prosociality, which allow the more salient aspects of narcissism take precedent in a manner less conventional to common perception. For example, elements such as grandiosity and narcissistic admiration, the latter of which being the narcissist’s strategy to impress others through assertive self-enhancement (Back et al., 2013), come to the forefront through their stronger association to extraversion, rather than the shared low agreeableness with Machiavellianism and psychopathy (Rogoza & Ciecuch, 2018). This is also reflected through narcissism’s position within the interpersonal circumplex, where it appears to be located towards the dominant and friendly-dominant quadrants (Jones & Paulhus, 2011; Rauthmann & Kolar, 2013). Put simply, narcissists desire social approval, and as such, they care about other people’s perceptions of them. Being popular and having people gravitate towards them is a one

of the more salient methods of satisfying their ego requirements, so they shall naturally assert an aura of friendliness, extraversion, and charm (Back et al., 2010) to ingratiate themselves to other people's perceptions to appear more desirable and admirable.

Consequently, this approach can result in several adaptive outcomes. For a practical example, narcissists seem adept at securing themselves decent salaries (Spurk et al., 2016), which is probably from an ability to convincingly talk themselves up, exaggerate their abilities and having the confidence to ask for more. This is substantiated by a certain level of innovativeness in the workplace, where narcissistic individuals are able to promote new ideas, especially when their supervisors are themselves not narcissistic (Wisse et al., 2015). This distinction is important as the competition between two narcissists is unlikely to have any adaptive outcomes, as the narcissistic manager may not be fooled by such creativity, nor might they assess their employee positively if they view them as competition. Furthermore, when a narcissist takes on a leadership role, their charisma and leadership qualities can facilitate psychological empowerment in their followers and help develop their moral identities (Sosik et al., 2014).

Of course, these adaptive displays could be the protean nature of the Dark Triad (Jonason & Webster, 2012), where those high on Dark Triad traits develop a standard yet varied toolkit of strategies used to influence people without seeming predictable in their tactics. However, as true as this may be, it does not account for the positive effects and benefits which are typical accompaniments to a confident and upbeat attitude. For example, narcissism is associated with fewer negative health costs and more positive health indicators which contribute towards a longer life expectancy (Jonason et al., 2015). Specifically, narcissism appears to have positive associations to several emotional health indicators, including hope and self-esteem, alongside emotional, psychological, and social well-being. Furthermore, narcissism appears to have a healthier reaction to stress, adopting coping styles which are more

task-oriented and emotionally controlled, as opposed to reckless emotionality purported by Machiavellianism and psychopathy (Birkás et al., 2016). This capability for maintaining control whilst under stress, substantiated by positive associations with emotional health indicators, begs the question of how narcissism may respond to negative emotional conditions such as anxiety and depression.

Regarding anxiety, narcissism appears to lack the predisposition purported by the other traits (Birkás et al., 2016; Sabouri et al., 2016), resulting in less trepidation about anxiety-related social consequences and a greater intolerance to uncertainty. Whilst this gives an impression of a certain brusqueness resemblant of the core of narcissistic self-focus, it also promotes a perception of confidence which may complement narcissism's leadership quality. Such elucidations are particularly interesting when considering the suggestion that the Dark Triad model is affiliated with greater neuroticism (Veselka et al., 2012), ergo, anxiety. Therefore, more recent evidence may paint the picture that the anxiety suffered by the Dark Triad composite is resultant of the combined relationships of Machiavellianism and psychopathy, with narcissism contributing a mediating effect between the Dark Triad and anxiety.

Depression appears to follow a similar trend, as there have been examples where narcissism has emerged as the only trait which does not relate to depression and depressive symptoms (Gómez-Leal et al., 2019; Jonason et al., 2015; Shih et al., 2019). Externally, this could be caused by the positive social support that narcissists have developed in their tendency for self-enhancement and validation (Jonason & Schmitt, 2012), support which is believed to be a protective factor against mood disorders (Almagiá, 2004). However, the characteristic influence upon this result could be more to do with how narcissists orient themselves towards a problem or source of distress. Birkás et al. (2016) found that narcissists cope with distress differently from people high in Machiavellianism and psychopathy, through the adoption of a

task-oriented and emotionally controlled coping style. This is due to their continual efforts towards self-construction, in which they can utilise endlessly inventive ways of reinforcing the self (Morf & Rhodewalt, 2001) in the face of variable adversity. This then allows them to refrain from emotional distress and self-criticism. In the same scenario, Machiavellianism and psychopathy may succumb to such distress, potentially encouraging depression due to interpersonal struggles and the difficulties they experience in describing their feelings (Jonason & Krause, 2013).

Narcissism, therefore, is a relatively positive and healthy trait when compared to Machiavellianism and psychopathy, with their chronic indulgence in purporting a perfect self-image, supplemented by a dynamic self-regulatory processing mechanism, being the keystone to supporting the bridge of good physical and mental health. By comparison, Machiavellianism and psychopathy harbour much more deceitful, aggressive and reprehensible behavioural tendencies, which are performed with greater intention than the reactive nature of narcissism. What remains to be seen, however, is the mechanism which might inspire these healthy, somewhat prosocial tendencies within an otherwise maladaptive personality trait.

Expectancy biases

An expectancy bias could be described as the subconscious insight into future experiences, the positive/negative valence of which potentially impacting upon an individual's attitude, perceptions, and behaviour. This insight is developed through the attempt to meet the expectations of others and evaluating one's own potential and capabilities based upon prior experience (Trusz & Babel, 2016). Traditionally, psychology has had different conceptualisations for expectancy bias. The initial definition was the subconscious influence that a researcher may have upon their experiment participants, which can cause a researcher to interpret results in accordance with their desired end and ignoring data that does not conform

to the desired results. Regarded as a “self-fulfilling prophesy” (Rosenthal & Rubin, 1978), this phenomenon occurred in real-life scenarios, such as teachers influence (Babad, 1985; Babad et al., 1982) and the acceptance of gender-role stereotypes (Trusz, 2020). Whilst this became accepted within the literature (Babad, 1985), the research turned to how expectancy biases are assimilated within an individual. These biases establish themselves in two forms, interpersonal and intrapersonal.

Conducive to this project, intrapersonal expectancy biases concern expectancies regarding the self and what an individual might experience. Based upon behaviourist learning theory, early research was steeped within theory and treatment of fear, phobia, and anxiety. The argument was made to reorient Pavlovian stimulus response as the method of human fear acquisition, doing away with the conditioned/unconditioned stimulus contiguity models in favour of expectancy and information-processing models. This cognitive approach saw fear acquisition as the development of an awareness of fearful stimuli, causing an expectancy of fear which can be categorised into three different sensitivities, danger sensitivity, anxiety sensitivity, and social evaluation (Reiss, 1980; 1991). A negative expectation bias ultimately means that an individual will assume adverse outcomes to certain situations, meaning that their response bias, the expectations regarding automatic reactions to events (Kirsch, 1985; 1997), become oriented to mitigate the negative consequences. However, the importance that individuals apply to sensitivity to danger, anxiety and social evaluation can move beyond expectancy towards emotional reactions (Kirsch, 2016).

Considering this, intrapersonal expectancy biases can relate to the idea that how people perceive the world can have a direct impact upon their mental health. The concept of worldview formulates an organizing construct that impacts every individual's framing processes (Bagwell-Reese & Brack, 1997), which develop into global belief systems. Though external sources can have a direct impact upon an individual's worldview, where specific events can activate

reactionary behaviours, often based upon that same worldview. For example, a reminder of one's mortality can trigger a number of defensive strategies to suppress existential concerns (Arndt et al., 2002). Analysis of worldview becomes more useful in psychology, where it becomes more intertwined with aspects of an individual's personality. Specifically, how worldview can influence the manner in which individuals interact with the environment and social exchanges. For example, people low on the Big Five factor of agreeableness may tend to view the social world as competitive, so as such become motivated by a social dominance orientation and behave accordingly (Sibley & Duckitt, 2009). In another example, victims of PTSD maintain their symptomology as their traumatic experience has damaged their global belief systems. This damage causes negative views towards both the individual's perception of self and the outer world, effectively bolstering their PTSD symptomology over time (Park et al., 2012).

This sort of disrupted worldview can have a variety of negative personality effects, such as persistent reckless behaviour (Blevins et al., 2016), low confidence in society (Major et al., 2007), negative affectivity (Elliott et al., 1994), and depression (Goodwin, 2006; Neblett et al., 2010). From this evidence an extrapolation could be made that the specific valence applied to future expectations can have a direct effect upon personal outlook, which may then interact with personality. For example, anxious people typically display a less positive expectancy bias, purporting more negative expectations of the future. This can prime their perceptions of events, skewing them so that the reality may match their perceptions (Cabeleira et al., 2014). The result of which being that the valence of the expectation becomes assimilated into an overall worldview.

An expectancy bias could therefore be described as an information processing strategy which can influence presumably objective processes of evaluation and social judgment to conform to pre-conceived notions, a process which can subsequently influence interpersonal

behaviour through attitudes and moods. These biases are dispositional patterns on how people approach the world, which, based upon their prior experiences, can allow evaluations predicting the probability of future events being good or bad. These biases can occur in many different forms of approach, such as fear and phobia (Olatunji et al., 2008; Wiedemann et al., 2001), anxiety (Boddez et al., 2012; Chan & Lovibond, 1996), and stereotypes (Hamilton et al., 1990). However, the three expectancy biases which will be investigated in this study are optimism, pessimism, and hopelessness.

Optimism

Optimism is a personality trait where individual differences reflect the extent to which people hold generally positive expectations for themselves and their future (Carver et al., 2010; Peterson, 2000). Optimism bias, therefore, is a concept related to how people overestimate the likelihood of positive events occurring and underplaying the possibility of negative events (Sharot, 2011). However, whilst this mechanism has experienced questionable reliability, due to its potential to mis-predict future events and encourage risks to health and safety (Hoorens, 1994), a healthy use of optimism can potentially lead to better outcomes than neutral beliefs. Furthermore, optimism is linked to several other positive elements. An optimistic attitude is associated with preventative health practices and behaviours whilst avoiding potentially harmful habits. For example, not smoking, moderating alcohol consumption, and frequently allowing things to impact negatively upon mood (Ingledeew & Brunning, 1999). This runs parallel with the endorsement of more positive health behaviours, such as regular brisk walks, eating well, and vigorous physical activities (Steptoe et al., 2006), all of which are beneficial towards healthy ageing.

Optimism also appears to have beneficial effects for people undergoing serious illness, as it has been seen to positively encourage higher quality of life on breast cancer patients (Colby & Shifren, 2013), alongside fewer anxious and depressive symptoms and less hopelessness for

patients with advanced cancer (Applebaum et al., 2014). There has also been evidence of optimism increasing self-reported adherence to medications, and decreased distress from medication side effects in HIV patients (Mann, 2001), and maintain the efficacy of health workers in times of crisis (Boldor et al., 2012). Regarding psychological health, optimism is positively associated to self-esteem (Mäkikangas et al., 2004), fewer daily hassles and low negative moods (Baker, 2007), superior mechanisms for coping (Scheier & Carver, 1985) which aim to eliminate, reduce, or manage stressors or emotions (Nes & Segerstrom, 2006). Evidence also accounts for the effect that positive thinking can have upon generating and maintaining optimism in sufferers of depression, (Ji et al., 2017), where the vividness of positive imagery was directly correlated with sustained optimism over time. Optimism itself is also useful as a protective factor against depression (Giltay et al., 2006) and a tool for recovery (Kronström et al., 2011).

One of optimism's more salient relationships is the effect it has upon well-being. Because an optimistic tendency is a predictor of lowered rates of depression (Carver & Scheier, 2014) alongside a plethora of other health benefits (Wrosch & Scheier, 2003), its positive impact upon well-being would be both significant and frequently observable.

Of course, optimism itself is a product of experience and perception, as one may struggle to experience optimism merely for the benefits that it can provide. Therefore, optimism may be a mediating factor towards positive well-being. For example, social support and a perception of control can allow people who may be more vulnerable to negative affect to experience greater optimism, a development which will then have a positive impact upon their well-being (Ferguson & Goodwin, 2010). A similar pattern occurs with mothers of autistic children (Ekas et al., 2010), parental stress and problematic child behaviour (Baker et al., 2005), and resilience for work and education stress (Desrumaux et al., 2015; Sourì &

Hasanirad, 2011). Having a meaning in life is also an area which moderates optimism, further promoting well-being (Ho et al., 2010; Ju et al., 2013).

Because optimism reflects a pattern on how people see the world, how they may anticipate good or bad events, and how it operates as a reward-related attention bias, it is fair to say that it functions as an expectancy bias (Kress & Aue, 2017; Sharot, 2011). The same can apply for pessimism, the anti-trait to optimism.

Pessimism

Whilst pessimism is often considered to represent the opposing pole to optimism, evidence suggests that it may be prudent to consider the two traits as distinct constructs (Kubzansky et al., 2004). This trait is characterised by a general expectation of negative events based upon their prior experience, and as such is frequently associated with a more harmful impact upon both psychology and physiology. Pessimism may be utilised as a defensive strategy where individuals set themselves low expectations in the lead up to important events, for the purpose of cushioning the potential blow of failure or poor performance. This may have an unexpectedly adaptive function in that it motivates an individual to prepare for negative eventualities which may result in a greater feeling of satisfaction or relief in the event of satisfactory performance, despite previously dire predictions (Norem, 2001). So, whilst this defensive pessimism may have a useful function, it appears that it may be a short-term strategy in its efficacy, as a long-term reliance upon its use may see an eventual drop in well-being with an accompanying decrease in achievement performance (Cantor & Norem, 1989) alongside detriments to social interaction and mood.

When it comes to analysing pessimism as a dispositional quality, it may be expected that the beneficial features witnessed in optimism would occur in the inverse, due to the antithetical nature of the two traits. In terms of general health, pessimism has quite a predictable association to depression (Bromberger & Matthews, 1996; Cantor & Norem, 1989; Chang &

Farrehi, 2001), a factor which by itself is a negative influence. However, it appears that the correlation between a pessimistic explanatory style and depressive symptoms has an additional effect of compounding experience of illness (Bennett & Elliott, 2002). This is due to impairments in the immune system by persistent activation of the hypothalamic-pituitary-adrenal axis (Tsigos & Chrousos, 2002) in the chronic stress response and in depression (Reiche et al., 2004). Therefore, due to pessimisms association with elements like higher anxiety and blood pressure (Räikkönen et al., 1999), and stress (Martínez-Correa et al., 2006) alongside depression, there is a significant potential impact upon health, as well as reducing quality of life of those already experiencing disease (Zenger et al., 2011). This may be because pessimists are often unrealistic in their negativity (Van der Velde et al., 1992), potentially over-catastrophising and ruminating, which only serves to exacerbate their worries and stress (Chang, 2002). This sort of stress can have further detrimental qualities. When considering one's own health, life stress is associated with greater pessimism among those who are in good objective health, yet despite this they can maintain a false belief in the quality of their health, leading to a poorer perception of their own health care management (Ruthig et al., 2011).

Interpersonally, pessimism can lead to several other deficits. For example, pessimism is associated with a hostile-submissive interpersonal style (Smith et al., 2013), which manifests itself with a cold and aloof manner with bouts of paranoid hostility and cynicism (Plomin et al., 1992). This may be due to an association with insecure attachment dimensions (Heinonen et al., 2004) which both invite social distance and a propensity for criticism and argumentativeness. Social disruption is aggravated further when the pessimist is facing a measure of emotional distress (Carver et al., 2003), such as a personal illness or that of a relative or loved one. One study (O'Connor & Cassidy, 2007) indicates that pessimists experiencing high stress, yet who are attempting to think positively, encounter greater levels of another emotion, hopelessness. Speculation as to why this occurs centres around the notion that

although the pessimist is attempting to envision optimistic prospects, their thought processes actually illuminate more opportunities for failure, despite their best efforts. The result of this unintentional rumination has a pernicious effect on their well-being, as it becomes apparent to them that their efforts are doomed to fail.

Hopelessness

The trait of hopelessness was first conceptualised when a pattern emerged in which individuals afflicted by depression shared a similar set of cognitive schemes (Beck, 1963). In general, these schemes consisted of negative perceptions and beliefs regarding oneself, and generally adverse expectations regarding the future. A hopeless individual is typically characterised with a proclivity to overestimate the likelihood of the occurrence of negative events, whilst simultaneously underestimating the occurrence of positive events (Beck & Alford, 2009). As a core characteristic of depression, hopelessness has an exceptional quality of being a major predictor variable in identifying individuals who may be at high-risk of suicidal behaviours (Beck et al., 2006; Ivanoff & Jang, 1991; Kovacs & Garrison, 1985). The theory of hopelessness depression (Abramson et al., 1989), is a theory which posits that hopelessness, being a quality distinct from depression (Dunn et al., 2014), develops through a string of causal events, the premier of these being a negatively perceived life event. These negative expectations of the future, in which aversive outcomes will prevail over the positive, can lead to hopelessness when a person with a negative cognitive style makes causal inferences about the events and their ability to change them, much in a similar vein to Beck (1974). There are three types of inference which may induce hopelessness and hopelessness depression in the wake of negative events, inferences of why the event occurred, the consequences of said event, and inferences about the self, given that the event occurred in the first place.

Hopelessness itself is associated with low self-esteem (Dori & Overholser, 1999; Abela, 2002), with elevated levels of both contributing towards internalised stigma, affecting

subjective recovery judgments and symptoms for those who have experienced psychotic episodes (Vass et al., 2015). Furthermore, hopelessness appears to mediate the relationships among self-esteem, life stress (Dixon et al. 1993), and residual change in dysphoria (Whisman & Kwon, 1993), meaning that the presence of hopelessness exacerbates general life dissatisfaction, which impacts upon other areas. This way, hopelessness manages to disrupt everyday life, as rumination upon perceived failures and character flaws becomes a consistent factor, which becomes a significant predictor of suicide ideation and behaviour (Smith et al., 2006).

These three traits, though distinct in their valence, each operate in roughly the same manner. Their role as an expectancy bias manifests in the approach that each takes towards life, where a filter of perception, tainted by positive or negative inclinations, considers potential future events and evaluates how they may be impact upon the individual. Most importantly, these three expectations each patently affect the behaviour that follows them, which consequently have a cumulative impact upon the individual's mental and physical health.

Expectancy biases and the Dark Triad

Jonason et al. (2018) examined the extent to which the Dark Triad traits are associated with individual differences in optimism over three convenience samples from America, Brazil, and Hungary. The rationale for this study was that research on the Dark Triad traits had limited knowledge about which potential biases were underlying the motivations and strategies that each trait purports. Whilst there had been research investigating conventional attitudes, such as the Dark Triad's general advocacy of self-interested, agentic behavioural biases (Jonason et al., 2010; 2018), there was a gap in the knowledge of how the Dark Triad predicted future events and the potential impact that these expectancies may have upon behavioural decisions.

This outlook upon expectancy biases, such as optimism and pessimism, is sensible when considering the comparative nature to how the Dark Triad traits develop. Optimism and pessimism development are associated with opposing experiences. For example, aspects incorporating negative events such as emotional maltreatment (Gibb et al., 2001), exposure to parental conflict (Kaufman, 1991; Meyer & Carver, 2000) and experience of traumatic incidents (Gray et al., 2003) tend to contribute towards pessimism. Conversely, more stable, authoritative parental styles, which include high standards, emotional support, encouragement of bi-directional communication, and consistent enforcement of rules (Baumrind, 1967; 1991) lend themselves towards the development of optimism (Baldwin et al., 2007; Kumar et al., 2012). This occurs because parents who provide a solid foundation of love and trust, who ensure a child that and the world is a good place, can allow young children to explore, to take risks, and to develop competence and confidence in themselves, thus developing an optimistic outlook (Gillham & Reivich, 2004). In a similar fashion, parental style has a large effect upon the Dark Triad traits, where irregular or low-quality parental care can lead to attachment patterns allowing the formation of different maladaptive personality characteristics (Abell et al., 2014; Jonason et al., 2014; Twenge, 2006). Another example is socioeconomic status, where evidence suggests that the Dark Triad traits may, in some part, be a condition-dependant adaptation to an unpredictable and harsh world, where a limited access to resources may open the potential for people to develop more aggressive tendencies, especially if such hardships occur during childhood (Jonason et al., 2016). Similarly, the development of pessimistic tendencies is often associated with lower socioeconomic status in childhood, as those who were poorer often viewed the future as containing more negative events (Heinonen et al., 2006; Robb et al., 2009). Taking these examples into account, an easy assumption to make would be that Dark Triad individuals would demonstrate a certain level of pessimism.

Taking this argument at its face value, it would be easy to assume that the Dark Triad in its entirety would take a pessimistic worldview, particularly due to an association with cynicism (Furnham et al., 2013; Međedović & Bulut, 2017). However, because of the documented within-model distinctions that allow narcissism to stand out as the most adaptive of the three traits (Aghababaei & Błachnio, 2015; Egan et al., 2014; Rauthmann & Kolar, 2012), it stands to reason that the “happiest” member of the Dark Triad would also endorse a reasonable measure of optimism. This was the prediction made by Jonason et al. (2018) who considered that narcissism would predispose individuals to a more positive outlook on life through their approach orientation to the world (Foster & Trimm, 2008). This disposition for optimism, when combined with narcissism’s purposeful reinforcement of self-esteem (Zeigler-Hill, 2006), is supplemented by a lack of hopelessness, as agency and motivation in this pattern are a more prominent predictor of self-esteem (Lyubomirsky et al., 2006).

Following a structural equation model, which utilised three putative measures of optimism as the measurement model, the Dark Triad traits as the structural model and a latent variable of optimism, narcissism was consistently associated with a higher degree of optimism. Contrastingly, psychopathy and Machiavellianism were associated with considerably less optimism, with invariance testing of three samples of different nationalities forming the same pattern. This gave precedent to the argument that optimism was a trait endorsed solely by narcissism, whereas psychopathy and Machiavellianism appear to opt for a more pessimistic perspective.

The outcomes of this study add to the trend in the Dark Triad literature highlighting narcissism as the most adaptive of the traits, with the authors speculating upon possible causes for the difference, such as unpredictable childhoods through varying socioeconomic disparity (Greitemeyer & Sagioglou, 2016; Jonason et al., 2016) and favourable attachment styles (Jonason et al., 2014). Potential causal effects for this distinction would be an interesting

avenue for research, as understanding in these areas could provide an opportunity for further comprehension upon the divisive subject of Dark Triad etiology (Furnham et al., 2013). However, an equally valuable development to this study would be how varying levels of optimism, worldview or contextual outlook may impact upon certain behavioural outcome criteria.

Indeed, the effects that certain outlooks can impact upon behaviour make considerable sense when applying them to certain contexts. Taking Machiavellianism as an example, a trait typified by its cynicism as well as the pessimism exemplified in this study (Jones & Paulhus, 2009), the central tenant of which is a disposition for the manipulation and exploitation of others. The pessimism they exhibit may take on a motivational quality, effectively generating self-encouragement for deceitful tactics due to a pessimistic perception of other people's intentions, essentially rationalising the mantra that "the end justifies the means" as they set out to achieve their goals. The behavioural tendencies of psychopathy can also be held to this scrutiny. The almost whimsical nature of psychopathy's abhorrent conduct, which may be fuelled by their impulsive tendencies and deficiencies in empathy (Ali et al., 2009; Jones & Paulhus, 2011), can occur through developing an attitude of ambivalence via their pessimistic disposition. In both examples, their negative attitude may enable a "why not?" attitude, which allows them to pursue their malevolent intentions with impunity.

An endorsement of optimism, as previously discussed, has numerous physio- and psychological benefits upon an individual (Baker, 2007; Ingledeu & Brunning, 1999; Mäkikangas et al., 2004; Scheier & Carver, 1985; Wrosch & Scheier, 2003). However, dispositional optimism is also associated with both positive and negative outcomes. For example, whilst individuals with a high-power mindset are typically more optimistic in their perceptions of risk (Anderson & Galinsky, 2006) optimism's link to anger can colour judgements when certain appraisals, such as certainty and control, are ambiguous (Lerner &

Keltner, 2001). However, this link to outcomes both positive and negative may well account for how narcissism, despite being the more adaptive trait, manages to maintain the antisocial qualities that warranted its initial inclusion in the Dark Triad model alongside the beneficial effects of optimism.

The overall associative pattern between the Dark Triad and optimism could therefore warrant further exploration, focussing upon specific outcome criteria. Since worldview and personal outlook appear to have a considerable impact upon individual differences in mood and temperament, the next stage to this observation may explore the degree to which optimism interacts with the Dark Triad's differing relationship with subjective well-being. This step is taking into consideration that subjective well-being is another area in which narcissism displays an adaptive deviation from the Dark Triad model (Aghababaei & Błachnio, 2015; Egan et al., 2014; McHoskey et al., 1999), and could be accountable for some of the more positive health outcomes narcissism purports (Diener et al., 2017).

Another salient area in which optimism may elucidate a difference in outcome criteria is social and moral value systems. Whilst it is true that the Dark Triad is typified by agentic behaviour (Jonason et al., 2010), narcissism also expresses communal behavioural intentions (Jonason et al., 2018). Therefore, narcissism may place more significance upon collective interaction, resulting in more favourable affiliations with morality despite their self-interested values (Jonason et al., 2015). It is possible that these features which set narcissism apart may well be a function of elevated optimism.

The next few stages of this literature review will explore the empirical evidence linking the Dark Triad with subjective well-being and individual moral and social value systems. This will then compare the evidence for how these characteristics respond to varying levels of optimism.

Subjective Well-being and The Dark Triad

The original focus of research into subjective well-being was far more concerned with the demographic characteristics of those perceived to be happy, such as being healthy, well-paid, well-educated, extroverted, and worry free (Wilson, 1967). Naturally, the evolution of this field accounted for broader concepts, such as momentary moods, life satisfaction, and personal meaning (Diener et al., 2009), in an attempt to identify the underlying processes behind happiness, rather than the tangible, observable outcomes (Diener, 2009). This approach places credit upon internal factors, such as personality traits, heavy influence on an individual's well-being, as the interactions between internal and external factors will have a more powerful effect than external factors alone.

Factors which influence subjective well-being include the opposing, inversely correlated dimensions of pleasant and unpleasant affect, which represent the presence of positive and negative emotions (Diener et al., 1995), alongside cognitive evaluations of life-satisfaction (Andrews & Withey, 2012). Individuals assess their levels of personal contentment depending upon the alignment between their own circumstances and whatever they perceive to be the appropriate standard (Diener et al., 1985). The important element to focus upon is that the criteria is set by the individual themselves, so the benchmark for how satisfied an individual may be with their life is not externally imposed. This is a key point as it allows for a certain quantity of subjectivity around different criteria, based upon what each individual may consider important. This means that, out of the numerous desirable qualities and outcomes that life has to offer, the things that contribute most towards a person's well-being hinge upon personal context (Diener et al., 1985).

The relationship between subjective well-being and optimism is, as previously discussed, generally positive. Dispositional optimism has been negatively correlated with various physical symptoms (Khallad, 2013; Scheier & Carver, 1985), giving the implication

that optimism can facilitate physical well-being. A comparable situation occurs regarding psychological well-being. Optimism, when accompanied by proactive coping methods, can contribute towards a mindset adept at completing challenging goals and pursuing personal growth, the results of which aid in the promotion of life satisfaction and hinder the propensity for depression (Uskul & Greenglass, 2005). This trend of optimism operating in alliance with other adaptive qualities is reflected within everyday life (Ho et al., 2010; Wrosch & Scheier, 2003) as well as within specific contexts. This includes the workplace, where optimism and self-efficacy contribute towards work engagement and organisational commitment, factors which heavily influence workplace satisfaction (Desrumaux et al., 2015; Steyn, 2011). Academic achievement also stands out, where optimism, alongside other components of subjective well-being such as self-efficacy and positive affect, positively predict good educational outcomes (Ayyash-Abdo & Sánchez-Ruiz, 2012).

Concomitant to this is the relationship between subjective well-being and the opposing traits of pessimism and hopelessness. As the antithesis of optimism, pessimism is reflected through negative associations to aspects of subjective well-being (Augusto-Landa et al., 2011; Ciarrocchi & Deneke, 2005), wherein a pessimistic attitude makes an individual less likely to engage in beneficial practises (Scheier et al., 2001). Hopelessness, unsurprisingly, displays a similar, if slightly more extreme, negative association to subjective well-being (Haatainen et al., 2004).

Utilising methods to improve dispositional optimism is a tactic often employed for treating individuals with deficient well-being. This technique is utilised to help parents of children with intellectual disabilities, where interventions are deployed to enhance both the parent's child-care skills alongside their psychological well-being focus the effort upon promoting dispositional optimism (Baker et al., 2005). Another example is a study which investigated the effect of psychological resources upon well-being with older adults, which

found that perceived social support mediated the relationship between optimism and subjective well-being, whereas perception of control was found to do the same with psychological well-being (Ferguson & Goodwin, 2010). The main implication of this finding is that improved levels of optimism, accompanied by positive social behaviour, can have beneficial effects upon an individual's health.

This last point is pertinent to how the Dark Triad, with its varying interactions with optimism, may profile with subjective well-being. Since narcissism harbours the sole association to optimism (Jonason et al., 2018), and is also a trait typified by a grandiose sense of self, superiority and entitlement, its natural tendency to draw people towards them (Borráz-León & Rantala, 2021; Jauk et al., 2016; Rauthmann & Kolar, 2012) may facilitate moderate degrees of social support. This self-generated impression of social acceptance and exaltation, accompanied by a positive connection to optimism, may be the catalyst to their superior association to well-being (Aghababaei & Błachnio, 2015; Egan et al., 2014; Volmer et al., 2016). Machiavellianism and psychopathy share a similar, yet inverted, pattern to this through their poor associations with well-being and optimism. While Machiavellianism harbours an abundance of cynicism alongside their pessimism, the relationship to well-being is either negative (McHoskey et al., 1999) or nonsignificant (Aghababaei & Błachnio, 2015). Psychopathy, however, is generally associate with negative well-being (Aghababaei & Błachnio, 2015; Egan et al., 2014; Love & Holder, 2014). Whilst this effect is mediated by certain factors, such as romantic relationships (Love & Holder, 2016), alleviations such as these may only exist in the short-term due to their poor behaviour within the relationships (Brewer et al., 2018) and frequency of which they move between partners (Jonason et al., 2009). The presence of the pessimistic outlook may imply that psychopathy shares an inverted pattern to narcissism, a notion which makes sense as these two are seen as the opposing poles of “darkness” within the Dark Triad model (Rauthmann & Kolar, 2012).

It appears the qualities of narcissism which delineate a disposition for a more positive, optimistic outlook may contribute towards improved levels of subjective well-being. For example, the archetypal characteristic of narcissism is the grandiose sense of self-worth and supplementary self-confidence in one's abilities, despite the possibility that their actual capabilities may fall short of their own expectations (Campbell et al., 2004; Wallace et al., 2009). The attitude produced by this combination of self-worth, confidence and optimism can give the narcissist an alluring exterior which people may gravitate towards, especially given narcissism's propensity for charm (Back et al., 2010). Likewise, narcissists will gravitate towards people who reinforce their self-construal (Jonason & Schmitt, 2012), or encompass qualities which the narcissist may find admirable (Sauls & Zeigler-Hill, 2020). The reliance upon reciprocal associations with people that a narcissist deems to be worthy of their attentions might function as a type of social support that, when considering the relationship between optimism and self-efficacy (Karademas, 2006), helps to promote subjective well-being. This may be where narcissism distinguishes itself within the Dark triad model. By comparison, Machiavellianism and psychopathy seek social relationships, which can fulfil their immediate desires, such as having high social status (Jonason & Schmitt, 2012) or facilitating mating strategies (Jauk et al., 2016; Jonason & Schmitt, 2012). This dearth of social support, combined with their proclivity for pessimism (Jonason et al., 2018; Jones & Paulhus, 2009) can avert them from adopting beneficial health practises, which may be a cause for poor subjective well-being.

Social & moral value systems and the Dark Triad

Morality can be defined as a particular system of ethics and principles of conduct, which allow an individual to assess the extent to which an action is right or wrong. A product of evolutionary psychology and anthropology, the concept of morality stems from study of altruism and

reciprocity amongst hunter-gatherer groups (Trivers, 1971). This was developed further by Kohlberg (1969), who argued that individual's moral psychology developed during childhood through the ability to take the perspectives of others, vicariously developing an understanding of justice. The ability to role-play in another's perspective provides a vital learning opportunity, where individuals come to appreciate when and why an action, practice, or custom is fair or unfair. This then allows them to monitor their behaviour appropriately. This initial standpoint experienced some criticism, which suggested that the sole path of justice was limited and required a second moral pathway of care (Gilligan, 1993). At this point, the moral domain was considered to be the judgments of justice, rights, and welfare pertaining to how people ought to relate to each other (Turiel, 1983). However, though this worked well regarding western philosophy, it may only be considered a sub-set of moral concerns. Further around the globe, the number of potential moral concerns may make up three larger tenants. The focus upon autonomy, including Turiel's (1983) protections of individual's justice, rights, and welfare; community ethic, which references duty, obedience, respect, and preserving tradition in a social group; and the ethic of divinity, which relayed concepts such as purity, sanctity, and sin - protecting individuals and communities against degradation and hedonism (Shweder et al., 1997).

Moral foundations theory (Graham et al., 2011; 2013) was developed as an attempt to create a systemic theory of morality, by searching for virtues and areas of moral regulation that were common cross-culturally. These virtues assembled five fundamental foundations which resembled the three global tenants, labelled as Harm/care, Fairness/reciprocity, Ingroup/loyalty, Authority/respect, and Purity/ sanctity. The first pair corresponded to the global tenant of autonomy, the second pair reflecting elements of community and the last reflecting the ethics of divinity (Graham et al., 2011; Haidt and Graham, 2007). The dichotomy that exists within these foundations represents the clash of opinions between those who are

typically liberal, where moral regulation revolves around protecting individuals from harm or unfair treatment by other individuals or a social system; and those who are typically conservative, who place greater emphasis upon ingroup loyalty, respect for authorities and traditions, and maintaining spiritual purity.

Regarding morality, all three of the Dark Triad traits appear to present more conservative social moral judgements (Arvan, 2013), indicative of more pragmatic, perhaps callous inclinations. This becomes more evident when considering moral foundations, where psychopathy is generally associated with diminished concerns for all five foundations, whilst Machiavellianism inhabits greater moral flexibility depending upon context. Narcissism, however, resonates with a socially desirable form of morality. (Jonason et al., 2015; Zuo et al., 2016). This once again supports the pattern promoting narcissism as the most adaptive trait, which is reinforced by narcissism's lack of moral disengagement (Egan et al., 2015) or relationship towards low moral development (Campbell et al., 2009). Contrastingly, high scoring Machiavellianism and psychopathy are positively correlated with low levels of moral development, with high psychopathy specifically showing a negative relationship with high levels of moral development.

Furthermore, moral disengagement is based upon Machiavellianism and psychopathic-type traits, alongside scores upon low Agreeableness. Interestingly, there is evidence to suggest that dark personality characteristics and moral disengagement development are more likely to occur as the result of changes in antisocial behaviour than vice versa (Sijtsema et al., 2019). Youths with dark personality types are more likely to exonerate their antisocial behaviour later in life, which is indicative of more agentic, non-normative moral reasoning.

Research on optimism and its effect upon morality appears to focus upon perceptions of an actor who displays certain attitudes. For example, people who hold optimistic attitudes are typically judged more positively, by which they are considered more morally and socially

just by observers (Evans & van de Calseyde, 2018). Similarly, an optimistic observer who perceives an actor as being more morally virtuous increases the likelihood for positive interaction (Ugwu, 2012). This could clarify how narcissism appears to display, if not necessarily positive morality, somewhat less negative moral judgement than Machiavellianism and psychopathy. Narcissists may want to exude an appearance of morality for the purposes of self-enhancement, where being perceived as optimistic may increase their interpersonal appeal. Likewise, they themselves may gravitate towards people who they perceive to have positive, or possibly corresponding, morality, for the sake of self-enhancement.

Though morals are a general model for behaviour which is generally prosocial and adaptive, the methods by which people govern their actions have a much broader scope. In comparison to morality, whose chief concern is living a just life, social values incorporate the particularly salient aspects of life which are more imperative to an individual (Schwartz, 2006). Values are beliefs which are tied to emotion, which can motivate individuals to strive towards attainable goals. These goals are abstract in that they are distinguishable from concepts such as social norms and attitudes, which are far more objective in their specificity. Because of this abstract nature, each individual will have their own system of values that operate on a hierarchy, depending upon what they consider to be more important (Schwartz, 1992).

The theory of basic human values identifies ten different motivationally driven values. These values are present cross-culturally, are relevant to conditional prosocial behaviour, and transcend specific actions and situations (Schwartz, 2010). The ten values represent conformity, the purposeful restraint of actions and impulses likely to cause harm whilst violating social expectations or norms; tradition, maintaining respect and commitment whilst accepting the customs and ideas provided by one's culture; benevolence, preserving and enhancing the welfare of surrounding people; universalism, the appreciation, tolerance, and protection of the welfare of all people and nature; self-direction, the capacity for independent

thought and action; stimulation, the pursuit of excitement, novelty, and challenge in life; hedonism, the experience of pleasure or sensuous gratification; achievement, accomplishing personal success through a display of competence; power, attaining social status and prestige, allowing for control or dominance over people and resources; and security, the feelings of safety, harmony, and stability of society, of relationships, and of self (Schwartz, 1992).

Whilst these values are distinct, they are not independent (Schwartz and Boehnke, 2004), and are connected through dynamic relationships. These relationships reveal themselves when the consequences of behaviours performed in the pursuit of any specific value comes into conflict or congruence with the pursuit of another. An example of this is the achievement value, which may clash with benevolence through seeking individual success over ensuring the welfare of others. Concurrently, this same value may be more congruent with the power value, as personal success may position an individual to have more authority over others (Schwartz, 2006). The nature of these relationships inspired Schwartz and Boehnke (2004) to develop a quasi-circumplex structure of the theory of values, with a circular arrangement of the ten values representing a motivational continuum. The closer any two values may be on the circumplex, in either direction, the more similar their underlying motivations. Conversely, the more distant two values might be, the more their underlying motivations differ.

People adapt their values and priorities to correspond with their life circumstances, which allows for the up- or downgrading of values, depending on whether they can be readily attained or if pursuit of which is somehow blocked (Schwartz and Bardi, 1997). This fluidity implies that a person's values are context sensitive, meaning that personal circumstance is an important factor regarding how individuals cultivate and coordinate their values (Schwartz, 2006). For example, contemporary younger generations are more inclined to value the self-enhancement and openness to change dimension more than older generations, who place more weight in self-transcendence and conservation (Lyons et al., 2007).

Because of their subjective nature, values can end up justifying malicious intent. An example of this is the association of value constructs “power/achievement” and “stimulation” and white-collar crime (Goossen et al., 2016). Since the Dark Triad is associated with a more agentic social style (Jonason et al., 2010), it would be expected that they manifest values which reflect the pursuit of their own personal motives above all else.

When focusing upon value systems typically endorsed by the Dark Triad traits, a familiar pattern re-emerges. Machiavellianism and psychopathy scores have been associated with a devaluing of collective interests, whereas narcissism is more concerned with advancing individual interests through the self-enhancement and self-transcendence values (Jonason et al., 2015; Rogoza & Fatfouta, 2019). Adjacently, Machiavellianism and narcissism were positively associated with the values Achievement and Power, whilst psychopathy was positively associated with the values Hedonism, and Power (Kajonius et al., 2015).

Studying the traits in isolation emphasises the intra-model divergence that occurs with individual values. Psychopathy, typically considered the most socially malevolent of the three traits, characteristically values pleasure-seeking, power and social standing, financial success and acquiring material possessions. Interestingly, it appears that their interests and motivations centre upon their own self-enhancement, via the pursuit of social dominance and social position, far more than their relative lack of concern for others well-being (Glenn et al., 2017). Furthermore, the desire for social standing and self-promotion is likely to be accompanied by a willingness to cheat, through enhanced levels of meanness and disinhibition, to achieve their goals with instant gratification rather than proficiency and self-efficacy (Baran & Jonason, 2020).

Whilst little research has taken place to identify Machiavellian values, typically speaking, Machiavellianism operates through extrinsic motivation, placing more value upon financial success and personal progression over social interest (McHoskey, 1999). This

becomes more apparent with more success. When a Machiavellian individual attains a position of leadership, there is a division between the publicly expressed identity of ethical leadership and their privately held unethical Machiavellian views, an inauthentic display which is often recognised by their subordinates (Den Hartog & Belschak, 2012; Sendjaya et al., 2016). It appears that they at least value the appearance of ethical values, even though they conflict with the Machiavellian personality (Ashton et al., 2000; Tang & Li, 2021)

Narcissism, as expected, characteristically advocates self-enhancing values whilst deploring collectivist, self-transcendent values (Anello et al., 2019; Ghorbani et al., 2004). However, narcissism can be split into two through its paradoxical adaptive and maladaptive features, manifesting into the concepts of narcissistic admiration and rivalry (Back et al., 2013). Admiration encapsulates the self-enhancement strategies typically associated with grandiose narcissism, such as the desire for uniqueness and grandiose fantasies, propagating narcissistic charm. Narcissistic rivalry is often expressed through aggression, as conflict occurs through striving for supremacy and the devaluation of others. The nature of these concepts implies a different approach to values, as admiration is related to openness to change and achievement values, while rivalry was related to power-dominance and power-resources values (Rogoza et al., 2016). As such, though these two domains are related to maintaining narcissistic grandiosity, the differing outcomes rely upon either an ego-boost to promote social potency or an ego-threat to encourage social conflict. This mechanism means that the two concepts are not interchangeable but can also explain why narcissism manages to manifest some association to adaptive values despite its self-interested nature.

This makes it quite fair to say that the Dark Triad accounts for a system of self-enhancing “dark values,” which paints a picture that psychopathy only values their own gratification, with no interest in others, whilst Machiavellianism and narcissism seek to promote themselves and achieve their goals. Again, the traits appear to be on a hierarchy of

darkness, with narcissism and psychopathy being, respectively, the brightest and the darkest, and with Machiavellianism functioning quite closely to psychopathy.

The effect that expectancy biases may have upon value systems appears to have received little empirical attention. However, optimism has associated with greater individualism and egalitarianism (Fischer & Chalmers, 2008), and individualism has been associated with optimism when mediated by self-esteem (Karaivanova, 2020). An interesting comparison occurs when applying this pattern to the Dark Triad, which itself can be typified by individualistic, agentic self-contruals (Jonason et al., 2010; Jonason et al., 2017), yet appears to be averse to egalitarianism (Capozza et al., 2019; Jonason et al., 2020). However, when considering that self-esteem can mediate the association between individualism and optimism, it is possible that the confidence exuded by narcissism could include optimism into the process of maintaining their grandiosity, resulting in the more adaptive behaviours purported by narcissistic admiration (Back et al., 2013). This subconscious use of optimism may be what distinguishes narcissism from the Dark Triad, which, whilst not necessarily purporting wholly adaptive values, seems to inhabit values which promote themselves without being interested in the devaluing of collective interests.

Rationale

This doctoral project will therefore progress with four specific aims accompanied with a series of hypotheses.

The first aim is to replicate the findings of Jonason et al. (2018) to establish the validity of the associations between Dark Triad traits and expectancy biases, in which narcissism emerged as the only factor to associate positively with optimism. As such, the hypothesis for this element of the project is that narcissism will one-again transpire to be the only trait to establish a positive affiliation to optimism.

The second aim is to delve deeper into these associations by assessing how the subtypes of both psychopathy (primary and secondary) and narcissism (grandiose and vulnerable) may interact with optimism. This is to investigate whether the associations discovered by Jonason et al. (2018), which will be hopefully replicated during the first aim, are a general feature of the trait or whether the “core” of bias expression (e.g. optimism within narcissism) exists within one of the traits putative subtypes. This will expand upon understanding of how expectancy biases operate in the Dark Triad and provide greater insight into the interplay between subtypes. For this aim, it would be expected that grandiose narcissism will be the only narcissistic subtype to associate with optimism. This is based upon previous literature in which grandiose narcissism is described as being more open and confident whereas vulnerable narcissism is more reserved and insecure (Freis, 2018; Ronningstam, 2009).

Following this, the focus will shift from how the Dark Triad traits associate with expectancy biases, to instead investigate how the traits’ bias expression could be influencing other factors – these being subjective well-being and both social and moral value systems.

The former will be investigated as it has previously been shown as an area in which narcissism deviates in a positive manner from the remainder of the Dark Triad (Aghababaei & Błachnio, 2015; Joshanloo, 2021) and life satisfaction (Limone et al., 2020). Furthermore, as optimism is also positively associated with subjective well-being (Sitici, 2019), exploration into the mediating effect of optimism upon the Dark Triad’s subjective well-being could reveal a key factor which supports this divergence. For this stage, the hypothesis will be that optimism has a positive mediating effect upon narcissism’s subjective well-being.

Whilst differences in the elements of subjective well-being can certainly have an affect upon external behaviour (Kim et al., 2021), it is a psychological component in which the perspective is insular, with the perspective focusing upon elements on an individual’s life and the degree to which they are either content or dissatisfied. Behaviour which occurs through this

perspective tends to have more intrapersonal consequences, such as beneficial health practises (Martin-Maria et al., 2020). This is different to the perspectives which govern social and moral values, in which the foci concerns matters which have a greater impact upon behaviour with externally-focused, interpersonal consequences. For example, proponents of individualist over collectivist cultures may experience weaker empathy for those in need (Duan et al., 2008; Feldman et al., 2020). As this is another area in which narcissism diverges from the Dark triad model by exhibiting prosocial morality (Jonason et al., 2015) this final aim of the project will be to explore the potential for optimism to impact upon community-based perspectives. The hypothesis for this stage is that optimism will have a positive mediating affect upon both moral and social value systems.

The conceptual model of the Dark Triad revolves around the notion that the three constituent traits are self-interested, socially deviant, and rely upon behavioural strategies which result in negative consequences for the self and others in the pursuit of gratification (Jonason et al., 2010; Jones & Paulhus, 2002). The frequently recurring outcome of the often risky or reckless behavioural patterns purported by these traits manifest in the form of varying costs to the perpetrator. Such costs can occur in the physiological (Jonason et al., 2015), psychological (Aghababaeia & Błachnio, 2015), and social domains (Jonason et al., 2010; 2013), whilst also affecting more tangible outcomes such as the risk of financial issues (Crysel et al., 2013) and the higher potential for incarceration through a willingness for delinquent behaviour (Azizli et al., 2016; Wright et al., 2017).

Throughout the Dark Triad literature, one frequent observation which occurs across multiple factors, both constitutional and behavioural, is that narcissism does not display the same severity of malevolent tendencies as the other two traits.

As has already been discussed, though narcissism maintains a number of anti-social qualities, such as a grandiose sense of self (Raskin & Terry, 1988), self-interested values

(Jonason et al., 2015) and deficiencies in empathy (Ali et al., 2009), it also appears to facilitate a number of positive qualities, such as greater self-esteem, higher levels of happiness (Egan et al., 2014) and a resilience to a number of physical and psychosocial health concerns (Jonason et al., 2015), including depression, stress and anxiety. The apparent benefits to narcissism, at least when compared to Machiavellianism and psychopathy, seem to have a profound and positive effect upon an individual's psychology, which may encourage or reinforce trait-typifying self-serving behavioural patterns.

The recent addition to this literature, concerning underlying biases which account for observed differences among the traits, highlighted the significance of optimism and worldview when considering maladaptive personality (Jonason et al., 2018). The key implication from this addition is that narcissism was the only Dark Triad trait to endorse a measure of optimism, a positive trait which has been linked to a number of psychological benefits (Carver & Scheier, 2014; Giltay et al., 2006; Wrosch & Scheier, 2003). This finding is significant as it highlights an unconscious influence upon the Dark Triad's behavioural decisions which narcissism may utilise to promote the grandiose perception of the self. In speculation about the implications for this association, it could be argued that because an optimistic worldview facilitates greater psychological health, the trait-typical manner in which narcissists perceive themselves as superior to others may be facilitated by an optimistic impression that they are capable, they have good prospects, the perception of their own popularity and that, generally, they are bold, interesting, attractive and enjoyable to be around. They feel good about themselves, a belief which is then reflected in their mannerisms.

It may be interesting to explore whether individual differences in optimism have an impact upon the negative fallout from perceived insults and other attacks upon their egos, as fragile as they can be, as the social malevolence of narcissism often occurs in the wake of such conflicts. As narcissistic rage can occur at even minor provocations (Kohut, 1972), it may be

interesting to see if optimism and narcissism operate upon a spectrum, where a low-optimism, vulnerable narcissist may resort to an aggressive outburst (Baumeister et al., 2000), a high-optimism, grandiose narcissist may be less sensitive (Atlas & Them, 2008).

However, an investigation which may be more imperative when considering the Dark Triad conceptual model may be to explore the mediating effect that optimism, or the relative lack thereof, may have upon other psychological components. Specifically, how the effects of a positive or negative outlook can impact upon the Dark Triad traits experience of subjective well-being, alongside how their outlooks may affect upon both their moral choices and subscription to social values. All of these components affect the perspective of an individual, and as such can influence behaviours and decision making. Therefore, to elucidate the impact of future expectations upon these components would provide greater insight into the machinations regarding the Dark Triad's amoral decision making, whilst also highlighting a potential cause to the division often seen between narcissism and its counterparts.

Jonason et al. (2018) managed to identify a distinction with narcissism's association towards optimism, delivering a potentially explanatory argument for the distinction which narcissism has repeatedly demonstrated from Machiavellianism and psychopathy. The key ramifications for this association are most observable within the areas which narcissism distinguishes itself the most, and those which may have the greatest intrapersonal impact. For example, optimism has repeatedly been associated with positive outcomes, wherein increasingly positive individuals express a greater inclination towards healthy personal practises (Ingledeew & Brunning, 1999; Steptoe et al., 2006), are able to maintain superior resilience to negative mindsets (Baker, 2007; Nes & Segerstrom, 2006; Scheier & Carver, 1985), and are more effectively capable to manage bouts of depression (Giltay et al., 2006; Kronström et al., 2011). Addressing the first point, narcissism has consistently shown itself to be negatively associated with undesirable health indicies, and has also been associated with

behaviours which endorse good health (Jonason et al., 2015; Malesza & Kaczmarek, 2019). Although, the motivation for these protective behaviours is not necessarily a desire to be “healthy,” as they could simply be a vain mechanism for maintaining their self-image, such as physical attractiveness and self-promotion (Hudek-Knežević et al., 2016). Nevertheless, narcissism outperforms Machiavellianism and psychopathy in these areas, which are more commonly related to poor health consequences (Beaver et al., 2014; Hudek-Knežević et al., 2016; Jonason et al., 2015). Furthermore, narcissism maintains superior psychological health, which can be observed in a lack of association towards mental distress and anxiety (Lyons et al., 2019; Noser et al., 2014), as witnessed with Machiavellianism and psychopathy. This is coupled with narcissism being the least associated trait to depressive symptoms (Jonason et al., 2015; Shih et al., 2019) and the only trait to be affiliated with multiple forms of coping (Birkás et al., 2016), making them more likely to face stressful situations and attempt to alter or solve the problem without avoidance. These attitudes could be facilitated by a combination of narcissism’s pattern of optimism, self-esteem and self-control, combinations of which are particularly salient in their approach to reducing stress and maintaining psychological health (Carver, 2014; Jonason & Tost, 2010; Mäkikangas & Kinnunen, 2003).

Therefore, pursuit of this line of research can have broad implications for understanding the outcomes of narcissism. A good starting point would be to expand upon the work of Jonason et al. (2018) by investigating the relationship with optimism to the putative sub-types found within the Dark Triad traits. The inclusion of these sub-traits, which include primary and secondary psychopathy alongside grandiose and vulnerable narcissism, will provide a more refined conceptualisation of how optimism operates amongst the darker personality traits. This will be most illuminating with the narcissism sub-types, the duality of which (Dickinson & Pincus, 2003; Miller et al., 2011) could justify an expectation for them to associate in an appropriately oppositional manner.

Because of optimism's already established beneficial impact upon health, its association to subjective well-being is unsurprising considering that a positive affiliation to the latter has a similarly positive effect (Carver et al., 2010; Diener & Chan, 2011). The relationship between optimism and subjective well-being is intriguing when considering how the latter also corresponds to the Dark Triad traits. The fact that narcissism maintains the only positive association to measures of subjective well-being (Aghababaei & Błachnio, 2015; Egan et al., 2014; Volmer et al., 2016) whilst also displaying the most optimistic perspective (Jonason et al., 2018) suggests that there may be an influential model of association which has a direct impact upon narcissistic behaviours. To put it into a comparison, Machiavellianism and psychopathy are associated with greater levels of both pessimism and hopelessness (Jonason et al., 2018) and also with poorer subjective well-being (Aghababaei & Błachnio, 2015; Egan et al., 2014; Love & Holder, 2014, McHoskey et al., 1999). This makes for an intriguing observation when considering the negative effect that pessimism has upon subjective well-being (Ciarrochi & Deneke, 2005), and the fact that Machiavellianism and psychopathy experience more severe detrimental health consequences than narcissism. An investigation into this pattern may illuminate the extent to which expectancy biases can influence the choices made by these traits which lead them to more negative outcomes for their own well-being.

Similarly, a positive outlook could be a driving factor in upholding moral virtues and the endorsement of specific values. Whilst the Dark Triad traits are typically associated with dysfunctional moral development (Campbell et al., 2009) and self-interested values (Jonason & Webster, 2012), narcissism emerges as having the more prosocial qualities, by having a socially desirable pattern of moral virtues alongside no inclination towards the devaluing of collective values (Jonason et al., 2015). The optimistic perspective may be a subconscious influence upon the choices that narcissists make to maintain their strategies for self-enhancement. This could possibly be due to the favourable impressions that others hold to those

who are perceived to be optimistic and morally just, as well as the impression that maintaining a certain appearance of social concern.

An understanding of these potential associations will undoubtedly provide an understanding of the significant role that optimism has in allowing narcissism to become the “brightest” of the Dark Triad traits.

Chapter 2 - Methodology

Methodological approach

The premier focus upon Dark Triad research is to explore the maladaptive effects and consequences of narcissism, Machiavellianism, and psychopathy. Therefore, the original methods of research within this branch of psychology are rooted firmly within trait theory.

This prominent area of research is primarily concerned with uncovering the intricate machinations between the plethora of distinct dimensions which, when viewed as a whole, convene under the overarching concept of personality. Trait theory harbours the loose definition of the study concerning the habitual patterns of behaviours, thoughts, and emotions which make an individual unique (Kassin, 2003). Over the time that psychology has existed as a scientific discipline, there have been several recognisable perspectives upon personality, such as those of Guilford, Cattell, and Eysenck, which aim to identify the grander causes for the individual differences between people. However, trait theory focuses more upon the nuance within personality (Allport, 1955; Long et al., 1952), where certain characteristics are used to describe a person's nature by their stability over time, and their endurance presiding over different situations (Maltby et al., 2010). The Dark Triad, as a constellation of intercorrelated yet distinct traits (Paulhus & Williams, 2002) whose heterogeneity implies a reasonable level of comorbidity (Miller et al., 2010), maintains its legitimacy as a branch of trait theory through meeting all these conditions. Furthermore, since the Dark Triad is defined specifically by the subclinical variants of narcissism and psychopathy, research surrounding the model can utilise methods more typical to trait theory and individual differences instead rather than those which consider the clinical, pathological elements of personality.

The current project will be conducted using the quantitative method, via survey-based data collection and analysis. The justification for which being that the first phase contains a

partial replication of the study conducted by Jonason et al. (2018). A replication study is the purposeful repetition of previous work with the aim to either corroborate or contradict the initial results (Makel et al., 2012). The benefit of replication studies is that a successful reproduction of a study increases the dependability of the findings, with the repeated practise generally strengthening all cumulative knowledge. Though the current study will include a replication of the processes of Jonason et al. (2018), phase 1 will not be an entirely direct replication for two reasons. The first is that it will consist of only one domestic sample, thus ruling out the need for the invariance testing used to identify potential differences between cross-national samples. The second is that it shall also extend the original study by exploring how the pattern of results garnered by Jonason et al. (2018) will develop when considering the putative subtypes of narcissism and psychopathy. Despite these differences, since the hypotheses for phase 1 will match those of the original study, any corroborating results will serve to validate Jonason's conclusions.

The main distinction between phase 1 and phases 2 & 3 is that the first phase will utilise a cross-sectional design. This particular method seeks information from a sample at a single time-point and is typically used to ascertain specific variable associations. However, the other methodological design for survey research, known as a longitudinal design, attempts to identify whether a characteristic endures or changes over time by repeating the same task at multiple instances (Ruel et al., 2015). Phases 2 & 3 will use the longitudinal design to assess the potential fluctuations of well-being and social and moral value systems amongst purveyors of the Dark Triad Traits over a certain time period. Whilst the longitudinal design is a reliable method for monitoring how attitudes and behaviours might vary over time, one of the main disadvantages to this approach is one of attrition. It may be quite difficult to motivate participants to adhere to the schedule planned by researchers, which will typically require them to complete the same survey at multiple points. It would be prudent therefore to anticipate a percentile of withdrawals

before the final time-point, and to draw out a strategy which aims to minimise the number of possible departures.

The use of a cross-sectional design for the first phase is primarily because it is in line with the study it will be replicating. Despite the necessity of having to imitate previous work, it is also the design which makes the most sense in attempting to re-affirm the associations between the Dark Triad traits and latent optimism. However, since the current project aims to explore the effects that optimism has upon Dark Triad individuals' well-being and personal values, a longitudinal design remains the most appropriate option. This is because these specific outcomes are a somewhat conditional and are more prone to change than personality traits. Taking wellbeing as an example, which for the sake of brevity can be defined as a state of equilibrium or balance that can be affected by life events or challenge (Dodge et al., 2012), a cross-sectional design may only be useful for measuring an individual's well-being at that specific point in time, which would only be useful in a research sense for examining variable interactions. A longitudinal study, however, may identify potential fluidity within an individual's well-being due to the potential to experience of various personal challenges. Since the project aims to explore whether variations in optimism impact upon the Dark Triad's associative pattern to well-being and social and moral value systems, a longitudinal design would be the most suitable. Fortunately, because of the ease in which survey-based research can be replicated, any conclusions drawn from this project can be made valid through replication, as is intended with the first phase.

Research ethics are, of course, a huge consideration for any project (Leavy, 2017), as researchers need to reflect upon how their work can impact upon the individuals participating and the world in which said research may be published. From an ethical standpoint, the design of the current project was quite benign. In terms of moral basis, whilst purveyors of the Dark Triad traits may be seen as deficient in ethical consideration (Harrison et al., 2018), Dark Triad

research could be argued to have an ethical intent in its attempt to understand a maladaptive perspective. However, to pursue these ends may necessitate language which depicts scenarios or attitudes that those of a more delicate or sensitive nature may find unsettling. Despite this, all the measures used in the project utilise language which is both inclusive and culturally sensitive. Regarding the more tangible protections for participants, the project benefits from a fairly simple design. Survey research has a comparatively straightforward delivery system, in which participants are merely required to complete a battery of questions. This heavily reduces the potential for participants to encounter any dangerous or emotionally upsetting scenarios, where the only concern might be the nature of the topic being studied.

One of the main ethical concerns in social science is that of participant anonymity (Walford, 2005). For the sake of the participant's privacy, personal information, aside from demographics, should be avoided where possible in data collection. Whilst this may be unavoidable in some instances, case studies being a prime example, any personal identifiable details taken should be withheld from the subsequent report in favour of pseudonyms. The current project has no need to refer to specific individuals, so names are not necessary for data collection. However, due to the longitudinal design of phases 2 & 3, there is a need to collect contact information i.e., email addresses, in order to inform the participants when they are required to complete the next round of data collection. The participants will be informed prior to their initiation into the project that their contact information will not be disclosed or reported upon and that they can withdraw from the project if and when they desire. This information, and the option for withdrawal, shall be given to them in the form of an information sheet which precedes the survey. This document will also give details surrounding the project, which also fulfils the important prerequisite for informed consent (Mann, 1994).

Method of data collection

The nomothetic approach to knowledge attempts to identify patterns and trends within a sample, the conclusions to which can then be applied to a greater population (Barta & Tennen, 2008). This approach typically uses objective data in a numerical form as a straightforward means of data analysis and categorisation. The survey method, whilst prolific in the social sciences, has been controversially described as a method for subjective data collection through their use to ascertain individuals' attitudes, beliefs, opinions, and experiences (Vogt et al., 2014). Therefore, whilst surveys will certainly collect objective data, such as participant demographic information i.e., age and gender, surveys are still able to collect numerical data on subjective qualities like attitudes using standardised, purpose-built questionnaires. These questionnaires can assess attitudes through the use of Likert scales, which allows a participant to rate the degree to which they agree with a statement, normally on a 1-5 scale. This allows for the numerical representation of psychological constructs, (i.e., attitudes, personality characteristics, memory performance), which can be then analysed through various statistical techniques to identify similarities and differences.

Considering the fact that phase 1 of the project is a replication study, the process for data collection had already been determined. Jonason et al. (2018) carried out a cross-national study which utilised a number of student samples alongside a much larger online recruitment campaign. This is a fundamental example of convenience sampling, where participants are selected based purely upon their availability and willingness to take part (Daniel, 2011). As a sub-type of availability sampling, convenience sampling is one of the most common methods of data sampling in the social sciences. As a non-probability sampling method, the main advantage to this method is that it has the simplest operational procedures and has the least resources requirements such as time, money, and personnel. Student samples are the typical make-up for studies which utilise convenience samples (Coolican, 2018) due to the accessibility researchers have in attending lecture halls to boost participant numbers. Whilst

this method often receives derision from a more traditional perspective (Trochim & Donnelly, 2008), it may be that the problem lies within the context in which the research is performed. For example, in a study which aims to explore certain attitudes towards a managerial job role, a sample of business or psychology students, who would probably have either no or possibly extremely limited experience within such an environment, would behave much differently than those with the requisite experience (Staw & Ross, 1980). Though the student sample may not be applicable to the study's initial intention, its inclusion highlights a different perspective which may add to the literature (Landers & Behrend, 2015). This highlights the importance of population choice when conducting a convenience sample, and to carefully consider exactly which variables may be peculiar in a specific sample. Whilst this may necessitate a concise recruitment strategy when investigating a specific phenomenon within a certain field, the topic of personality psychology may not have so many restrictions.

The fortunate perspective of individual differences is that it can be applied to a wide variety of psychological qualities. However, the Dark Triad traits being a form of personality disorder makes them a slightly more difficult concept to study in comparison to cognitive functions, such as individual differences in memory performance. This is due in part to the low prevalence rates of the clinical versions of these traits. For example, pathological narcissism has the lowest prevalence rate on Axis II of personality disorders (Cain et al., 2008), with a large-scale study of DSM-IV personality disorders finding its prevalence to be 2.3% of the population (Zimmerman et al., 2005), but this number is high compared to other studies (Torgersen et al., 2001). Whilst pathological psychopathy is quite difficult to measure in the population due to the reliance upon criminal populations in research (Werner et al., 2015), sub-clinical psychopathy shares its reasonably low prevalence rate, occurring between 1% and 13% of the population (Coid et al., 2009; Savard et al., 2011). The prevalence of Machiavellianism and the sub-clinical varieties of narcissism are also difficult to ascertain in the population, as

the former appears to have received little attention in this manner, whilst the latter has not received a reliable estimate (Foster & Campbell, 2007). This may be because Machiavellianism does not appear in the DSM, meaning it is treated as a personality construct rather than a pathology.

The reason that prevalence is an important factor to consider when studying a concept such as the Dark Triad is that, since the Dark Triad is a collection of sub-clinical traits (Paulhus & Williams, 2002), it is relatively unclear how much of the population may possess these qualities. This relative ambiguity also means that sample selection will not be restricted by specific demographics, as the theoretical model could potentially be expressed by anyone depending upon the extent to which their personal context matches the etiological underpinnings of each trait. The nature of this situation plays into the advantage of a convenience sample, especially in the scenario presented by the current project, which aims to explore the interactions between the Dark Triad traits and optimism. This means that the questionnaire for each phase can be distributed with little to no restriction.

The method of distribution shall be the same for each phase, with the only difference being that people who participate in phases 2 & 3 shall receive correspondence regarding a repeat questionnaire at two later timepoints, which will make three full completions of the same questionnaire. The questionnaire itself can be distributed in two fashions, a physical paper-based format and an online version, the latter of which can be distributed via an anonymous link provided by the online survey software company Qualtrics. Both formats allow the facility to produce multiple versions of the questionnaire, in which the various measures can be presented in a different sequence to account for order effects (Steinberg, 1994). Whilst the option of utilising more traditional techniques for data collection using paper-based surveys, such as recruiting through lecture halls, general associates and public spaces, the use of an online version also delivers a wider array of recruitment opportunities. One particularly useful

online device for participant recruitment is the availability of crowdsourcing and social media services. A leading example of this is Amazon's Mechanical Turk (MTurk), which aimed to automate traditionally difficult to automate tasks by spreading the work over a large number of human workers. This particular example allows workers small monetary compensation for each successfully completed task, which has since become a useful tool for conducting research in the social sciences (Landers & Behrend, 2015). Since its iteration, MTurk has seen many other online services which imitate its design, in which users are rewarded for task completion, but which are designed specifically for research purposes. In this regard, researchers are given the ability to upload a questionnaire which can be promoted by the chosen service in return for the researcher completing research questionnaires for others. Whilst this mutual survey completion may find some criticisms, such as questions of sample representation and participant motivation (Landers & Behrend, 2015), these criticisms are no different from those normally addressed to convenience sampling (Necka et al., 2016). Therefore, it may be ill-informed to dismiss a sample gathered in this fashion because of suspicion of the instrument, especially when evidence has shown this method to be as valid as other methods (Casler et al., 2013; Hauser & Schwarz, 2016).

One factor which should always be considered when conducting quantitative, survey-based research is the possibility for common method bias. This phenomenon, the actual effect of which is referred to as common method variance (Jordan & Troth, 2020), depicts a scenario where variance between two or more constructs is attributable to the method of measurement rather than reflecting upon a genuine relationship (Podsakoff et al., 2003; Richardson et al., 2009). This common method variance (CMV) has the potential to influence the significance, magnitude, and direction of coefficients, making it far more difficult to determine whether the strength of an observed relationship is representative of reality (Jakobsen & Jensen, 2015).

CMV can occur through a number of means, in which Podsakoff et al. (2003) identified four primary sources. The first concerns the use of the same respondent for both predictor and criterion variables, as an individual person may be swayed to answer a set of survey items in a particular manner based upon their mood, their desire for social desirability, or their acquiescence to the survey suggestions. The second encompassed the manner in which survey items are presented to respondents, wherein the social desirability, complexity/ambiguity, and the valence of the item content can detract for the intended purpose of the survey. Furthermore, the scale format can skew item response if consistently repeated throughout a survey/questionnaire. This is due to the familiarity the respondent develops with the format reduces the cognitive processing required for item response allowing for a pattern of habitual answering rather than adhering to item content. The third focuses upon the context in which items are placed on a questionnaire. For example, the priming effects that some item content may have upon later items; context-induced mood, where item content influences the mood of the respondent, therefore clouding later items; and scale length, where too-long and too-short scales each produce different biases which can influence item response i.e., survey fatigue via long scales, earlier item accessibility via short scales (Harrison et al., 1996). The last source concerns the contextual impacts, such as the medium, time, and location, used for measurement of the constructs.

Naturally, some of these sources of CMV, or combinations thereof, are more prevalent and worrisome than others. For instance, the most concerning scenario in which CMV may occur would consist of the use of the same respondent to procure data for both the independent and dependent variables, under same measurement context, with the same item context and characteristics (Chang et al., 2010; Podsakoff et al., 2003). However, CMV sources can be mitigated using a series of procedural and statistical methods (Podsakoff et al., 2003; Tehseen et al., 2017), the most effective of which would depend upon the research question at hand, the

sources of method variance and the feasibility of the solutions that are available. However, as diverse as statistical approaches may be (Tehseen et al., 2017), it is perhaps prudent to recognise that CMV is a bias, and as such the use of method and research design solutions prior to data collection in applied settings offers a higher quality solution, potentially eliminating the need to conduct statistical corrections later (Jordan & Troth, 2020). Podsakoff et al. (2003) suggested procedural remedies included obtaining predictor and criterion variable information from different sources i.e., separate individuals, to eliminate the impacts of implicit theories, social desirability tendencies, and various mood states. Failing the capacity for this, the suggestion is to then attempt some other form of temporal or psychological separation of the independent and dependant variables. To create a temporal barrier between the variables, Podsakoff et al. (2003) proposed a time lag between their measurement, or to utilise different mediums for measuring each variable type i.e., survey followed by interview.

The main method for creating a psychological separation is through the use of a detailed cover letter which provides concise instructions. The logic to this is that participants will be more motivated towards greater accuracy if they know how the information will be used, that there is an opportunity to receive feedback upon the study, or what the potential benefits the eventual study outcomes may entail. Following this, the most effective ways to mitigate CMV are based in the design of the survey itself. For instance, Podsakoff et al. (2003; 2012) warn against the use of ambiguous and unspecific language in the item content, to ensure that the respondent understands the question. A lack of item clarity may encourage respondents to revert to a natural response tendency, wherein participants fell a propensity towards answering survey questions in a particular position on the measurement scale i.e., overly generous, overly strict, central tendency, etc (Dawis, 1992). This will skew their responses, as their answers will be based more upon a response pattern than genuine consideration of the item content. Furthermore, it is advisable to avoid common scale properties, such as repeated measure types

(i.e., Likert scales) and scale points (5-point/7-point measures) throughout a survey, as such similarity increases the likelihood for comparable cognitions triggered by one question to re-occur with those that follow (Johnson et al., 2011; Podsakoff et al., 2012). This can be averted by using a mixture of response formats to avoid a response pattern, and also by altering the anchor labels for the scale points. For instance, switching from a ‘strongly agree to strongly disagree’ attitudinal scale to a frequency scale using ‘never’ to ‘frequently’ (Jordan & Troth, 2019).

As a survey-based project, this doctoral study will be prone to the typical vulnerabilities to CMV experienced by this method. In particular, the most prominent threat would be respondent’s proclivity for expressing social desirability. As this project is investigating the Dark Triad of personality traits, collating the more malevolent aspects of character dispositions, the item content for measures of these traits will rely quite heavily upon descriptions of not-so socially acceptable behaviours. As such, this would require respondents to admit their conformity with statements such as *“I like to use clever manipulation to get my way”* (Machiavellianism), *“I know that I am special because everyone keeps telling me so”* (narcissism), and *“Payback needs to be quick and nasty”* (psychopathy). At face value, the issue regarding social desirability seems fairly simple, in that most respondents may choose the less malevolent path in their answer format. However, it is probably more than likely that people who are low exhibitors of the Dark Triad traits would answer these questions truthfully, as they would genuinely believe the more prosocial answers to the item content. The complexities lie with the individuals who have higher measures of the Dark Triad traits, as it may be their trait characteristics which may bring about greater CMV. The Dark Triad traits are all linked to lying behaviour (Jonason et al., 2014), so it stands to reason that they would be less likely to align their true feelings and reveal their anti-social opinions within the survey. This is particularly true for narcissism, which is naturally inclined to put out a positive self-

image, and whose predilection for self-deception regarding their poor behaviour leans further into the problem of social desirability (Jones & Paulhus, 2017). However, the natural arrogance of the three traits (Lee & Ashton, 2014; Rauthmann, 2012) could signify a perverse pride in their behaviour, which they may be willing to admit towards if guaranteed anonymity. Whilst this is only partially conjectural, as people are more willing to admit nefarious behaviour when anonymity is assured (Ong & Weiss, 2000), it does suggest that the main course of action to reduce CMV potential is in the information provided to the participants, alongside elements of the survey design.

Fortunately, the simplicity of the study design will help to reduce a lot of the potential causes of CMV. For one, the use of standardised measures, which have received numerous reassessments to establish construct validity and extensive use within the literatures, will diminish the potential for ambiguous item content. Furthermore, such measures often have different anchoring labels, or could easily have them changed whilst retaining their integrity. Another factor to consider when designing the various surveys making up this project is that of survey fatigue. There is a direct influence upon the length of a survey and the quality of the resulting data, where the longer a survey is the greater the likelihood for poor data (Nguyen, 2017). To combat this, the project will utilise shortened versions of surveys where applicable, such as the Short Dark Triad scale, the Short Schwartz Value survey, and the short form of the Moral foundations Questionnaire, as examples. This means that a reasonable number of personality variables can be measured simultaneously, whilst reducing the potential for survey fatigue.

The primary method for reducing CMV will therefore be based within the participant information sheet, which will also function as the first page for each of the surveys in this project. This information sheet will provide the respondents with an understanding of the purpose of each phase of the project, including what personality characteristics are being

measured, how they will be collected and the ultimate purpose that the data is being collected towards. Furthermore, and most importantly, the information sheet will ensure that full participant anonymity will be provided. However, there are two areas in which anonymity is not strictly determined. The first will be an optional identification code to be used in the event a participant wishes to withdraw their data from the pool. The second will be a form of contact in the longitudinal phases of the project, where people who wish to complete data waves two and three will be given the option to provide an email address for when the time comes. Whilst this may impact anonymity, they shall also be informed that they can ignore this and simply complete the first data wave, and that the collection of contact details is merely to fulfil the design of the study. Being straightforward with the necessities of the project, providing a rigorous amount of information towards the projects aims, and ensuring participants anonymity, will hopefully mitigate the potential for CMV.

Method of analysis

The analysis methods for the project shall emulate those used by Jonason et al. (2018). Naturally, as the primary focus is to measure the association between the Dark Triad traits and expectancy biases, a standard approach for the initial stages of analysis would be to utilise correlations and multiple regression.

Whilst correlational analysis refers to the statistical association between two variables, where knowledge of one variable's value provides information about the likely value of another (Diekhoff, 1992), multiple regression analysis takes this a step further by highlighting the potential for causal attributions to a relationship (Musil et al., 1998). This allows for more refinement to predictions by providing information upon the effect of a combination of explanatory variables as well as comparing the contribution of individual variables. However, one limitation of multiple regression is that it assumes perfect measurement of variables, an

assumption which also assumes perfect reliability of instruments. However, it is well-known that perfect reliability is seldom attained. Whilst researchers are often content with reliability ratings of .80-.90, and are occasionally satisfied with lower levels (Abraham, 1994), measurement reliability which is sub-optimal sets an upper limit upon explained variance. Therefore, whenever there is a lack of observed power of explanatory variables, it could possibly be due to a lack of association between the variables, or it may be due to poor reliability of measurement (Musil et al., 1998). Furthermore, as a method which only provides direct prediction paths, regression does not provide information about the potential indirect influences that predictor variables may have upon the criterion through their affect upon other predictor variables. Resolutions to these issues occur through the use of a different method of analysis called structural equation modelling.

Structural equation modelling (SEM) is referred to as a hybrid method (Kline, 1991) as it combines path analysis with confirmatory factor analysis (CFA). The conception of path analysis occurred as an attempt to assess the indirect causal pathways unattainable through regression analysis, allowing researchers to evaluate causal models by examining the relationships between a dependent variable and two or more independent variables. This is achieved by effectively forcing the specification of relationships amongst all independent variables. This results in a model displaying causal relationships wherein the independent variable affects the dependant variable directly, whilst also providing information on the indirect effects through other mediating variables (Kline, 2012). Within this method, all causal relationships between variables must flow in one direction, as a pair of variables cannot cause one another, and all variables must have a clear time-ordering since one variable cannot be said to cause another unless it precedes it in time (Bryman & Cramer, 1990). The use of path diagrams (Wright, 1918; 1920), a graphical representation of the direct and indirect effects, has been a prominent method within the social sciences. This allows researchers to arrange

variables in a diagram based upon hypothesised relationships in a causal direction. The subsequent analysis should then reveal if these hypothesised relationships are correct.

However, like regression analysis, path analysis also assumes perfect reliability of the measures used to operationalize variables. So, once again, the lack of apparent direct or indirect effects may be due to poor reliability of the instrument as much as the possible lack of association between variables. Furthermore, all the variables used in the equation are qualities considered to be under active observation, meaning there is no possible representation for latent, underlying factors within path models (Musil et al., 1998). This also means that there is no way to represent a common, underlying construct which can be attributed towards by various measures. Factor analysis, however, is a method of looking at the intercorrelations of many observed variables with the aim to identify larger, underlying, latent variables. These unobserved variables are referred to as “factors,” and can subsequently be used to describe further, over-arching constructs. Effectively, factor analysis consists of correlation patterns of measurable variables in order to analyse intangible characteristics which cannot be measured directly (Dancey & Reidy, 2014).

In psychology, factor analysis has been frequently employed during psychometrics, where the ability to condense related question items into a single factor proves extremely useful when researchers want to measure multiple characteristics in a single questionnaire. There are two forms of commonly used factor analysis, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). EFA clusters variables together with no prior hypothetical expectation, where the subsequently formed factors occur purely through their intercorrelations. CFA, on the other hand, operates on an *a priori* basis, where the researcher already has an idea of the relationships between the observable variables which shall constitute the factors. The CFA method is used for hypothesis testing, to establish whether the observed

sample correlations are consistent with the theorized factor structure (Dancey & Reidy, 2014; Musil et al., 1998), and is the form of factor analysis used in SEM.

The combination of path analysis and CFA affords SEM the benefit of measuring indirect effects and assessing latent variables. A characteristic structural equation model will be comprised of two entities. The first is the measurement model, also referred to as the CFA model, which consists of the interactions between the observable, measurable variables and the latent variable they comprise. Specifically, it links the measurement tool with the underlying construct they were designed to measure. The other entity is the structural model, which defines the relationships amongst the latent variables, such as the degree in which one latent variable may influence other latent variables within the complete model (Byrne, 2001). This effectively allows for the comparison of multiple CFA models. Within SEM diagrams, associations between variables are represented by arrows which represent direction of causality. Variables which have no arrows pointing towards them are considered to be exogenous, or independent, and as such maintain an influence upon the endogenous, or dependant, variables which have the arrows leading towards them. In this manner, SEM can account for indirect effects in a similar method to path analysis, as certain exogenous variables may impact upon more than one outcome variable, whilst endogenous variables may similarly be influenced by multiple exogenous variables.

A further advantage of SEM is the ability to assess whether an association does not occur due to either a lack of correlation between two variables or through poor reliability of operational measures. This is achieved using separate error variables for both the indicator and latent variables, which serve as independent variables accounting for unexplained variance. Though an observed indicator variable may represent the value of a construct which contributes towards a latent variable, the error term will display the variance which does not contribute. Similarly, the error term for the latent variable accounts for any variance left unexplained by

the predictor variables within the measurement model (Kline, 2012; Musil et al., 1998; Nunnally & Bernstein, 1994). Within the measurement model, error terms are usually assigned to “E” as measurement errors attached to predictor variables, whereas in the structural model error terms are typically described as disturbance terms, represented with “D” (Kline, 2012). Though these error variables are a useful method of identifying measurement error, this does not mean that SEM can eliminate poorly operating measurement tools. More that SEM can determine how reliable a measure is within the model, allowing the researcher to determine whether unexplained variance occurs by either imperfect measurement or misspecification of a theoretical model (Musil et al., 1998).

As SEM utilises CFA, the models set out by a researcher for analysis will be hypothetical in nature, mimicking CFA’s *a priori* basis. A SEM analysis, therefore, will measure the extent to which the sample data corresponds to the researcher’s hypothesised model, which will be based upon empirical underpinnings. Within the measurement model, the researcher will need to consider whether the indicators chosen to represent the desired latent factors are a true representation of said factors, whilst the structural model analyses the extent to which the predictor variables may explain variance in outcome variables. The results of these evaluations are referred to as the assessment of overall fit, wherein the extent that the empirical data matches the hypothesised model. Unfortunately, there is no such thing as a statistical gold-standard in SEM which can provide an objective verdict that a particular model is the “correct” option due to the potential variability of plausible models (Kline, 2012). As such, the most appropriate method for hypotheses testing and model fit assessment has become an active research area in and of itself, which advises that researchers consider that a “true” model may not exist due to the necessity of study samples over populations. Therefore, researchers must recognise that all models are wrong to some degree, meaning that their aim is to strive to attain the most parsimonious model possible, and to follow up upon their research findings with

suggestions on how to eliminate any equivalent and near-equivalent models (MacCallum & Austin, 2000).

Such philosophical acknowledgements notwithstanding, there are a plethora of fit indices within SEM literature which have risen in prominence. These can be separated into two broad categories: model test statistics, which typically operate on a “badness-of-fit” basis, where a higher value indicates worse correspondence to the data; and approximate fit indices, which are typically scaled as “goodness-of-fit,” where higher values indicate closer correspondence (Kline, 2012). The current project will utilise three commonly used approximate fit indices which are based upon chi-square estimates, a model test statistic (Musil et al., 1998). However, despite that approximate fit indices use a goodness-of-fit scaling, two of these indices in fact utilise the badness-of-fit scaling. The first of which is the root mean square error of approximation (RMSEA) (Steiger, 1990), which reflects the difference between the examined model and a hypothetical “perfect” model where all variables are sufficiently related.

RMSEA is based upon the non-centrality parameter, which functions as a measure of the discrepancy between the population covariance and the hypothesised model and whose value increases as said difference grows wider (Bollen, 1989; Browne & Cudeck, 1993). RMSEA measures this discrepancy through degrees of freedom and will decrease as the number of degrees of freedom increase (Byrne, 2001), which indicates greater parsimony or a larger sample size (Kline, 2012). The RMSEA, therefore, is scaled so that lower scores indicate better model fit, with suggestions that values less than .05 indicate good fit, values up to .08 suggest reasonable fit, and anything over .10 indicate poor model fit (Browne & Cudeck, 1993; MacCallum et al., 1996).

To aid researchers in evaluating the RMSEA estimate of model fit, MacCallum et al. (1996) strongly recommend the use of confidence intervals. Since confidence intervals can

approximate comparisons between sample means and population means, by providing a range of scores in which researchers can be assured a population mean lies (Dancey & Reidy, 2014). The inclusion of a 90% interval allows the researcher more precision when assessing model fit by comparing the RMSEA value to the upper and lower bounds. Furthermore, the width of the range can have notable implications for model fit, as a small RMSEA with a wide confidence interval may suggest an imprecise value, whereas a narrow interval would provide a better argument for good model fit (Byrne, 2001; MacCallum et al., 1996). Because of this, RMSEA is somewhat weak to smaller sample sizes (Kline, 2012).

The second fit index utilised in the current project is the standardised root mean square residual (SRMR), which as the name implies is a standardised version of the root mean square residual statistic (RMR). The initial unstandardised statistic was used to measure the average residual value between the variance-covariance matrices of the sample data and the hypothesised model (Byrne, 2001). However, because of the varying sizes of the variances and covariances, a value such as this became difficult to interpret. The SRMR was developed by transforming the separate covariance matrices for the sample and predicted model into correlation matrices (Hu & Bentler, 1995). This transformation standardised the values, creating a range from zero to 1.00 for all the standardised residuals. The SRMR is thus the average discrepancy between the observed and predicted correlations (Chen, 2007), which can be referred to as the mean absolute correlation residual (Byrne, 2001; Kline, 2012; Hu & Bentler, 1995). The commonly accepted threshold for acceptable fit is $\leq .08$, as described by Hu & Bentler (1999). However, this has been accused of being too lenient when considering that, as a mean value, individual values may exceed this limit despite the overall model meeting the requirement for acceptable fit (Kline, 2012). Despite this, the SRMR is considered a comparable fit index to the RMSEA because of its standardised effect sizes and ease of interpretation (Maydeu-Olivares, 2017).

The final index used in the current project is the comparative fit index (CFI) (Bentler, 1990), which is a goodness-of-fit scale scored on a range from zero to 1.00. This index is derived from a comparison between the hypothesised model and the “independence model,” a statistical comparative tool which assumes zero covariance amongst the targeted variables, which effectively represents the worst model possible (Miles & Shevlin, 2007). The CFI’s revised cut-off value considered to be representative of a well-fitting model, a value typically used in contemporary research, is $>.95$ (Hu & Bentler, 1999). The CFI is particularly useful in combination to the RMSEA due to their relative independence from sample size (Cangur & Ercan, 2015; Chen, 2007), a feature most valuable for large studies.

SEM is a beneficial tool for answering questions about causal attributes amongst latent variables. As such, it is an ideal form of analysis for phase 1 of the current project, as an individual’s worldview is comprised of a medley of differing attitudes and perspectives. However, considering that psychologists are interested in personal development alongside how personal qualities influence behaviour, the ability to measure growth and progression carries with it a similar value. Growth curve modelling, therefore, is a statistical method which utilises longitudinal data to analyse change over an extended time period (Byrne & Crombie, 2003). Longitudinal experimental designs are the fundamental approach for assessing trends within psychological phenomena whilst also possessing the ability to identify individual differences in personal change over time. In this method, the use of multiple waves of data collection is an important function, as the inclusion of subsequent waves severely improves the richness of data, allowing for higher quality research findings. This improvement can provide several different perspectives when considering growth, such as the functional form for individual growth, how growth is attributed to background characteristics as well as allowing for hypotheses testing regarding individual differences in growth (Willett, 1989; Willett & Sayer,

1994). Ultimately, when regarding change, this method enables researchers to approach questions and problems which would be unachievable with cross-sectional or two-wave data.

The original growth curve models were rooted within exploratory factor analysis and principal components analysis (Baker, 1954; Tucker, 1966), where the emergent factors, referred to as chronometric factors, were conceptualised as aspects of change as opposed to the psychometric factors typically attributed to factor analysis (Preacher et al., 2008). However, due to issues with rotational indeterminacy, which lead to issues in selecting interpretable loading patterns regarding change, Meredith & Tisak (1990) developed latent curve analysis. This method, which is the equivalent of the more modern latent growth curve modelling (LGM), is able to avoid these issues by allowing researchers to choose specific loadings which reflect hypothesised trends within a dataset (Bollen & Curran, 2006). As a form of SEM, LGM carries with it several advantages. Its premier advantage is that it can allow researchers to investigate interindividual differences in change, in which the antecedents and consequences of said change can be compared and analysed. Another advantage is that LGM can be applied to group change, through analysis of mean growth and mean intercept, which can be used for hypothesis testing regarding predicting specific change trajectories. This means that it can be utilised in a nomothetic approach, such as the afore mentioned mean trends, and the ideographic aspects such as individual departures from mean trends (Duncan & Duncan, 2009). Also, because of LGM's position as an aspect of SEM, it carries with it all the functional advantages of SEM, such as indices of model fit, the capacity to account for measurement error and, of course, the use of latent variables (Preacher et al., 2008). The last point is both the most important and the most practical for psychological study, wherein psychological constructs are frequently represented by such variables due to the nigh-impossible nature of achieving a direct measurement.

In a typical LGM, the latent variables do not serve to represent psychological constructs, but rather changes within the measured variables. In basic models, two such latent variables are typically present: one to represent the initial, baseline status of the measured variables, typically referred to as the intercept factor; and the second to represent the linear rate at which the outcome to the measured variables may change at the varying timepoints, which is referred to as the slope factor (Kline, 2012; Preacher et al., 2008). Furthermore, these two latent factors are specified to covary, which will indicate how the baseline levels taken at timepoint 1 may respond to linear change, allowing the researcher to predict a trend over time. For example, a positive covariance would see an increase in a behaviour or trait over time, whereas a negative covariance would indicate a decrease (Kline, 2012). Whilst this initial use of two latent, exogenous variables may provide information on how the measured variables change over time, which is referred to as a model of change, the next step is to identify what may influence the change by creating a model of prediction. By including predictor variables which refer to certain personal characteristics, such as demographic information like gender, social status etc., the latent factors in the change model now become endogenous as they are being directly affected. This means that researchers can analyse the influence that certain background characteristics may have upon the change in a specific behavioural outcome over time. For this reason, LGM would be the most suitable form of analysis for phases two and three of the current project, which seek to explore the affect that interchangeable optimism levels have upon the Dark Triad traits experience of subjective well-being and their value systems.

One contextual advantage to LGM is its ability to operate with reduced sample sizes. As various rules-of-thumb regarding the minimum sample size of structural equation modelling suggest a sample of at least 100 or 200 (Boomsma, 1982), as a restricted form of structural modelling, there is an argument that latent growth curve modelling can still be utilised with

smaller sample sizes (Hamilton et al., 2003; McNeish & Harring, 2017). However, this recommendation is more typical of studies which focus upon rare yet considerably more identifiable conditions which the unique characteristics seldom occur within a populations. Although fewer participants may be available, due to the lack of people who qualify for, or are willing to participate, the study of change over time for these issues is still of interest to investigate, making the use of a small sample size unavoidable (Shi et al., 2021). However, as this project focuses upon subclinical psychopathologies, the clinical versions of which have fairly low incidence rates (Psychopathy – 1%: Neumann & Hare, 2008; Narcissism – 6.2%: Stinson et al., 2008), a too small sample size may not be suitable for LGM. If this occurs, and the sample size is too low, then the analysis may have to rely upon a simpler form of longitudinal mediation analysis. This method is the sequential mediation design, which is a popular choice for analysing repeated measures through its capacity for identifying relationships between variables across time. A sequential mediation design deliberately staggers the assessment of the variables, X (the independent variable), Y (the outcome variable), and M (the presumed mediator), so that X is measured only at time-point 1, M is measured only at time-point 2, and Y is measured only at time-point 3 (Mitchell & Maxwell, 2013). Whilst this is certainly simplistic, this sort of model is useful in identifying initial effects between variables (Selig & Little, 2012) which will allow a researcher to further elaborate upon with subsequent research. This method would only be employed as a means to assess the indirect effects of the mediating variables in the event that a larger sample size is not achieved to perform LGM. Its simplicity, therefore, would be suitable to evaluate the effect of a relatively low occurring model such as the Dark Triad when only a small sample is available.

Data processing shall be managed through a couple of specialised statistical software programs. The first is the Statistical Package for the Social Sciences, or as it is more commonly known, SPSS. This is a widely known program employed within various research fields, where

it is used both academically and professionally to collate, organise, and analyse data to create actionable, progressive solutions and conclusions to research projects. Some of its analytical functions include descriptive statistics, bivariate statistics such as means, t-test, ANOVA and correlations, as well as methods of prediction, such as regression and factor analysis. In the scope of the current project, SPSS will be used to collate and organise all data, where it can be prepared for full analysis using several screening methods. For example, incomplete data can be identified and removed, scale reliabilities can be measured, and the distribution of the data can be assessed through tests of skewness (where the peak of the distribution may shift from the centre) and kurtosis (whether the peak of the distribution is flat or narrow). In preparation for SEM, the current project will also utilise SPSS to carry out correlation analysis to identify which measurement scales may contribute towards latent variables, and to develop hypotheses about potential relationships between factors. The majority of the analysis following these processes shall be carried out in the second program, AMOS.

Referred to by an acronym for its name, Analysis of Moment Structures, AMOS is an application which can operate in line with SPSS to conduct SEM, LGM, and sequential mediation. The complete AMOS package is made up of two modules, AMOS graphics and AMOS basic. The current project shall be using AMOS graphics, which provides the user with a graphical user interface in which they can manually draw in the desired model arrangement. The drawing tools are designed specifically with SEM conventions in mind (Byrne, 2001) and the graphical interface allows the user to easily manipulate and adjust the model, adding and removing relationships paths where necessary. AMOS also has different tools for drawing observed and latent variables, as well as error variables to account for issues with measurement and unexplained variance. Using the same arrows as in path analysis, direct relationships are established between observed and latent variables, whilst a double-headed arrow is used to indicate covariances between variables. Whilst conducting an analysis of a model gives a

graphical representation of the results, this window will only show the standardized and unstandardized regressions and error term weights.

For a more in-depth review, AMOS has a separate, text-based output window which collects different types of information into categories. The variable summary displays how many observed variables and how many unobserved variables were in the model, as well as the chi-square and number of degrees of freedom. Normality discusses the data distribution, where Skewness, Kurtosis and Mahalanobis d-squared test will give information about the normality of the data. One of the more important categories is the estimates window, which will give the result for regression weight, standardized loading for factor, residual, correlation, covariance, direct effects, indirect effects, total effect, as well as the significance levels of the associations. Of a similar level of importance is the model fit window, which displays both the goodness and badness of fit model statistics, such as GFI, CFI, RMR and RMSEA. Because the current project will rely heavily upon the use of both SEM and LGM, AMOS is a logical choice due to the ease with which statistical models can be created, and the ability to create neat, presentable diagrams for use within reports.

Final consideration

Because of the somewhat simple nature of this project, the choices of design, data collection and analysis were correspondingly simple to make. This was aided further when considering that the first phase of the project contains an emulation of Jonason et al. (2018). So, to add validation to this study, the current project would need to resemble the conditions as closely as possible. However, because the current project will be focusing upon how optimism ultimately impacts upon characteristic outcomes of the Dark Triad, it will be unnecessary to replicate the multi-national aspect of the original study, removing the need for invariance analysis.

A second diversion from the original study is the use of the Beck Hopelessness Scale (BHS), which contributes heavily to the latent optimism variable as the extreme opposite of high optimism. However, because of an ongoing debate regarding the factor structure of the BHS, in which some researchers have supported the original three factors (Boduszek & Dhingra, 2016) and others have not (Hanna et al., 2011; Steed, 2001), as well as a lack of measurement sensitivity with non-clinical respondents (Iliceto & Fino, 2015; Kocalevent et al., 2017) it is possible that the BHS may not be the most appropriate tool for Dark Triad research. The second point was the more important in this consideration, when bearing in mind that the Dark Triad is characterised as a non-clinical representation of the three traits (Paulhus & Williams, 2002), a scale which has had documented issues with non-clinical samples might not be the best choice. Therefore, the researcher opted to develop their own measurement scale of hopelessness with the aim to be more sensitive to non-clinical samples.

One possible weakness to the current project, which may need to be accepted as an unfortunate necessity, is the use of student samples. The predominant use of student samples in the social sciences, particularly with convenience samples (Coolican, 2018), has sometimes been disparaged (Trochim & Donnelly, 2008). However, it is also worth noting that context is key when considering the use of student samples (Barr & Hitt, 1986, Shen et al., 2011), and a study such as this where the analysis is based upon disposition of character rather than of particular viewpoints, a sample which includes a relative number of students is not necessarily a bad thing. Furthermore, student samples have appeared frequently in Dark Triad research (Jonason et al., 2012; 2018; Jones & Figueredo, 2013; Lee et al., 2013; Paulhus & Williams, 2002), indicating that they are a useful and accepted commodity in this domain.

Finally, another stipulation which depending upon context may have to be tolerated is the choice of longitudinal analysis for the later phases. Though the reasons for this have already been described, it is an unfortunate reality that participant attrition is a major consideration for

any longitudinal study. Though this can be typically addressed by conducting multiple instances of three-wave data collection to boost numbers, this may be out of the scope of the timeframe of a post-graduate project. It is a particularly stressing problem for Dark Triad research, whose incidence rates are low in the population, meaning that a large sample would be beneficial. However, it is fortunate that, in the event an appropriate sample size is not attained, there is another form of analysis which can be utilised in the form of sequential mediation design.

Taken together, this approach to the current project should prove to procure interesting findings, which should both add validation to the findings of Jonason et al. (2018) and expand upon the Dark Triad literature base.

Chapter 3 - General Hopelessness Scale: Development of a measure for non-clinical samples

Preface

In the original study which inspired this project, Jonason et al. (2018) measured three expectancy biases - optimism, pessimism, and hopelessness. Whilst the dichotomy between optimism and pessimism was suitably calculated through the Life Orientation Test (Scheier & Carver, 1985), and to another degree by the Lerner Optimism Scale (Lerner & Keltner, 2001), levels of hopelessness were taken using the Beck Hopelessness Scale (BHS) (Beck et al., 1974). This last scale has been a prominent tool within hopelessness research for the last several decades. However, recent conceptual concerns regarding the BHS factor structure, issues with the efficacy of measurement in non-clinical samples, and the fact that the measure is not freely available inspired the decision to develop a new measurement scale for hopelessness. This chapter will detail the development of this new measure, which will incorporate elements of Beck's seminal in the hopelessness field, alongside other prominent hopelessness models, in order to placate the contemporary focus upon mental health and hopelessness within non-clinical populations.

Introduction

Hopelessness has been described as complex psychological construct, chiefly associated with clinical consequences such as depression and suicidality (Marchetti, 2019). Possibly the most renowned academic in the field, Aaron Beck, has consistently reported that suicidal preoccupations within psychiatric patients was heavily related to their perceived situations and future expectancies (Beck, 1963/1967; Beck et al., 1974). The experience of negative expectancies for oneself are the defining elements of hopelessness, the rumination upon which,

in turn, resembles the cognitive element for depression and suicide ideation (Beck et al., 1974; Kocalevent et al., 2017). The mechanism for hopelessness encapsulates the tendency to overestimate the likelihood of adverse events whilst concurrently underestimating the probability of positive experiences (Beck & Alford, 2009). Because this process creates a bleak picture of an individual's future, it becomes a major predictor of suicidal behaviour for people who wish to avoid their distorted vision of fate (Beck et al., 2006; Hirsch et al., 2019; Ivanoff & Jang, 1991; Van Orden et al., 2010) and, as such, developed into an integral element of multiple theoretical models of suicide (Baumesiter, 1990; Klonsky & May, 2015; O'Connor, 2011; Van Orden et al., 2010; Wenzel et al., 2009).

The Beck Hopelessness Scale

Since its inception, the BHS (Beck et al., 1974) has been the most prominent measure of hopelessness (Kliem et al., 2018), and has been translated into numerous languages for worldwide use (e.g., Yoruba, Aloba et al., 2018; Hungarian, Perczel et al., 2010; Xhosa, Steele & Edwards, 2008; Urdu, Ayub, 2009). The BHS is a self-report instrument that comprises 20-items presented as statements regarding the future. These appear in either a negative (e.g., "Things just won't work out the way I want them to") or positive (e.g., "I look forward to the future with hope and enthusiasm") valence. Respondents evaluate each item and indicate whether the statement applies to them using a dichotomous 'True/False' format. Nine items are reverse scored and summed with the remaining items, to produce a total ranging from 0-20.

Scores are interpreted using the following classifications (higher ratings reflect greater levels of hopelessness): 0–3 minimal, 4–8 mild, 9–14 moderate, and 15–20 severe (Beck & Steer, 1988). Nine and above is indicative of a proneness to suicidal ideation (Brown et al., 2000; Niméus et al., 1997). Given the sensitive, clinical nature of BHS scores, only trained professionals capable of advising on appropriate interventions should interpret them.

The development and psychometric validation of the BHS identified three factors which tapped into the affective, motivational and cognitive aspects of hopelessness. The affective component, “Feelings About the Future”, indexes hope and enthusiasm. The second factor, “Loss of Motivation”, refers to lack of persistence and the intention to ‘give up’. The third factor, “Future Expectations”, represents the cognitive element of hopelessness, which consists of negative and uncertain beliefs about the future.

It is this three-factor structure which has been the subject to recent academic debate (Boduszek, & Dhingra, 2016). This dispute has been exacerbated by numerous replication studies which report different factor structures. For example, whilst some have succeeded in replicating the original factor structure (e.g., Dyce, 1996; Iliceto & Fino, 2015; Boduszek & Dhingra, 2016; Kocalevent et al., 2017; Rosenfeld et al., 2004) other researchers have forwarded alternative models comprising one (Aish & Wasserman, 2001) to five dimensions (Zhang et al., 2015). The unidimensional solution reports a single underlying factor accompanied by effects resulting from positive and negative item phrasing (e.g., Aish & Wasserman, 2001; Hanna et al., 2011; Innamorati et al., 2014; Szabó et al., 2015). Authors reporting two-factor structures generally propose dimensions that encapsulate negative expectation of the future and perceptions of powerlessness (e.g., Aloba et al., 2017; Kliem et al., 2018; Neufeld et al., 2010; Nissim et al., 2010; Pompili et al., 2007). Regarding more complex models, Nekanda-Trepka et al. (1983) reported the presence of five factors (Motivation and Outcome Expectation, Confidence in the Future, Future Accomplishment, Trust in the Future, and Time Perspective). Zhang et al. (2015) reported a four-factor model (Loss of Motivation, Positive Expectation, Negative Expectation, and Future Expectation) for suicide attempters, and a five-factor model for non-attempters (Feelings About the Future, Pessimistic Motivation, Positive Expectation, Negative Expectation, and Future Expectation).

Pertinent to the present paper, Boduszek and Dhingra (2016) tested a range of models using a large student sample ($N = 1,733$), finding that a three-factor solution with 2 method effects (i.e., a multitrait–multimethod model) provided best data fit. The key difference to this study is that it supports the original factor solution proposed by Beck et al. (1974) whilst using a non-clinical sample. However, other studies using student samples have failed to reproduce the original solution (e.g., Chang et al., 1994; Hanna et al., 2011; Steed, 2001). For instance, Steed (2001) observed four largely uninterpretable factors. Subsequently, removal of items and additional analysis produced a two-factor structure of questionable interpretability. Following a comparison of BHS, with Hope Scale (HS) (Snyder et al., 1991) and Life Orientation Test scores (LOT), Steed (2001) concluded that the HS and LOT scales had greater applicability to normal populations because they were developed to index healthy characteristics and behaviours, as opposed to the BHS which was developed with a clinical cohort in mind.

Limitations regarding BHS efficacy in non-clinical populations have been noted in other scenarios. As an example, Young et al. (1992) reported that the BHS was an inefficient predictive tool within samples in which expected low hopelessness levels. Although there is still a capacity for detecting changes at moderately low levels, the BHS works optimally when assessing higher quantities of hopelessness. This is observed even in clinical samples, where the BHS may be less sensitive to important changes in depression within the lower range (i.e., patients progressing from improved to totally remitted), which is indicative of the difficulties the BHS has in discriminating low hopelessness. It is important to identify differences within the medium-lower range because scores potentially reveal troubling psychological states. Thus, the ability to reliably detect differences across the score range, both between groups and within respondents, is crucial. Despite this, recent studies within university-based samples have continued to use the BHS, indicating that it is still regarded as the predominant measure of

hopelessness (e.g., Demirtas & Yildiz, 2019; Lew et al., 2019; Nalipay, & Ku, 2019; Ulas & Yildirim, 2019).

Regarding clinical samples, Niméus et al. (1997) also noted variations in the predictive validity of the BHS. The instrument failed to significantly predict future suicide in hospitalized suicide attempters. Collectively, these findings suggest that the BHS is most effective when it is indexing depression ratings, mood disorders and/or personality disorders within a clinical setting (Niméus et al., 1997).

Conceptualisation

Concerned with the questionable factor structure and the non-clinical efficacy of the BHS, this chapter describes the development of an alternative measure of hopelessness for use with general, non-clinical populations. To ensure that the new instrument appropriately indexed the construct of hopelessness, construction of the scale considered and incorporated elements from the conceptualisations of Beck's hopelessness theories and the theory of hopelessness depression (Abramson et al., 1989).

Beck's cognitive theory of depression (Beck, 1979) is often viewed as a diathesis–stress model because it proposes that the experience of stressors, such as adverse life events (i.e., childhood experiences), produce negative self-schemas. These embody undesirable interpretations of the world and a perceived lack of control, leading to systematic cognitive biases in the form of distorted thinking patterns. Ensuing cognitions form a negative cognitive triad which encapsulates undesirable views about the self, world and future. Through rumination the negative cognitive triad plays an important role in the formation and maintenance of depression (Teasdale & Barnard, 1995; Watkins, 2008), alongside indirectly effecting suicide ideation levels via depressive symptoms (Chang et al., 2007); processes are linked also to anxiety (Wong, 2008) and dysphoria (Beshai et al., 2012).

Beck proposes that dysfunctional perceptions play an important role in depressive disorders (Beck, 1967; 1979; Beck et al., 1998), specifically highlighting the role negative schemata play in affecting information processing, facilitating the formation of maladaptive attitudes, and producing automatic thoughts that lead to false perceptions. For instance, statements with a neutral valence are interpreted negatively, negligible losses are viewed as significant, and minor obstacles are regarded as insurmountable. A stable expression of strong negative and weak positive schema content, over time, is a strong predictor for future depressive symptoms (Friedmann et al., 2016).

Another prominent theory in the hopelessness literature is Abramson et al. (1989) theory of hopelessness depression. This proposes that hopelessness and inference style are root causes of depression. Similar to Beck, the model defines hopelessness as negative expectations for future events, the non-occurrence of desirable outcomes, and the expectation that one is unable to change the likelihood of these events from occurring, a process referred to as negative outcome expectancy. Correspondingly, inference style denotes the tendency to draw undesirable interpretations following a negative event. Together, these contribute to the hopelessness depression subtype. This is a distinct depressive syndrome (Joiner et al., 2001) that places significant importance on perceived lack of social support (Bener et al., 2017; Çankaya et al., 2020; Panzarella et al., 2006; Somasundaram, & Devamani, 2016; Uslu-Sahan et al., 2019). Hopelessness arises with the production of faulty inferences, explicitly, that negative life events are due to stable (enduring) and global (widespread) causes. Therefore, internal, stable, global attributions for a negative event arise when an event is low in consensus, high in consistency and low in distinctiveness. Contextually, negative inferences include adverse consequences, and the assumption that the event reflects upon an individual's character. If these factors are met, then there is a greater likelihood that an individual will develop hopelessness, and potentially hopelessness depression.

Both of these theories are cognitive-vulnerability-stress models as they revolve around the notion that hopelessness is caused by the expectation of negative future events (Pössel & Knopf, 2011). They both emphasise the use of negative thinking styles, which take the form of dysfunctional attitudes and negative inferences. The interaction between cognitive styles and negative events is an important predictive process for the development of depressive symptoms (Hankin et al., 2004). Despite these similarities there are important differences. Notably, Beck hypothesizes that vulnerability to depression arises from an individual's universal beliefs and rules for happiness (i.e., those related to perfectionism, performance, and self-worth), whereas Abramson et al. (1989) attributed susceptibility to inferences about the cause, consequences, and self-implications of negative life events (Haefffel et al., 2003).

Despite their similarities, few studies have tried to integrate these accounts. One notable attempt was by Pössel and Thomas (2011), who explored how elements of the cognitive triad assimilate into the model of hopelessness depression. However, this was only partially successful, as mediation occurred only with the inclusion of the whole cognitive triad. A further attempt by Pössel and Knopf (2011) found that inference style was distinct from the depressogenic schemata and cognitive errors elements of Beck's model. Finally, a study by Pössel and Smith (2020), using an adolescent sample, provided support for an integrated model when inferential styles were located between the cognitive errors and cognitive triad. This demonstrated that it was possible to meaningfully combine theoretical accounts.

Present study

This chapter describes the construction of the General Hopelessness Scale (GHS), as a means to address the previously discussed limitations of the BHS. Although other scales exist, they both lack the conceptual basis of the BHS, and were also designed for use within clinical settings/contexts (i.e., State-Trait Hopelessness Scale, Dunn et al., 2014; Brief Inventory for Helplessness, Hopelessness and Haplessness, Lester, 2001; Hopelessness Scale for Children,

Kazdin et al., 1986). To satisfy these limitations, the GHS was developed within a non-clinical sample, and derived scale items from the core elements of the BHS and Abramson's theory.

Acknowledging these theoretically important sources, GHS items index negative perceptions of both future events (e.g., "If something bad could happen, it probably will") and the self and one's own adequacies, (e.g., "If I don't get something right after a few tries, I'll probably never get it right"). Items reference also specific features of the cognitive models. Explicitly, attributions for adverse events and consequences (e.g., "I often find things to be out of my control"). These reflect the notion that an individual is incapable of taking control of a situation, or that adverse events arise from dispositional factors. In combination, these components reflect the stability and globality of negative conditions, which Abramson et al. (1989) identify as being integral to the development of hopelessness. Concomitant with this, these items infer or draw normative comparisons with others (e.g., "I doubt I'll get the things that other people have"). This is reflective of the cognitive distortions of cognitive theory as well as the inferred negative consequences and consensus elements of hopelessness depression theory. Finally, the GHS contains statements with positive valence (e.g., "I know I can accomplish what I'm trying to do", implies confidence in one's own ability; and "I look forward to the future with optimism", is indicative of a confident outlook). These reflect the hopefulness apparent in some BHS statements.

Method

Participants

The study comprised two samples. Sample 1 consisted of 305 participants (172 females, 56%; 133 males, 44%), mean age 28.68 (SD = 10.82), range 18 to 70. Participants originated mostly from the USA and UK (41% and 25% respectively) (see table 1). Regarding vocational status, 39% of the sample were students, 54% employed and 7% unemployed. Sample 2 consisted of

326 participants (224 females, 68%; 102 males, 32%), mean age 26.52 (SD = 8.74), range 18 to 71. Participants were typically from the UK (34%). In terms of vocational status, 74% of the sample were students, 24% employed and 2% unemployed.

Data screening revealed acceptable univariate skewness and kurtosis existed for study variables (i.e., between -2.0 to +2.0). In addition, non-normality existed across sample 1 and 2, as Mardia's (1970) kurtosis (sample 1 $\beta = 26.19$, $p < 0.001$; sample 2 $\beta = 26.96$, $p < 0.001$) and skewness (sample 1 $\beta = 162.19$, $p < 0.001$; sample 2 $\beta = 98.30$, $p < 0.001$) inferred significant deviation.

Table 1. Sample characteristics

Characteristic	Sample 1 ($N = 305$)		Sample 2 ($N = 326$)	
	%	(n)	%	(n)
Gender				
Male	43	133	69	224
Female	57	174	31	102
Nationality				
UK	25	76	34	109
USA	41	125	23	75
Europe (other than UK)	11	35	14	47
Other	23	69	29	95
Occupation				
Student	39	120	74	246
Employed	54	164	24	79
Unemployed	7	21	2	6

Instrument Development

To create a scale with adequate content validity, 32 questions were composed following examination of extant measures, such as the Beck Hopelessness Scale (Beck et al., 1974) and the hopelessness depression symptom questionnaire (Metalsky & Joiner, 1997). The semantic content of these two scales were particularly pertinent to the development of the GHS, as they encapsulate elements of the two separate theories, and provided tangible reference points to accompany more abstract ideas that arose from their key concepts.

Two groups of nine items provided an index of both negative expectations of future events as well as perceptions of inferiority when comparing the self to others. Eight items also assessed general lack of motivation including the affective unwillingness to proceed (e.g., “I don’t want to do X”) and cognitive dismissal of the outcome (e.g., “There’s no point to doing X”). A further six items were dedicated to the perception of negative events and how they may reflect character flaws. Each group of items contained two reverse-keyed items (aside from perception of negative events, which included one reverse-keyed item), totalling seven, with the positively charged statements reflecting a contrasting element of hopefulness. The measure utilised a 7-point Likert response scale (*1 = Strongly disagree to 7 = Strongly agree*).

Measures

To assess the concurrent validity of the GHS, participants also completed additional measures. For sample 1, these included the Trait element of the State-Trait Hopelessness scale (Dunn et al., 2014) and the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983). The former can differentiate between temporary (state) and enduring (trait) hopelessness, meaning the scale can be used in studies regarding suicide ideation and attempt (Burr et al., 2018). The trait element has demonstrated an adequate and reliable correlation with the BHS (Dunn et al., 2014). The latter often serves as a screening device for psychometric disorders (Herrero et al.,

2003; Pallant & Tennant, 2007; Spinhoven et al., 1997) and has frequently been used in hopelessness research (MacLeod et al., 2005; Mystakidou et al., 2008; Connor et al., 2000)

The Trait element of the State-Trait Hopelessness Scale (THS) consists of 13 items assessing beliefs and feelings associated with hopelessness, using the phrase ‘typically’ to represent trait hopelessness. Participants answered using a 7-point scale ($1 = \textit{Strongly agree}$, $7 = \textit{Strongly disagree}$). Reported reliability is high for the measure ($\alpha = .91$; Burr et al., 2018). In this study, good alpha and omega reliability existed ($\alpha = .93$, $\omega = .93$).

The Hospital Anxiety and Depression scale (HAD) is a 14-item scale originally developed to detect depression and anxiety levels among patients within the setting of a medical outpatient clinic. The measure contains two subscales (one for depression, HAD-D, and one for anxiety, HAD-A). Participants answer each item by selecting one of four replies from 0-3, which changes with each question (e.g., ‘*I feel as if I am slowed down*’: *Nearly all the time*, *Not at all*; ‘*I still enjoy the things I used to enjoy*’: *Definitely as much*, *Hardly at all*). Acceptable levels of reliability exist for the HAD-D ($\alpha = .76$) and HAD-A ($\alpha = .80$) (Mykletun et al., 2001). In this study, good alpha and omega reliability occurred for the Depression ($\alpha = .84$, $\omega = .85$) and Anxiety ($\alpha = .85$, $\omega = .85$) subscales.

The Rosenberg Self-Esteem Scale (RSE) is a 10-item measure which uses a 4-point Likert scale ($0 = \textit{Strongly disagree}$, $3 = \textit{Strongly agree}$) to assess global self-esteem. Negatively worded phrases (items 2, 5, 6, 8 and 9) are reversed. Total scores range from 0 up to 30, with higher scores indicating a higher global self-esteem. The RSE demonstrates excellent internal consistency ($\alpha = .92$; Rosenberg, 1979), with this study showing similar alpha and omega reliability ($\alpha = .93$, $\omega = .93$).

Sample 2 were subject to the GHS, which would be subject to reformatting following sample 1, alongside a series of antithetical measures to assess construct validity. These include the Positive and Negative Affect Scale (Watson et al., 1988), the Revised Life Orientation Test

(Scheier et al., 1994) and the Adult Hope Scale (Snyder et al., 1991). These measures were chosen for their content which they measure, positive affect, optimism and hope, and their adversative nature to hopelessness.

The Positive and Negative Affect Scale (PANAS) is a self-report consisting of two scales designed to measure positive and negative affect. Respondents are asked to read 20 words that describe a series of feelings and emotions and then indicate the extent to which they usually experience them, responding on a 5-point Likert scale ($1 = \textit{very slightly or not at all}$, $5 = \textit{extremely}$). Scores for each scale are achieved by totalling the positive and negatively valanced words respectively. The present study has found good internal consistency for both scales (PA $\alpha = .89$, NA $\alpha = .88$), which is in-line with estimations achieved by the creators (Watson et al, 1988).

The Revised Life Orientation Test (LOT-R) is a 10-item measure which can assess optimism and pessimism on a 5-point Likert scale ($0 = \textit{strongly disagree}$, $4 = \textit{strongly agree}$). Three items (Items 1, 4, and 10) assess optimism, 3 items (Items 3, 7, and 9) assess pessimism, and there are 4 filler items which will be removed prior to analysis. The sum of all included items calculates overall score, which the present study found to maintain good internal consistency ($\alpha = .82$).

The Adult Hope Scale (AHS) is a 12-item measure of a respondent's level of hope, which can be divided into two subscales (1) Agency (i.e., goal-directed energy) and (2) Pathways (i.e., planning to accomplish goals). Of the 12 items, 4 make up the Agency subscale and 4 make up the Pathways subscale. The remaining 4 items are fillers. Each item is answered using an 8-point Likert-type scale ranging from Definitely False to Definitely True. The present study utilised the option to combine both subscales to produce a total score for hope ($\alpha = .74$).

Procedure

Prior to participation, respondents for each sample read the study brief. This contained background information about the nature of the study and outlined the conditions and requirements of involvement. Only consenting participants progressed to the online measures hosted by Qualtrics. Further instructions asked participants to take their time, complete all questions, and answer questions openly/honestly. The initial questions of the survey requested demographic details (i.e., age, gender and occupation).

Results

Analytical strategy

Assessment of the General Hopelessness Scale (GHS) advanced through several analytical stages. These involved an initial test of factor structure (SPSS26) via exploratory factor analysis (EFA) in sample 1, which utilised two criteria for factor extraction: Velicer's minimum average partial (MAP) test, and an eigenvalue equal to or greater than 1. Velicer's MAP test computes partial correlations using the covariances among the residuals. Computation of the average squared partial correlation occurs, and the test terminates when this value achieves a minimum result indicating no additional common variance being extracted. This is an empirically supported approach for establishing the quantity of factors underlying a measure (O'Connor, 2000).

Next, CFA (AMOS26) examined data-model fit of the superior solution from EFA in an independent sample (sample 2). Given the presence of non-normality, CFA used ML estimation with bootstrapping (1000 resamples) to produce standard error estimates and confidence intervals (bias-corrected at the 95% confidence level) and p-values (Byrne, 2010). Naïve bootstrapping is a robust alternative to other ML robust approaches (e.g., Satorra-Bentler chi-square), and operates successfully even when data evinces extreme non-normality (Nevitt & Hancock, 2001)

Assessment of model fit included the chi-square statistic (χ^2), Comparative Fit Index (CFI), Root-Mean-Square Error of Approximation (RMSEA), and Standardised Root-Mean-Square Residual (SRMR). RMSEA scrutiny involved reference to its 90% confidence interval (CI). Values > 0.88 and > 0.90 imply marginal and good fit for CFI (Hopwood & Donellan, 2010). Values of 0.05, 0.06-0.08, and 0.08-1.0 indicate good, satisfactory and marginal RMSEA and SRMR (Browne & Cudeck, 1993).

Measurement invariance of the final factorial model was examined by fitting and comparing sequentially nested and increasingly constrained CFA models across gender (males and females). Invariance examined equivalence at the configural (factor structure), metric (factor loadings), and scalar (item intercepts) levels. Assessment of fit at each stage involved consultation of Chen, Hayes, Carver, Laurenceau, & Zhang's (2007) criteria: CFI difference ($\Delta\text{CFI} \leq 0.01$ and RMSEA difference ($\Delta\text{RMSEA} \leq 0.015$).

Concurrent validity testing occurred following data-model inspection. This included correlating GHS with the THS, RSE and HAD scales for sample 1, and with the PANAS, LOT-R and AHS for sample 2. Cohen's (1988) criteria facilitated interpretation of the magnitude of associations. Specifically, 0.1-0.29 indicated a weak correlation; 0.3-0.49 suggested a moderate relationship; and 0.50 or greater inferred a strong correlation. Cronbach's alpha examined internal consistency of the GHS across sample 1 and 2. Coefficient omega (ω) also measured reliability (using Jeffreys's Amazing Statistics Program, JASP) given this more successfully estimates reliability than alpha (Deng & Chan, 2017). Analysis subsequently considered standard measurement error, and ceiling and floor effects across samples.

Exploratory Factor Analysis (EFA)

The MAP test for sample 1 ($N = 305$) suggested extraction of four factors, which was consistent with the *a priori* breakdown of items conceptually into general domains of negative

expectations, perceptions of inferiority, lack of motivation and an element of hopefulness. Specifically, the smallest average squared partial correlation was .01, occurring alongside four underlying components. Scree plot assessment and EFA (using oblique rotation) further confirmed this. EFA results revealed satisfactory sampling adequacy; Kaiser-Meyer-Olkin measure (KMO) = .96 and a reasonable item correlation matrix, Bartlett's Test of Sphericity ($p < 0.001$). The four factors explained 63.23% of variance.

Items 19, 6, 2, 29, 18, and 20 loaded below 0.4 (Norman & Streiner, 1994). Reanalysis following the removal of these items revealed that the four factors accounted for 66.05% of variance. Eight items loaded on Factor 1, seven items on Factor 2, eight items on Factor 3, and three loaded on Factor 4 (Table 2). Items belonging to Factor 1 (labelled as 'Social Comparison'), comprised items relating to how someone perceives themselves in an interpersonal spectrum, with hopeless individuals likely perceiving themselves as inferior to others. Items informing Factor 2 consisted mostly of reversed items and comprised a positive valence i.e., positively worded statements. Resultantly, this was named 'Hope'. This is similar to Factor 1 of the Beck Hopelessness Scale, which a user would typically answer as 'false' if they were experiencing levels of hopelessness. The third factor (labelled 'Negative Expectations') referred to adverse feelings that individuals have regarding their future. The fourth factor consisted of items that capture an individual's aversion to initiate or maintain new habits or tasks (named 'Futility').

All four factors evidenced moderate to large inter-factor correlations. Specifically, Social Comparison demonstrated a large association with Hope (r of $-.55$), Negative Expectation (r of $.67$), and Futility (r of $.61$). Hope evidenced a large association with Negative Expectation (r of $-.72$) and Futility (r of $-.55$). Negative Expectation also correlated strongly with Futility (r of $.55$).

Table 2. Summary of EFA results for the GHS items obtained from Sample 1 ($N = 305$)

Item ^a	Factor Loadings (E = Eigenvalue, VE = Variance Explained)			
	Factor 1 (E = 11.82,	Factor 2 (E = 2.31,	Factor 3 (E = 1.36,	Factor 4 (E = 1.02,
13	.89			
18	.81			
12	.75			
9	.63			
17	.62			
11	.58			
5	-.50			
19	.49			
24		-.87		
22		-.83		
25		-.77		
4		-.75		
1		-.73		
21		-.71		
16			.95	
2			.89	
3			.76	
8			.66	
23			.63	
15			.47	
6			.46	
7			.41	
14				.88
20				.55
10				.45

Confirmatory Factor Analysis (CFA)

A replication of the four-factor model with Sample 2 ($N = 326$) revealed (using CFA) acceptable fit for RMSEA and SRMR, and marginal fit for CFI, $\chi^2(269) = 783.87, p < .001$, CFI = .88, RMSEA = .07 (90% CI of .07 to .08), SRMR = .06. Inspection of standardized parameter estimates indicated that all items loaded above .5 (Hair et al., 2006) apart from item 11 (loading of .41). Similarly, assessment of Modification Indices suggested correlating within-factor error terms for items 2 and 3, 1 and 4, and 12 and 19. This amendment resulted in better model fit, $\chi^2(266) = 669.27, p < .001$, CFI = .91, RMSEA = .07 (90% CI of .06 to .07), SRMR = .06. In addition, this model indicated significantly improved fit in comparison with the nested model, $\Delta\chi^2 = 114.59, p < .001$. The four factors reported large inter-factor correlations with one another (represented in Figure 2). See Appendix 1 for the final 26-item scale.

Measurement Invariance

Multi-group analysis comparing men and women supported metric invariance based on the change criteria in fit statistics specified *a priori* (Table 3): Model 1 vs. Model 2 ($\Delta\text{CFI} = .002$, $\Delta\text{RMSEA} = .001$). Support also existed for scalar invariance: Model 2 vs. Model 3 ($\Delta\text{CFI} = .004$, $\Delta\text{RMSEA} = .00$).

Validity, Reliability and Standard Error of Measurement

Concurrent validity was assessed using the THS, RSE and the HAD scale for sample 1, and the PANAS, LOT-R, and AHS for sample 2 (Table 4). The GHS and its subscales correlated strongly with the THS and the HAD Depression subscale. Also, the GHS and its subscales evidenced moderate to large associations with the HAD Anxiety subscale and the RSE. Moderate to large correlations occurred between the GHS and its subscales with the PANAS subscales and AHS. Large correlations existed with the LOT-R measure.

Using alpha and omega coefficients, reliability for the overall scale was good (sample 1: $\alpha = .95$, $\omega = .86$; sample 2: $\alpha = .92$, $\omega = .86$). Social Comparison evidenced good reliability (sample 1: $\alpha = .90$, $\omega = .84$; sample 2: $\alpha = .84$, $\omega = .84$). Also, Hope was satisfactorily reliable (sample 1: $\alpha = .89$, $\omega = .89$; sample 2: $\alpha = .86$, $\omega = .86$), in addition to Negative Expectations (sample 1: $\alpha = .92$, $\omega = .92$; sample 2: $\alpha = .90$, $\omega = .91$), and Futility (sample 1: $\alpha = .79$, $\omega = .80$; sample 2: $\alpha = .75$, $\omega = .76$).

Standard Error of Measurement (SEM) was calculated to indicate the precision of the GHS at the total scale level (Morrow et al., 2011). This was computed via $SD \times \sqrt{1-r}$ (i.e., the standard deviation of the scale multiplied by the square root of one minus the reliability coefficient). The criterion for judging adequate precision was $SEM \leq SD/2$ (Wuang et al., 2012). The SEM value for sample 1 was 3.88, which was below $SD/2$ (8.67). For sample 2, SEM was 4.81, which was less than $SD/2$ of 8.50, inferring satisfactory measurement precision of the GHS.

Ceiling and Floor Effects

Examination of GHS total score distributions occurred for floor and ceiling effects. Floor effects represent a limitation of a measure whereby the scale cannot determine decreased performance beyond a specific level. Likewise, ceiling effects indicate the opposite extreme (Wuang et al., 2012). Assessment of these effects comprised scrutiny of the percentage of the participants reporting lowest (i.e., 25) and highest potential scores (i.e., 175). Following the guidelines of Terwee et al. (2007), a floor or ceiling effect existed if 15% or more of the participants reported lowest or highest possible scores. Analysis of the GHS found negligible floor and ceiling effects. Specifically, for sample 1 the lowest score was 25, with 1 (.3%) possessing this. The highest score was 150, also with 1 participant (.3%) indexing this. For

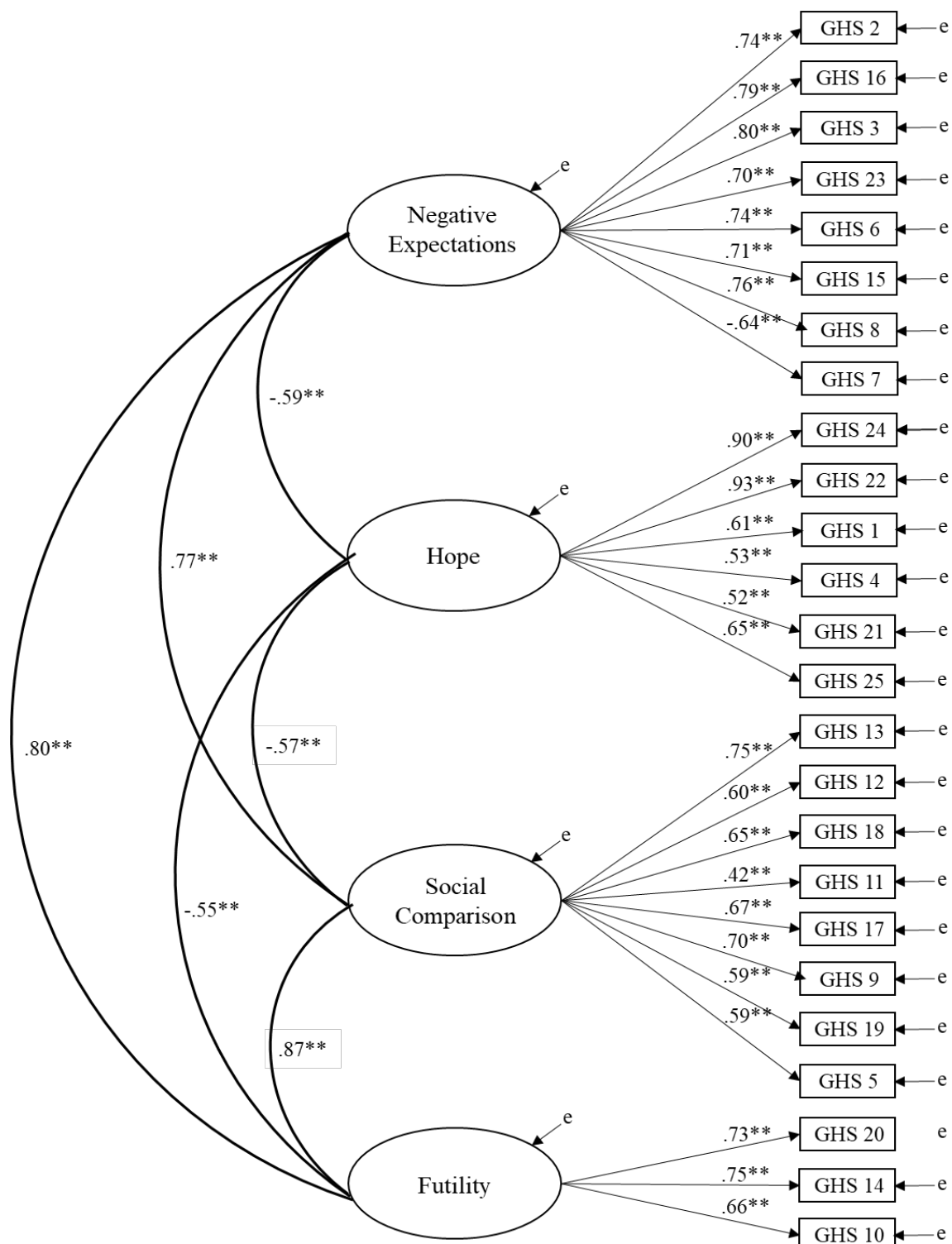


Figure 2 Four-factor model of the General Hopelessness Scale (items renumbered following initial CFA). See Appendix 1 for a full description of the final scale items. *Note.* Latent variables are represented by ellipses; measured variables are represented by rectangles; error is not shown, but was specified for all variables. ** $p < .001$

Table 3 Measurement invariance for the General Hopelessness Scale by gender for Sample 2 ($N = 326$)

Model	χ^2	df	CFI	SRMR	RMSEA (90% CI)	$\Delta\chi^2(df)$	Δ CFI	Δ RMSEA
Model 1 (Equal Form, Configural)	1026.42**	532	.89	.07	.05 (.05-.06)	-	-	-
Model 2 (Equal loadings, Metric)	1391.47**	606	.89	.08	.05 (.05-.06)	31.26 (21)	.002	.001
Model 3 (Equal loadings and intercepts, Scalar)	1436.81**	632	.88	.08	.05 (.05-.06)	40.84 (25)	.004	No change

Table 4 Correlations between GHS, GHS subscales and the concepts used to establish their concurrent validity

	Variable			
<u>Sample 1 (N = 305)</u>	<u>THS</u>	<u>RSE</u>	<u>HAD-D</u>	<u>HAD-A</u>
GHS total	.64**	-.42**	.63**	.55**
Social Comparison	.64**	-.43**	.65**	.55**
Hope	-.85**	.51**	-.66**	-.33**
Negative Expectations	.86**	-.52**	.72**	.51**
Futility	.65**	-.40**	.56**	.37**
<u>Sample 2 (N = 326)</u>	<u>PANAS-P</u>	<u>PANAS-N</u>	<u>LOT-R</u>	<u>AHS</u>
GHS total	-.38**	.54**	-.65**	-.33**
Social Comparison	-.53**	.56**	-.60**	-.42**
Hope	.66**	-.29**	.61**	.72**
Negative Expectations	-.42**	.47**	-.78**	-.46**
Futility	-.50**	.40**	-.52**	-.51**

sample 2, the lowest score was greater at 63, with only 1 participant reporting this (.3%) and the highest score was similar to sample 1 at 157, again for 1 participant (.3%).

Discussion

This study developed a new measure for hopelessness based upon two of the more prominent theories of hopelessness, Beck's cognitive theory of hopelessness and Abramson's theory of hopelessness depression. This was due to the mixture of opinion surrounding the validity of the initial factor structure for the (BHS), in which multiple re-analyses have produced inconsistent results (Aloba et al., 2017; Boduszek & Dhingra, 2016; Kocalevent et al., 2017; Steed, 2001; Szabó et al., 2015). There have also been concerns about the relative insensitivity

of the BHS when detecting lower levels of hopelessness, such as improving patients or a non-clinical sample (Steed, 2001; Young et al., 1992), unless the factor structure is altered to resemble a simpler model (Iliceto & Fino, 2015; Kliem et al., 2018). Finally, evidence suggesting the potential for a combination of the two theories (Pössel & Smith, 2020) opens the possibility for more effective therapeutic interventions in which techniques from different cognitive theories are optimally combined.

Exploratory factor analysis identified four factors, which roughly matched the theoretical underpinnings of each item during its construction. These consisted of Negative Expectations, Hope, Social Comparison and Futility. Confirmatory factor analysis solidified these factors by encouraging the removal of ten items, bringing the total down to 26 ($\alpha = .95$), to strengthen model fit and improve inter-factor covariance. Whilst reliabilities, both for specific factors and the entire model as a unitary measure, were consistently good, future research with this measure will be necessary to establish its efficacy. However, the use of a non-clinical sample in the scale's development and the subsequent concurrent validity with established measures implies the positive potential efficacy of the new scale within non-clinical populations.

Additionally, the study provides information regarding variability of errors of measurement via Standard Error of Measurement (SEM). Overall, the SEMs across Sample 1 and 2 suggest that the GHS is relatively accurate and reliable in detecting changes in GHS levels. A further point relates to ceiling and floor effects. Usually, these are viewed to be concerning when greater than 15% of a sample possesses either the highest or lowest available score (Terwee et al., 2007). Effects of this magnitude did not exist in this study, suggesting the measure was useful for capturing hopelessness scores within a non-clinical sample; a criticism occasionally levied at the BHS (Iliceto & Fino, 2015; Kocalevent et al., 2017; Pompili et al., 2007). Also, invariance tests revealed satisfactory stability of factor structure, loadings,

intercepts and residuals in this overall sample across gender, implying that the measure did not reveal notable measurement biases in this instance. Analysis indicated that the GHS is a psychometrically sound measure of hopelessness that addresses previous conceptual limitations by synergizing elements from Beck's cognitive model of hopelessness and Abramson's theory of hopelessness depression. The outcome of this theoretical synthesis is a measure that incorporates key elements of both conceptual important theories. Specifically, negative, dysfunctional perceptions and a cynical view of the future. The GHS assesses these features concomitant with other aspects that contribute towards hopelessness, such as cognitive errors that may occur when comparing perceptions of one's own ability to the seemingly unattainable competence of others. Therefore, the more novel aspects of the GHS include facets of social comparison and futility.

Somewhat of a new addition to the measurement of hopelessness is the inclusion of social comparison, which was drawn from Abramson et al. (1989) examples of how hopelessness depression develops, yet also encapsulates the stimulation of cognitive errors i.e., misperception of other's opinions of the self, inferring that others are doing "better" etc, and thus the cognitive triad of Beck's cognitive theory. This element was derived from a relationship between social comparison and self-esteem, where those who feel comfortable in their perceptions of themselves, specifically in comparison to their perceptions of others, are able to maintain a positive level of self-esteem (Dagnan & Sandhu, 1999; Morse & Gergen, 1970), and how a lack of self-esteem can be a predictor of depression (Brown et al., 1986; Orth et al., 2008). Therefore, it stands to reason that a negative social comparison, where an individual perceives others to be more competent, achieve more and are better liked, and the subsequent negative impact this poor perception of the self may have upon self-esteem (Ahrens & Alloy, 1997; Erol & Ergun, 2013; Tylka & Sabik, 2010) could be both a predictor and a

precursor to depression, as well as hopelessness. Subsequent studies with this measure will be needed to measure the benefit of this factor.

Although an original, encompassing motivational factor, delineating a general absence of impetus or purpose, was always going to be included as a theoretical starting point during the measure's developmental process, factor analysis saw the emergence of a more nuanced motivation factor in "futility." Despite consisting of only three items, this factor reflects a particular aversion to partake or maintain habits or tasks, as perceived personal inadequacy inhibits the desire to make things better for oneself. The term "futility" suggests a lack of self-efficacy and a fear of failure, as evident in items such as "I feel that giving up is easier than failing" and "I avoid attempting new things in case I find them difficult," which certainly differs from the semantic tone of the BHS motivational factor, as the BHS focuses more upon the loss of motivation based upon the poor expectation of the future. However, this corresponds to the cognitive triad factor regarding negative views of the self, and the internal- and self- inferential styles of hopelessness theory, resulting in a factor which represents a deficit of intrinsic motivation, where the motivation is based upon an internal reward system wherein activity engagement occurs for the sake of self-enjoyment and accomplishment rather than material gain (Deci, 1972; Sansone & Harackiewicz, 2000).

Though the scale was developed using clinical measures for concurrent and construct validity, the actual participation pool consisted of members of the public, and as such constituted a non-clinical sample. Whilst this was necessary to assess the utility within a non-clinical population, as per the initial aims of the study, the primary limitation of this is the inability to properly assess the measure within a clinical setting. As the GHS performed adequately in relation to the clinical measures, a worthwhile avenue for future research would be to attempt to utilise a clinical sample in conjunction to a non-clinical sample, in order to properly assess its value in multiple populations. The main implication for this is addressing

the issues that the BHS has with detecting changes in the lower spectrum of hopelessness. A scale which adequately measures both high and low levels of hopelessness will certainly be a beneficial resource when conducting interventions and monitoring recovery.

Conclusion

This chapter has succeeded in developing a measurement scale for hopelessness, which possesses consistently good internal consistency and external validity. This scale will be a suitable alternative to the BHS for use in the following phases of the research project, with the potential for further research to assess its efficacy in both clinical and non-clinical domains.

Chapter 4 – Expectancy biases and the Dark Triad: A phenotypic analysis

Introduction

The Dark Triad of personality traits refers to three interrelated higher-order personality constructs (psychopathy, narcissism, Machiavellianism) which represent a constellation of socially undesirable behavioural tendencies (Paulhus & Williams, 2002). Moreover, each trait has its own set of distinct features, where narcissism is associated with grandiose egocentrism and entitlement (Raskin & Terry, 1988), psychopathy with callous thrill-seeking and antisocial behaviour (Hare, 1999), and Machiavellianism with the strategic manipulation and deception of others (Christie & Geis, 1970/2013). Since its inception, Dark Triad research was conducted with the assumption that the model is antecedent to a multitude of norm-violating behaviours (Muris et al., 2017). These behaviours, which are typified by a disregard for socially acceptable norms, include lying, cheating, stealing, and bullying, and are subsequently used by Dark Triad individuals as a means to promote themselves over others to satisfy personal agendas or whimsical desires (Jones & Paulhus, 2011).

The intercorrelations between these traits (Muris et al., 2017; Paulhus & Williams, 2002), which are reinforced by their shared negative correlations to the Big Five personality factor of Agreeableness (Jakobwitz & Egan, 2006; Muris et al., 2017; Paulhus & Williams, 2002; Vernon et al., 2008) and the HEXACO personality inventory factor Honesty/Humility (Djeriouat & Trémolière, 2014; Jonason & McCain, 2012; Lee & Ashton, 2005; 2014; Muris et al., 2017), have led to the argument of a “unification perspective” in which the individual traits merely reflect specific nuance of a larger, superordinate trait, predominantly modelled after psychopathy (Glenn & Sellbom, 2015; Jonason et al., 2009; Jones & Paulhus, 2011; McHoskey, 1995; McHoskey et al., 1998). However, contemporary research endorses a “uniqueness perspective,” which places emphasis upon the distinctive qualities of each trait

(Rauthmann, 2012; Rauthmann & Kolar, 2012; Vernon et al., 2008). A recurring feature of this viewpoint is the revelation is narcissism's deviation from the maladaptive pattern set by Machiavellianism and psychopathy when regarding the more anti-social behavioural tendencies. These deviations include examples wherein narcissism shows no comparative association to maladjusted personality characteristics, such as poor self-control (Jonason & Tost, 2010), dysfunctional impulsivity (Jones & Paulhus, 2011) and weak self-leadership (Furtner et al., 2011). Concomitantly, this also includes scenarios where narcissism holds a much weaker association to undesirable attributes. For example, the Dark Triad is typically characterised as deficient in empathy, yet narcissists appear to show a less significant weakness for global, cognitive, and effective empathy (Łowicki & Zajenkowski, 2017; Wai & Tiliopoulos, 2012), specifically when compared to Machiavellianism and psychopathy (Ali et al., 2009). Another example considers aggression, in which narcissism appears unrelated to the use of dispositional aggression (Jones & Neria, 2015), opting instead for reactive aggression, which in itself occurs more as a response to ego-threat (Bushman & Baumeister, 1998; Jones & Paulhus, 2010).

Indeed, a contemporary trend in research has delineated narcissism as the least malevolent of the Dark Triad traits, earning it the moniker of the "brightest" and, interestingly, most attractive of the dark traits (Rauthmann & Kolar, 2012; 2013). This considered attractiveness may contribute towards an external allure which bolsters narcissism's success in both short- and long-term relationships, particularly when measured in real-life scenarios such as speed dating (Jauk et al., 2016). Such external appeal is suggestive of other qualities which others may find compelling. To this end, Dark Triad literature provides several examples where narcissism distinguishes itself by expressing positive associations with qualities such as happiness (Egan et al., 2014), well-being (Aghababaei & Błachnio, 2015), emotional intelligence (Petrides et al., 2011) and emotional expression (Lyons & Brockman, 2017).

Furthermore, there is a parallel association to these qualities and several adaptive behavioural outcomes, such as affiliative humour styles (Martin et al., 2012), functional impulsivity (Jones & Paulhus, 2011), self-interested values (Jonason et al, 2015), and a resilience to psychosocial costs (Jonason et al, 2015). In contrast, psychopathy and Machiavellianism are associated with dysfunctional impulsivity and anti-group values, which complements the cynicism and disdain synonymous the two traits, often typified by a diminished concern for morality and collective interests.

It has often been observed that the specific nuances of narcissism differ from those of Machiavellianism and psychopathy. For instance, Pailing et al. (2014) conducted a principal component analysis containing the Dark Triad, the HEXACO personality inventory and measures of violence and aggression, finding that Machiavellianism and psychopathy loaded onto the same factor, whilst narcissism loaded onto a separate factor. This led Pailing et al. to conclude that when violence is the predictive behaviour, it is primarily psychopathy, then Machiavellianism, which reveal themselves, as narcissism did not predict any violence in the analysis. The absence of narcissism from this example could be explained by its greater association with extraversion, as their socially driven nature potentially deters their propensity towards anti-social conduct, as they require a high level of ego-threat before resorting to violence (Furnham et al., 2013; Jones & Paulhus, 2010). Similarly, Egan et al. (2014) posited an alternative model to the Dark Triad, summarily named the “Dark Dyad.” This occurred following the appearance that grandiose narcissism exhibited higher levels of conscientiousness, agreeableness, extraversion, and emotional stability when compared to vulnerable narcissism, whilst simultaneously expressing weaker correlations with Machiavellianism and psychopathy upon similar elements.

A recent investigation by Jonason et al. (2018) explored whether expectancy biases, the disposition to anticipate the probability of positive and negative events, manifest differently

amongst the dark triad traits. The rationale for this study considered how little was known regarding the underlying biases which influenced the Dark Triad traits (Jonason & Fletcher, 2018; Jonason et al., 2018), and that differences in how the world and future events are perceived may be linked to trait specific behavioural tendencies. Specifically, there was a keen focus upon interactions within optimism and pessimism, a disposition which reflects the valence which individuals perceive events based upon past experiences (Carver et al, 2010). The adoption of an optimistic outlook has been linked to numerous personal benefits, including preventative health habits (Ingledeu & Brunning, 1999; Steptoe et al., 2006), mitigating stress (Nes & Segerstrom, 2006), providing a barrier against depression (Giltay et al., 2006), and bolstering self-esteem (Mäkikangas et al., 2004).

Whilst it seems that variations in optimism can result in benefits to the individual, pertinent to this study is the degree to which the grandiose elements of narcissism share a commonality with optimism through correlations with equally beneficial factors, despite the aversive nature of the trait. These correlations include characteristic qualities such as extraversion (Narcissism: Mauris et al., 2017; Optimism: Sharpe et al., 2011), self-esteem (Narcissism: Bosson et al., 2008; Optimism: Mäkikangas et al., 2004), and subjective wellbeing (Narcissism: Egan et al., 2014; Optimism: Serrano et al., 2020), alongside observable qualities, such as beneficial health behaviours (Narcissism: Dębska et al., 2021; Optimism: Lipowski, 2012) and general happiness (Narcissism: Zheng & MacCann, 2023; Optimism: Demirtaş, 2020). Up until this point, however, the link between narcissism and the remaining Dark Triad traits with future expectancies had yet to be explored. A positive association between narcissism and optimism, coupled with a negative association for Machiavellianism and psychopathy, could potentially highlight a causal, mediative role for positive expectancies regarding narcissism's relative "brightness" (Rauthmann & Kolar 2012).

The findings supported the assumptions of Jonason et al. (2018), with narcissism once more showing a departure from the Dark Triad traits by maintaining a positive association to optimism. However, since this was the first known example of research that correlates expectancy biases with the Dark Triad traits, the authors stressed that more work was necessary to determine the extent that expectancy biases may contribute towards the outcomes linked to the Dark Triad. One specific point was the use of short measures of the Dark Triad traits, because despite numerous studies postulating the efficiency and efficacy of these measures (Jonason & McCain, 2012; Kornienko & Derish, 2019; Webster & Jonason, 2013), there are also those who advise caution in their use (Maples et al., 2014; Miller et al., 2012). This is primarily due to the presence of the conceptually conflicting putative subtypes for both narcissism and psychopathy, essentially ignoring sub-facet interaction. Since Jonason et al. (2018) discovered the link between narcissism and optimism, the narcissistic subtypes are the premier focus of this study.

The dual nature of narcissism (Wink, 1991) describes two facets underlying the narcissistic personality. The first, grandiose narcissism, encapsulates the proto-typical aspects of narcissism, i.e., the desire to maintain a superior self-image, uphold a tendency for exhibitionism, and experience a strong need for the approval of others. The second facet, vulnerable narcissism, maintains the same grandiose fantasies as its counterpart, yet oscillates between feeling of superiority and inferiority whilst being burdened with fragile self-esteem and self-confidence (Rohmann et al., 2012). Research into these facets has revealed that these sub-factors, in a similar manner to the composite form of narcissism within the Dark Triad, often diverge. For example, grandiose narcissism is related to extraversion whilst negatively associated to neuroticism, whilst the inverse pattern is witnessed for vulnerable narcissism (Miller et al., 2011). Furthermore, the two facets are diametrically opposed to personal agency

(Miller et al., 2012), and are respectively related to approach- and avoidance-related behaviour (Spencer et al., 2017).

Taking these facets at their face value, it would be easy to conclude that the “bright” element attributed to narcissism (Rauthmann & Kolar, 2012; 2013) may reside within the grandiose subtype. Since grandiose narcissism is the archetype of the extraverted, domineering, and dramatic individual with high self-esteem, face-value assumptions would place this element as the source for the optimism observed by Jonason et al. (2018). Contrastingly, the characteristics of vulnerable narcissism being described as cold, vindictive, socially avoidant, and hypersensitive (Dickinson & Pincus, 2003; Miller et al., 2011) are more indicative of a pessimistic outlook.

Therefore, to see how optimism may interact with these contrasting traits will give credence to the results procured by Jonason et al. (2018) as well as highlight the importance of how worldview may affect the behavioural outcomes of dark traits. Since grandiose narcissism is the subtype more accurately measured by the Short Dark Triad scale (Maples et al., 2014), which was also the scale used by Jonason et al. (2018), the use of a measure specific to vulnerable narcissism will provide a more precise image of how narcissism interacts with optimism.

Study 1

The first phase replicated the research of Jonason et al. (2018). Correspondingly, this meant that hypotheses and expectations were one and the same. Specifically, the hypotheses were for narcissism to maintain greater levels of optimism, whilst Machiavellianism and psychopathy were expected to express greater levels of pessimism and hopelessness. These predictions were founded upon associated behaviours, such as narcissism’s approach orientation (Foster &

Trimm, 2008), and the cynical and exploitative disposition of Machiavellianism and psychopathy (Jones & Paulhus, 2009).

Method

Participants and procedure

Participants (N = 508: 168 male, 33.1%; 314 female, 61.8%; 6 trans-male, 1.2%; 3 trans-female, 0.6%; 13 non-binary, 2.6%; 4 prefer not to answer, 0.8%) were recruited through convenience sampling with paper surveys alongside a larger online campaign. For the online campaign, participants were obtained from social media and various other websites via a link to a questionnaire entitled “Worldview via Narcissism, Machiavellianism and Psychopathy.” Whilst the description of the survey was written to specify English-native speakers, the open-ended nature of online recruitment enables the participation of individuals to whom English is a second language. That being said, the majority of the sample originates from the UK, USA, Canada and Australia. Participants had a mean age of 29.65 years (SD = 11.32, range = 18-73).

A minimum sample size was determined in accordance with Schönbrodt and Perugini (2013) in their ability to produce stable correlations, and 95% power to detect the average effect size ($r = .21$) within social and personality psychology (Richard et al., 2003).

Participants were presented with the survey booklet, the front page of which contained the information sheet regarding the purpose of the study (the online equivalent contained the same information as the first page to appear upon following the link). Participants were required to simply complete the survey in full, the final page of which contained a debriefing which reminded them of their right to withdraw from the study at any point. The first page also informed the respondents of the general purpose of the study, offered the option of feedback, and ensured full anonymity for the participant, for the intention of mitigating potential common method variance (Podsakoff et al., 2003; 2012).

Measures

Elements of the Dark triad were measured with the Short Dark Triad Scale (Jones & Paulhus, 2014) (SD3). This 27-item measure, split into three 9-item subgroups, contains statements pertaining to Machiavellianism (e.g., “I like to use clever manipulation to get my way”), narcissism (e.g., “I know that I am special because everyone keeps telling me so”), and psychopathy (e.g., “Payback needs to be quick and nasty”). Participants use a 5-point Likert scale to indicate the extent to which they agree with each statement (1 = “Strongly Disagree”, 5 = “Strongly Agree”). After reversing items whose content does not reflect the trait, the total scores reflect indexes of Machiavellianism ($\alpha = .81$), narcissism ($\alpha = .78$) and psychopathy ($\alpha = .67$).

Regarding expectancy biases, the Life Orientation Test (Scheier & Carver, 1985) (LOT) provided a measure of optimism. This scale consists of twelve items, with six of these being used for analysis. Of these six, three are worded optimistically (e.g., “I always look on the bright side of things”) and three are worded pessimistically (e.g., “If something can go wrong for me, it will”) in which participants answer to the degree in which they agree with each statement (1 = “Strongly Disagree”, 5 = “Strongly Agree”). The three pessimistic items are reversed scored and, alongside the optimistic items, are calculated to produce an overall score of optimism ($\alpha = .86$).

The Lerner Optimism Scale (Lerner & Keltner, 2001) (LOS) was also used as a measure for optimism. This scale is comprised of 15 items asking participants to estimate their own chances ($-4 =$ extremely unlikely; $+4 =$ extremely likely) of experiencing 15 future life events where approximately half the items were desirable events (e.g., “My achievements were written up in a newspaper”) and the other half reflected undesirable events (e.g., “I chose the wrong profession”). The items containing undesirable events were reverse coded, and scores were

totalled to create another score for optimism ($\alpha = .41$). The idea is that low scores on both this measure and the LOT should, in an absence of optimism, reflect pessimism.

In order to measure hopelessness, the authors constructed their own measure for use in a sub-clinical setting, which was described in Chapter 3. This scale (GHS) consists of 26 items, which contains questions whose content resemble four different factors. These groups include negative expectations (e.g., “Things typically don’t work out for me”), social comparison (e.g., “People around me always seem better at whatever I do”), futility (e.g., I avoid attempting new things in case I find them difficult), and an opposing factor of hope (e.g., “If I try hard enough, I can get what I want”). Participants respond to items using a 5-point Likert scale (1 = “Strongly Disagree”, 5 = “Strongly Agree”), all positively worded items are reversed-coded, and all scores are totalled to provide an index for hopelessness ($\alpha = .94$). Descriptive statistics for all variables are displayed in Table 1.

Analysis Strategy

Prior to path analysis, data was screened to ensure that variables met the assumptions of normal distribution, such as skewness and kurtosis. Following this, there ensued an assessment of multicollinearity, outliers, linearity and homoscedasticity. Subsequent examination of zero-order correlations provided a preliminary indication of relationships between variables. The structural equation model, which was created using AMOS26, tested direct and indirect effects among the variables using Maximum Likelihood estimation. Dark Triad subfactors (Machiavellianism, narcissism and psychopathy) were all exogenous variables, whilst the measures of expectancy biases (LOT, LOS and GHS) were endogenous.

A range of indices assessed data-model fit. Specifically, chi-square (χ^2), Comparative Fit Index (CFI), Root-Mean Square Error of Approximation (RMSEA) and Standardized Root-Mean-Square Residual (SRMR). RMSEA utilised the 90% confidence interval. A good fitting

model requires CFI > 0.90, RMSEA < 0.08 and SRMR < 0.08 (Browne & Cudeck, 1993). CFI values of 0.86 to 0.90, and RMSEA and SRMR values of 0.08 to 0.10 indicate marginal fit (Nigg et al., 2009). Computation of bootstrapping estimates tested indirect effects, which resampled 10,000 times, following Jonason et al. (2018), using the bias-corrected method to produce 95% confidence intervals.

Results

Preliminary Analysis

Initial inspection of data confirmed that that skewness and kurtosis values were within the recommended interval of -2.0 to $+2.0$ (Byrne, 2013), as displayed in Table 1. Furthermore, tests of assumptions reported no issues with multicollinearity, all VIF values < 3.0 and all Tolerance values > 0.10 (Tabachnick & Fidell, 2013). Normal P-P and scatterplots revealed no issues with heteroscedasticity or linearity.

Zero-order correlations

Table 2 displays the zero-order correlations for each of the measures used in this study. Pearson bivariate correlations were conducted to determine any association between the three subscales of the SDT and the measures of expectancy biases, which saw the emergence of several significant correlations. All correlations displayed an effect size greater than $(+/-).10$, which Gignac and Szodorai (2016) revised guidelines of correlation within individual differences research posit as a small correlation. This was the lowest effect size in this set, meaning that all the variables were associated to some degree.

Machiavellianism correlated with hopelessness ($r(506) = .184, p < .001$), yet showed a negative association with both measures of optimism (LOT: $r(506) = -.207, p < .001$; LOS $r(506) = -.107, p < .005$), indicating an inclination towards pessimism.

Table 1*Descriptive statistics for measures of Dark Triad traits and expectancy biases*

	α	Min	Max	M	SD	Skewness	Kurtosis
SDT	.87	34	128	69.95	15.3	0.59	0.4
Mach	.81	8	39	24.35	6.34	0.02	-0.37
Narc	.78	9	45	22.47	6.43	0.34	-0.06
Psych	.67	9	44	20.61	5.48	0.78	0.65
LOT	.86	13	60	39.32	8.67	-0.32	-0.23
LOS	.41	33	98	64.76	9.82	0.14	1.13
GHS	.94	26	126	71.32	19.24	0.29	-0.13

 $N = 508$

Notes. SDT = Short Dark Triad Scale; Mach = Machiavellianism; Narc = Narcissism; Psyche = Psychopathy; LOT = Life Orientation Test; LOS = Lerner Optimism Scale; GHS = General Hopelessness Scale

Scores for psychopathy followed a similar pattern, correlating with hopelessness ($r(506) = .158, p < .001$), whilst simultaneously showing an inverse association with optimism measures (LOT: $r(506) = -.158, p < .001$; LOS: $r(506) = -.100, p < .005$). However, the associations were slightly weaker than those of Machiavellianism.

As expected, narcissism correlated with both measures of optimism (LOT: $r(506) = .232, p < .001$; LOS: $r(506) = .152, p < .001$), whilst showing a negative association with hopelessness ($r(506) = -.308, p < .001$). Because of these observed associations, it was deemed relevant that subsequent analysis would utilise “Optimism” as a composite variable, as per Jonason et al. (2018).

Table 2*Correlations between Dark Triad and measures of Expectancy Biases*

	1	2	3	4	5
MACH	-				
NARC	.388**	-			
PSYCH	.594**	.478**	-		
LOT	-.207**	.232**	-.158**	-	
LOS	-.107*	.152**	-.100*	.273**	-
GHS	.197**	-.299**	.170**	-.810**	-.352**

Notes. MACH = Machiavellianism; NARC = Narcissism; PSYCH = Psychopathy; LOT = Life Orientation Test; LOS = Lerner Optimism Scale; GHS = General Hopelessness Scale

***. Correlation is significant at the 0.01 level (2-tailed).*

**. Correlation is significant at the 0.05 level (2-tailed).*

Measurement of latent optimism

Using structural equation modelling, analysis proceeded in accordance with the process utilised by Jonason et al. (2018), a latent variable of optimism was created in an attempt to simplify the analysis using the three putative measures of optimism, the LOT, LOS and GHS. This use of one latent variable should produce a straightforward model which tests the associations between the Dark triad traits and optimism.

Figure 3 displays the measurement model (i.e., latent optimism reflected by the LOT, LOS, and GHS) and the structural model (i.e., structural pathways connecting narcissism, Machiavellianism and psychopathy to latent optimism).

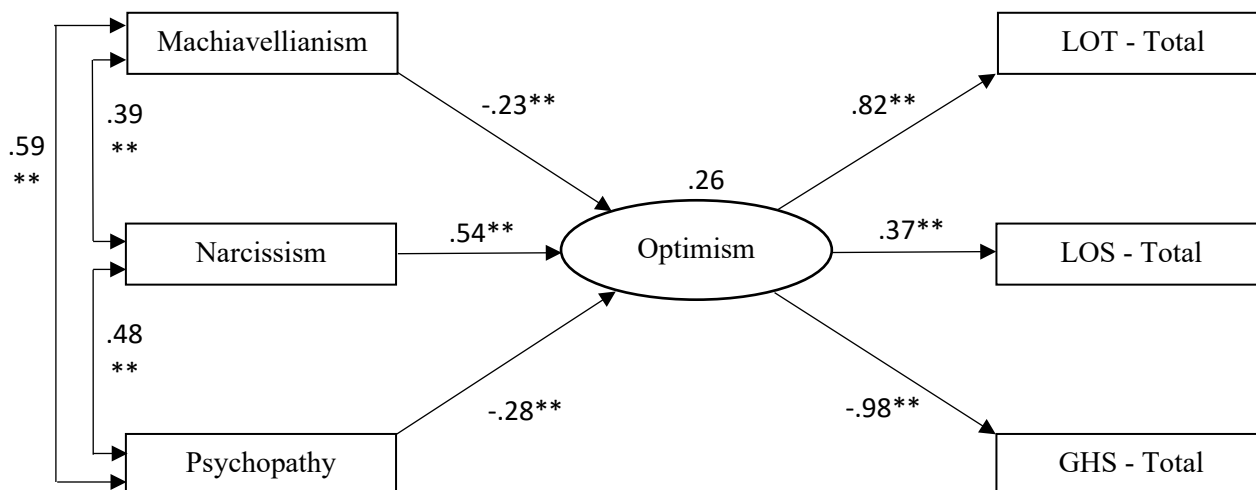


Figure 3 Measurement and structural models of associations between Dark Triad factors and optimism

Notes. LOT = Life Orientation Test; LOS = Lerner Optimism Scale; GHS = General Hopelessness Scale

** $p \leq .001$

Fit indices

A test of the measurement model revealed good fit indices $\chi^2(6, N = 508) = 11.7, p = .070$, CFI = .995, RMSEA = .043 (90% of CI of .000 to .080), SRMR = .0205.

The fit indices of this model match the pattern of those displayed in Jonason et al. (2018). The latent variable of optimism appropriate associations with the measures of expectancy biases. The LOT ($\beta = .82, p < .001$) and the LOS ($\beta = .37, p < .001$) both saw a positive effect, whilst the GHS ($\beta = -.98, p < .001$) saw a negative effect. This paradigm indicates that the latent variable does reflect optimism. Within the structural model, Machiavellianism ($\beta = -.23, p < .001$) and psychopathy ($\beta = -.28, p < .001$) have a negative effect upon Optimism, whereas narcissism has a positive effect ($\beta = .54, p < .001$). These explanatory variables account for 26% of the variance in the latent variable of optimism.

Discussion

Results of study 1 reveal several important findings. Narcissism met initial expectations by displaying a reasonable measure of optimism in comparison to psychopathy and Machiavellianism. The latter two traits also performed as expected by displaying a negative relationship to optimism, supporting the notion that they are more naturally prone to pessimism. These findings are consistent with previous Dark Triad research revealing narcissism's proclivity with optimism (Jonason et al., 2018).

However, the Dark Triad traits as measured by the SD3 only accounted for 26% of the variance with optimism, a number which seems fairly low considering it surmounts to three traits. A reason for this may be because the SD3 only accounts for the composite versions of narcissism and psychopathy, which fail to account for the contrasting distinctiveness between phenotypes (Miller et al., 2011; Vaughn et al., 2009). This was expected from the outset, and validates the comments made by Jonason et al. (2018), which suggested that there was a potential for more detailed analysis. Focussing specifically upon the sub-types of narcissism, a predisposition for a positive outlook upon life seems contradictory when considering that vulnerable narcissism has been described as having low self-esteem (Rohmann et al., 2012), high neuroticism (Miller et al., 2018) and greater anxiety in interpersonal interactions (Besser & Priel, 2010). Therefore, the manner in which narcissism relates to optimism when using a composite measure such as the SD3 may well be hindered by the conflict between the two subtypes.

Study 2

The goal for this second phase is to explore whether the inclusion of measurements of psychopathic and narcissistic phenotypes provides a greater explanation of the variance in the latent optimism variable within the structural model. The rationale for this investigation

surrounds the contrasting nature of these two pairs of phenotypes, which is often observed in behavioural outcome and disparities in positive and negative affect.

For example, grandiose narcissism appears to sustain a general absence of anxiety in comparison vulnerable narcissism, which maintains significant manifestations of depression, anxiety and paranoia (Miller et al., 2011). Furthermore, primary psychopathy could be described as encompassing a severe and stable emotional deficiency, which results in a fearlessness, callous insouciance, and morally utilitarian temperament; whilst secondary psychopathy encompasses a similarly acute emotional dysregulation, often resulting in overreactions, callous hostility and reactive aggression (Yildirim & Derksen, 2015). This results in primary psychopaths being more callous, calculating, and deceitful, whilst secondary psychopaths express greater anxiety, reckless, and impulsive behaviour. The use of measures which are tailored towards the specific elements of these subtypes should provide a broader picture of how optimism is utilised within each trait as a whole.

Based upon the results of Study 1 and previous literature (Jonason et al., 2018), a reasonable prediction is that grandiose narcissism will retain a positive effect upon optimism. However, due to vulnerable narcissism's susceptibility to psychopathologies (Miller et al., 2011; Pincus et al., 2014) and heightened emotional response (Besser & Priel, 2010; Dickinson & Pincus, 2003) it is probable that it shall follow the rest of the Dark Triad by endorsing a more pessimistic outlook. If this is the case, this result would provide a good addition to the discussion surrounding narcissism's "brightness" and how it interacts within the Dark Triad model. This pattern is also expected to occur, to some extent, with the psychopathic factors. Since primary psychopathy does not experience the same emotional dysregulation of secondary psychopathy, a reasonable expectation would place the former as having a stronger (i.e., less negative) relationship to optimism than the latter.

Since some have argued against the current taxonomy (Egan et al., 2014; Paulhus, 2014; Rogoza & Cieciuch, 2018), a contrasting interaction of subtypes with optimism may provide evidence that there is more nuance involved than that which the traditional model can account for.

Method

Participants and procedure

Participants were obtained using convenience sampling, primarily through an online campaign. These online participants were recruited through social media platforms alongside various survey sharing websites via a questionnaire hyperlink. Respondents ($N = 394$, 113 male, 28.7%; 267 female, 67.8%; 1 trans-male, 0.3%; 2 trans female, 0.5%; 10 non-binary, 2.5%; 1 prefer not to answer, 0.3%) had a mean age of 28.3 years ($SD = 10.35$, range = 18-82).

A minimum sample size was determined in accordance with Schönbrodt and Perugini (2013), in their ability to produce stable correlations, and 95% power to detect the average effect size ($r = .21$) within social and personality psychology (Richard et al., 2003).

The first page upon clicking the link contained the information sheet regarding the purpose of the study, ascertained participant consent, and ensured respondent anonymity to mitigate common method variance (Podsakoff et al., 2003; 2012). The task was simply to complete the survey in full, with the final page containing a debriefing which reminded them of their right to withdraw from the study at any point.

Measures

The Levenson's self-report psychopathy scale (Levenson et al., 1995) was selected to measure psychopathy due to its relative consistency in isolating both primary and secondary psychopathy as separate entities (Salekin et al., 2014). The measure consists of 26 items which

can subsequently be split into two independent scales, both of which utilise a 4-point Likert scale (1 = “Strongly Disagree”, 4 = “Strongly Agree”). Primary psychopathy is measured using 16-items which incorporate the callous, unemotional nature of the trait, including manipulation (e.g., “I enjoy manipulating other people's feelings”), lack of empathy (e.g., “Success is based on survival of the fittest; I am not concerned about the losers”) and a self-serving nature (e.g., “Looking out for myself is my top priority”). Secondary Psychopathy is measured using the remaining 10 items, which include questions describing the antisocial elements of psychopathy, such as spontaneity (e.g., “I don't plan very far in advance”), aggressiveness (e.g., “When I get frustrated, I often "let off steam" by blowing my top”) and interpersonal difficulties (e.g., “I have been in a lot of shouting matches with other people”). Following reversal of antithetical items, total scores are calculated for both primary (LSRP-P) ($\alpha = .89$) and secondary (LSRP-S) ($\alpha = .74$) psychopathy.

As a measure of Machiavellianism, the MACH-IV (Christie & Geis, 1970/2013) is a scale which has consistently and effectively identify above average levels of Machiavellianism (Rauthmann, 2013). Using a 5-point Likert scale (1 = “Strongly Disagree”, 5 = “Strongly Agree”), the 20 questions encompass elements of Machiavellianism, such as the desire to get ahead no matter the means, (e.g., “It is hard to get ahead without cutting corners here and there”), manipulation (e.g., “The best way to handle people is to tell them what they want to hear”) and a cynical stance upon the motives of others (e.g., “Anyone who completely trusts anyone else is asking for trouble”). Items which favour more trusting strategies are reverse coded, allowing the score to be calculated for Machiavellianism ($\alpha = .71$).

The Narcissistic Personality Inventory-16 (NPI-16) (Ames et al., 2006) is a condensed version of the NPI-40 (Raskin & Terry, 1988), which serves as a general measure of narcissism. This measure offers 16 items where the participant is presented with a pair of statements, then being offered the choice of which they think suits them (e.g., “When people compliment me, I

sometimes get embarrassed/ I know that I am good because everybody keeps telling me so”). The scale is coded so that that the narcissistic answer scores “1” whilst the non-narcissistic answer scores “0,” meaning that the highest score for narcissism is 16.

The Hypersensitive Narcissism Scale (HSNS) (Hendin & Cheek, 1997) was also selected as a specific measure of vulnerable narcissism. This 10-item scale operates upon a 7-point Likert scale (1 = “Strongly Disagree”, 7 = “Strongly Agree”) and is a condensed version of Murray’s (1938) narcissism scale. The measure utilises items which reflect the hypersensitivity (e.g., “When I enter a room, I often become self-conscious and feel that the eyes of others are upon me”) and vulnerability (e.g., “My feelings are easily hurt by ridicule or the slighting remarks of others”) which Murray believed to be generally associated with narcissism, and has been observed to show theoretically consistent correlations with the NPI-40 regarding temperament and character dimensions (Fossati et al., 2009). Taken together, these two measures calculate scores on grandiose ($\alpha = .74$) and vulnerable ($\alpha = .77$) narcissism.

As with Study 1, the Life Orientation Test (LOT) (Scheier & Carver, 1985) provided a measure of optimism. This scale consists of twelve items, half of which are worded optimistically (e.g., “I always look on the bright side of things”) and the others pessimistically (e.g., “If something can go wrong for me, it will”) upon a 5-point Likert scale (1 = “Strongly Disagree”, 5 = “Strongly Agree”). The pessimistic items are reversed scored which, when taken together with the optimistic items, are calculated to produce an overall score of optimism ($\alpha = .83$).

The Lerner Optimism Scale (LOS) (Lerner & Keltner, 2001) served as a second measure for optimism. The 15-item scale requires estimates regarding the chance ($-4 =$ extremely unlikely; $+4 =$ extremely likely) of experiencing future events, with half being desirable (e.g., “My achievements were written up in a newspaper”) and the other half being undesirable (e.g., “I chose the wrong profession”) events. The items containing undesirable

events were reverse coded, with total scores establishing another score for optimism ($\alpha = .70$). High scores on both this measure and the LOT reflect optimism, whilst low scores reflect pessimism.

The General Hopelessness Scale (GHS) provided a measure for hopelessness. Consisting of 26 items, this measure consists of questions which resemble four specific sub-types. These include negative expectations (e.g., “Things typically don’t work out for me”), social comparison (e.g., “People around me always seem better at whatever I do”), futility (e.g., I avoid attempting new things in case I find them difficult), and an opposing factor of hope (e.g., “If I try hard enough, I can get what I want”). Participants answer using a 5-point Likert scale (1 = “Strongly Disagree”, 5 = “Strongly Agree”), all positively worded items are reversed-coded, and all scores are calculated to provide an index for hopelessness ($\alpha = .94$).

Descriptive statistics for all variables are available in Table 3.

Analysis Strategy

Data screening prior to path analysis ensured that variables met the assumptions of normal distribution, such as skewness and kurtosis. This was followed by assessments for multicollinearity, outliers, linearity and homoscedasticity. Subsequent examination of zero-order correlations highlighted a preliminary trends of relationships between variables. The structural equation model, which was created using AMOS26, tested direct and indirect effects among the variables using Maximum Likelihood estimation.

A range of indices assessed data-model fit. Specifically, chi-square (χ^2), Comparative Fit Index (CFI), Root-Mean Square Error of Approximation (RMSEA) and Standardized Root-Mean-Square Residual (SRMR). RMSEA utilised the 90% confidence interval. A good fitting model requires $CFI > 0.90$, $RMSEA < 0.08$ and $SRMR < 0.08$ (Browne & Cudeck, 1993). CFI values of 0.86 to 0.90, and RMSEA and SRMR values of less than 0.08 indicate marginal fit

(Nigg et al., 2009). Computation of bootstrapping estimates tested indirect effects, which resampled 10,000 times, following Jonason et al. (2018), using the bias-corrected method to produce 95% confidence intervals.

Results

Preliminary Analysis

Initial inspection of data confirmed that that skewness and kurtosis values were within the recommended interval of -2.0 to $+2.0$ (Byrne, 2013), as displayed in Table 3. Tests of assumptions reported no issues with multicollinearity, all VIF values < 3.0 and all Tolerance values > 0.10 (Tabachnick & Fidell, 2013). Normal P-P and scatterplots revealed no issues with heteroscedasticity or linearity.

Zero-order correlations

Table 4 displays the zero-order correlations for the measures used in this study. Pearson bivariate correlations were conducted to determine any association between the five Dark Triad measures and the measures of expectancy biases, which revealed a number of significant correlations. As with the previous stage, all correlations managed at least a small effect, in line with the revised guidance (Gignac & Szorodai, 2016).

Primary psychopathy, represented by the LSRP-P, showed a significant negative association with both measures of optimism (LOT: $r(394) = -.19, p < .001$; LOS: $r(394) = -.14, p < .001$) and a significant positive association with hopelessness ($r(394) = .26, p < .001$). Secondary psychopathy, represented by the LSRP-S, replicated this pattern but with stronger associations. Optimism held a significant negative association with primary psychopathy (LOT: $r(394) = -.52, p < .001$; LOS: $r(394) = -.47, p < .001$) whereas hopelessness exhibited a significant positive association ($r(394) = .61, p < .001$).

Table 3*Descriptive Statistics for Dark Triad sub-facet measures and expectancy biases*

	α	Min	Max	M	SD	Skewness	Kurtosis
LSRP-P	.89	16	64	28.74	8.33	0.64	0.11
LSRP-S	.74	10	36	21.42	4.99	0.19	-0.45
MACH-IV	.71	29	87	56.08	10.4	0.38	0.16
NPI-16	.74	0	13	3.46	2.95	0.87	0.08
HSNS	.77	10	64	40.05	9.45	-0.11	0.07
LOT	.83	3	47	27.17	8.22	-0.15	-0.24
LOS	.70	28	107	65.71	13.50	0.09	0.16
GHS	.94	27	129	71.21	19.00	0.39	-0.15

 $N = 394$

Notes. LSRP-P = Levenson's Self-report Psychopathy Scale, Primary; LSRP-S = Levenson's Self-report Psychopathy Scale, Secondary; MACH-IV, Machiavellianism; NPI-16, Grandiose Narcissism; HNS, Hypersensitive Narcissism Scale; LOT = Life Orientation Test; LOS = Lerner Optimism Scale; GHS = General Hopelessness Scale

Machiavellianism significantly correlated with hopelessness ($r(394) = .41, p < .001$), and showed a significant negative association with both measures of optimism (LOT: $r(394) = -.36, p < .001$; LOS: $r(394) = -.30, p < .001$). Though this suggests an inclination towards pessimism, with the pattern matching those of primary and secondary psychopathy, the associations were weaker than those of secondary psychopathy, but stronger than those of primary psychopathy.

Table 4*Correlations between Dark Triad and measures of Expectancy Biases*

	1	2	3	4	5	6	7
LSRP-P	-						
LSRP-S	.51**	-					
MACH-IV	.67**	.52**	-				
NPI-16	.43**	.19**	.34**	-			
HSNS	.41**	.53**	.50**	.19**	-		
LOT	-.19**	-.52**	-.36**	.11*	-.46**	-	
LOS	-.14**	-.47**	-.30**	.14**	-.38**	.57**	-
GHS	.26**	.61**	.41**	-.10*	.59**	-.82**	-.65**

Notes. LSRP-P = Levenson's Self-report Psychopathy Scale, Primary; LSRP-S = Levenson's Self-report Psychopathy Scale, Secondary; MACH-IV, Machiavellianism; NPI-16, Grandiose Narcissism; HSNS, Hypersensitive Narcissism Scale; LOT = Life Orientation Test; LOS = Lerner Optimism Scale; GHS = General Hopelessness Scale

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Narcissism saw more diversity in phenotype associations with expectancy biases, as grandiose narcissism, represented by the NPI-16, experienced significant positive associations with the two measures of optimism (LOT: $r(394) = .11, p = .033$; LOS: $r(394) = .14, p < .001$) and a negative association with hopelessness ($r(394) = -.10, p = .048$). Vulnerable narcissism, represented by the HSNS, reported significant negative associations with optimism (LOT: $r(394) = -.46, p < .001$; LOS: $r(394) = -.38, p < .001$) and a significant positive association with hopelessness ($r(394) = .59, p < .001$).

These observed associations, as with Study 1, suggest that subsequent analysis would utilise “Optimism” as a composite variable.

Subsequent path analysis

Following the method of Study 1, a latent variable of optimism was created to simplify the analysis using the three putative measures of optimism, the LOT, LOS and GHS. To fully explore the greater explanatory potential of sophisticated measures, the model from Study 1 was replicated with the inclusion extra additions. The measurement model (i.e., latent optimism reflected by the LOT, LOS, and GHS) and the structural model (i.e., the structural pathways connecting phenotypes of narcissism, Machiavellianism and psychopathy to latent optimism) are displayed in Figure 4.

Fit indices

A test of the measurement model revealed good fit indices $\chi^2(10, N = 394) = 21.77, p = .016$, CFI = .993, RMSEA = .055 (90% of CI of .022 to .086), SRMR = .0183.

As expected, the latent variable of optimism showed appropriate associations within the measurement model with the measures of expectancy biases. The LOT ($\beta = .84, p < .001$) and the LOS ($\beta = .68, p < .001$) were both positively associated with latent optimism, whilst the GHS ($\beta = -.97, p < .001$) experienced a negative association. As with Study 1, this model indicates that the latent variable does reflect optimism.

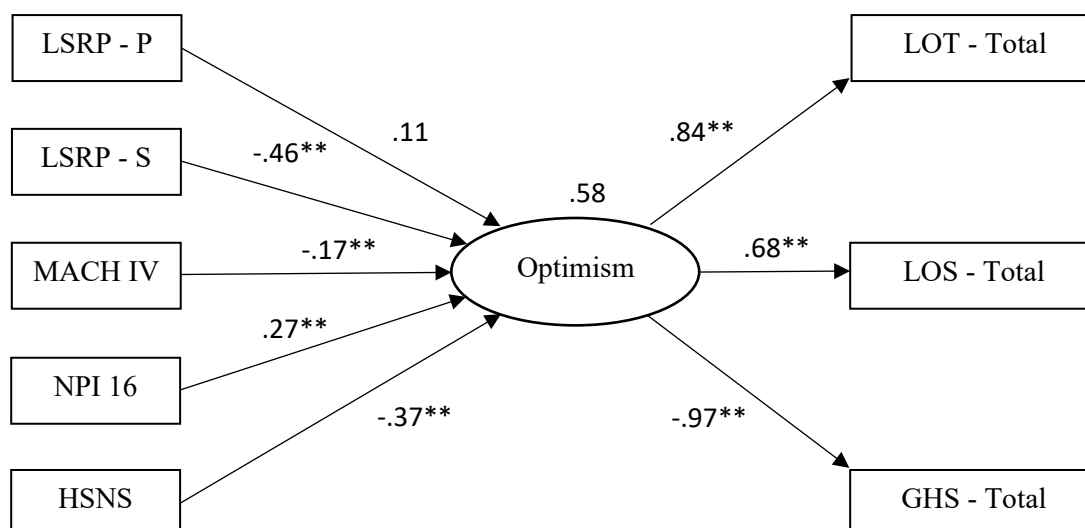


Figure 4 Measurement and structural models of associations between Dark Triad factors and optimism

Notes. LSRP-P = Levenson's self-report psychopathy, primary; LSRP-S = Levenson's self-report psychopathy, secondary; MACH-IV, Machiavellianism; NPI-16, Grandiose Narcissism; HSNS, Hypersensitive Narcissism Scale; LOT = Life Orientation Test; LOS = Lerner Optimism Scale; GHS = General Hopelessness Scale

** $p \leq .001$

* $p \leq .01$

As in Study 1, Machiavellianism ($\beta = -.17, p < .001$) maintained a negative relationship with optimism, although to a lesser degree. Interestingly, primary psychopathy ($\beta = .11, p = .023$) had no real relationship with optimism, whereas secondary psychopathy ($\beta = -.46, p < .001$) displayed a drastically larger effect than the composite psychopathy did in Study 1. This implies that the pessimistic quality of psychopathy resides in the lifestyle and antisocial elements of the trait.

Grandiose narcissism has a positive relationship ($\beta = .27, p < .001$) upon Optimism, whereas vulnerable narcissism has a negative relationship ($\beta = -.37, p < .001$). This division between narcissism phenotypes makes theoretical sense considering the anxiety often purported by secondary narcissism.

These explanatory variables account for 58% of the variance in the latent variable of optimism, which is a substantial improvement upon Study 1. This result stresses the importance of phenotype difference when discussing the Dark Triad traits, particularly regarding narcissism.

General Discussion

The main intention for this study was to affirm and elaborate upon the associations Jonason et al. (2018) discovered between the Dark Triad traits and optimism. The first stage succeeded in replicating the original findings, meeting the hypothesis that narcissism was the sole trait to achieve a positive association with optimism. The second stage expanded upon these findings by exploring the sub-facet association of narcissism and psychopathy with optimism, as the conflicting nature of these phenotypes warranted further investigation. The second stage revealed a more concise pattern of association by showing a significant, negative association between vulnerable narcissism and optimism. This met initial expectations based upon the differences between the narcissistic phenotypes (Miller et al., 2011), and the results of Study 1, and strongly implies that the only factor of the Dark Triad which supports an optimistic worldview is grandiose narcissism.

The outcomes of this study contribute towards the growing body of literature regarding the Dark Triad's uniqueness perspective, which stresses upon the specific characteristics of each trait whilst also acknowledging their maladaptive similarities (Rauthmann, 2012; Rauthmann & Kolar, 2012). However, whilst this result does add credence "Dark Dyad" model, as suggested by Egan et al. (2014), by reaffirming evidence of narcissism's more positive, functional characteristics, the follow-up study isolates grandiose narcissism as the sole facet which contributes towards this argument. In this respect, the "Dark Dyad" may only be applicable when considering the composite form of narcissism, due to the contrasting narcissistic subtypes.

Arguments of nomenclature aside, the results add credibility to the notion that narcissism is the "brightest" of the Dark Triad elements (McDonald et al., 2012), whilst also suggesting a tangible causal factor for how the traits may differ on the behavioural and personality outcomes. For instance, the Dark Triad traits have been linked to various

psychological, social and physical health costs, a noticeable trend amongst which is narcissism's seeming resilience to such issues when compared to psychopathy and Machiavellianism, who experience increased depression and anxiety alongside deficits in well-being and self-esteem (Birkas et al., 2016; Jonason et al., 2015). There is potential for these outcomes to become primed by pessimistic, cynical attitudes towards life, attitudes which may develop into a vicious cycle between an outlook and resulting behaviour. A negative outlook may provide ample justification for individuals to commit immoral behaviour to quickly satiate some desire. However, when the social and physical consequences for such behaviour occur the reaction to the inevitable reprimands, be they a definitive punishment or social rejection, will typically act as fuel to justify the initial cynical attitude. For example, Machiavellianism and psychopathy have been associated with counterproductive workplace behaviours (Forsyth et al., 2012; Spain et al., 2014), possibly inspired by the Machiavellian level of cynicism and nihilism (McHoskey et al., 1999), and psychopathy's fast-life strategy (Jonason et al., 2010) acting as a motivation for exploiting others or acting out for personal satisfaction. Consequences for these behaviours could include social rejection by peers as well as professional distrust or termination, factors which could further impact upon levels of self-esteem and well-being, exacerbating cynicism.

Furthermore, worldview could be an explanatory measure for differences in commonly observed behaviours. For example, whilst both narcissism and psychopathy have been associated with substance use (Stenason & Vernon, 2016), the approach to usage is enabled by different reinforcement systems (Gray, 1982). Narcissism is motivated by a positive association to a behavioural activation system, where they operate in a goal-oriented fashion to experience positive affect. By contrast, psychopathy is driven by an inverse association to a behavioural inhibition system, which typically serves to quell behaviours resulting in negative effect. Whilst these contrasting systems may occur at different places in an addiction cycle

(Jauk & Dieterich, 2019), one interpretation of these associations could be that expectancy biases influence the approach to drug use by what the user expects to get out of them. Narcissism, approach-oriented and optimistic, may encounter narcotics with the expectation for hedonic pleasure and a chance to ingratiate themselves with others by fulfilling an outgoing, adventurous persona. Psychopathy, on the other hand, may approach drugs via their thrill-seeking impulsivity, but also from a more pessimistic, “why not?” worldview that disregards consequences.

The diverging associations between optimism and the narcissistic subtypes, whilst expected, may account for the other discrepancies between traits. As such, the results of this study suggest that vulnerable narcissism has a greater association to the rest of the Dark Triad traits than it does with its grandiose counterpart. Discrepancies between the phenotypes further solidify this trend, as vulnerable narcissism’s manifestations of depression, anxiety, hostility, and paranoia (Miller et al., 2010) differ from those of grandiose narcissism. Furthermore, narcissistic phenotypes differ upon neuroticism, in which vulnerable narcissism mimics the negative association expressed by Machiavellianism and both forms of psychopathy, despite the fact that single-factor narcissism typically does not associate with neuroticism (Jakobwitz & Egan, 2006; Maciantowicz & Zajenkowski, 2020). However, the findings of this study highlight the mediating factor of the vulnerable narcissist’s pessimistic outlook, which contributes towards such psychosocial and health issues in a similar manner to those experienced by Machiavellianism and psychopathy (Jonason et al., 2015). This outlook could further exacerbate suspicion of other’s motives alongside the experience of depressive symptoms (Lewis, 1993; Maltby et al., 1998), a combination which encourages a more defensive demeanour (Hart et al., 2017), alongside a negative correlation to boldness and self-esteem (Miller et al., 2020). General distrust in the motives of others can lead to poor interpersonal interactions and relationships, effectively countering the approach-orientation to

social interactions typical of narcissism. For the vulnerable narcissist, this can be compounded by a poor relation to Extraversion and Agreeableness (Miller et al., 2011).

The role of optimism may be an important factor to consider in future research into narcissism. For example, narcissism typically exhibits a weak association to self-esteem (Thomaes & Brummelman, 2016) despite the appearance of a positive self-perspective. This disconnect occurs because of the separation of high self-esteem and affirmative self-appraisals (Brummelman et al., 2016), wherein narcissists, who crave validation to facilitate their precarious sense of superiority, fail to achieve the even-keeled sense of worth exhibited by individuals purporting genuine high self-esteem. Grandiose and vulnerable narcissism appear to have independent associations to self-esteem (Rohmann et al., 2019; Zeigler-Hill et al., 2008), yet it seems that grandiose narcissists are more concerned with merely gaining the attention of others than they are of their approval, whereas vulnerable narcissists require more external validation. Optimism may have an influential quality in this area, as high optimism and low hopelessness are key elements to high self-esteem (Lyubomirsky et al., 2006). As the results of this study show, grandiose narcissism fulfils this pattern significantly better than vulnerable narcissism, which may suggest greater potential for self-esteem. Although vulnerable narcissism may have examples where it displays stronger associations to measures of contingent self-esteem, which is based on the approval of others or on social comparisons (Bosson et al., 2008; Zeigler-Hill et al., 2008), the lack of association for grandiose narcissists with these elements implies an adaptive consideration of their own merits which, when supplemented by optimism, could facilitate their self-enhancement strategies. Put simply, grandiose narcissists are more confident in promoting themselves through their optimism and lack of concern for the approval of others.

This study also saw a divergent pattern with facets of psychopathy, as primary psychopathy had no real interaction with optimism, yet secondary psychopathy displayed a

strong negative association. These associations, as with the narcissistic phenotypes, suit the characteristics of both facets. Specifically, secondary psychopathy's more pessimistic outlook makes sense when considering that the trait, in a similar manner to vulnerable narcissism, generally exhibits higher levels of distress (Vaughn et al., 2009), resulting in elevated potential for anxiety and depression. This study may provide a link between these two traits, as a similar outlook may be a driving factor towards behaviours which facilitate negative thinking styles. There is a possibility that a pessimistic outlook could be interacting with the inability to identify and describe emotions, in a manner similar to alexithymia (i.e., a condition in which individuals struggle to identify emotions within themselves and others), which is a term used to describe deficits in the cognitive-experiential component of emotion response systems and at the level of interpersonal emotion regulation. Secondary psychopathy has been associated with alexithymia (Lander et al., 2012), and whilst vulnerable narcissism has shown inconsistent relationships (Bach et al., 1994; Lawson et al., 2008; Nicolò et al., 2011) the Dark Triad has been linked to varying patterns of emotional difficulties (Jonason & Krause, 2013). So, the difficulty in recognising and regulating emotions and the consequent distress may be further compounded by a pessimistic outlook, resulting in a vicious cycle of negativity and depression.

Whilst there are, naturally, more avenues to explore with this line of research, this phase is not without some limitations. The most salient of which was the performance of the Lerner Optimism Scale within Study 1. Whilst the scale's internal consistency was borderline in the Jonason et al. (2018) study ($\alpha = .64$ to $.70$), according to the standard ($\alpha = .70$) coefficient threshold (Nunnally, 1978), the same cannot be said for this study ($\alpha = .41$). Such a low score would typically discount the scale's use from analysis. However, this appeared to be remedied in the second study, in which the internal consistency was much more in-line with what is deemed appropriate ($\alpha = .70$). This may be due to the somewhat unusual scoring system and a set of questions which may be confusing to the participant, as participants may have taken the

statements more literally than initially intended. However, in this instance it was used initially as a comparative measure to the Life Orientation Test (Scheier & Carver, 1985), and included in the final analysis when it performed in-line with the replicated study. Therefore, future phases of the project may omit the LOS to limit the potential for difficulty in analysis, survey fatigue and the potential for participant attrition.

Conclusion

In line with Jonason et al. (2018), narcissism remains the sole Dark Triad trait to endorse an optimistic worldview, which may account for the more adaptive qualities it experiences compared to Machiavellianism and psychopathy. This study explored this association further by including subtypes of narcissism, finding that only grandiose narcissism holds an optimistic outlook. These results support those found by Jonason et al. (2018) and add to the body of research which identifies narcissism as the most adaptive Dark Triad trait. Whilst more research may be needed to investigate how worldview may affect behavioural outcomes and, subsequently, health consequences, this study has shown that the “bright” element which has been observed in narcissism appears to find its origins in the grandiose subfactor.

Chapter 5 - The mediating effect of expectancy biases upon the Dark Triad's subjective well-being

Preface

The previous chapter was primarily concerned with adding validity to the work of Jonason et al. (2018). First, this chapter was to ensure that optimism functioned amongst the Dark Triad in the manner which Jonason described. The second intention with this chapter was to delve deeper into the traits, to provide greater clarity into what was truly the optimistic element of the Dark Triad. The findings accomplished this, ascertaining that it was the grandiose element of narcissism which embodies optimism.

However, it was always the intention at this juncture to shift focus away from how optimism and expectancy biases operated within the Dark Triad, to instead focus upon how future expectancies might act as mediators for expression of other psychological constructs (in this case, subjective well-being alongside social and moral value systems). To this end, whilst grandiose narcissism has been established as the optimistic core of narcissism, as the next two chapters will be using the longitudinal method to assess optimism's capacity as a mediator, measures for the Dark Triad will revert back to the single-factor version of narcissism and psychopathy. This is primarily as a tactic to avoid attrition through an overly long survey consisting of many "dark trait" measures. However, as this is also a new avenue of research for the Dark Triad, it may be prudent to first ascertain whether any mediating relationship exists with the superordinate Dark Triad traits, before later delving deeper with the putative sub-types for both psychopathy and narcissism. To this end, chapter 5 shall explore the mediating capacity of expectancy biases upon the Dark Triad's experience of subjective well-being, with the following chapter taking the same tactic to explore social and moral value systems.

Introduction

Since its inception, focus upon the Dark Triad model (Jones & Paulhus, 2002) has generated a wealth of literature, which explores how the sub-clinical versions of the included traits – Machiavellianism, narcissism, and psychopathy – behave and operate within the normal population. Though the chief prerogative to this research has been to predict and ascertain specific behavioural patterns (Furnham et al., 2014), a contemporary trend has re-aligned the focus upon the internal, constitutional qualities commonly expressed by people who manifest these traits.

Characterised as the socially malevolent aspect of personality, the Dark Triad is frequently associated with negative health and psychosocial outcomes (Jonason et al., 2013; 2015), consequences which incur as a response to their natural proclivities (Muris et al., 2017). The self-interested, agentic nature of the three traits (Deutchman & Sullivan, 2018; Jonason et al., 2010) is consistently incompatible with conventionally accepted moral codes and social norms (Koehn et al., 2019). As such, the Dark Triad traits are related to antagonistic behaviours and situations (Rauthmann, 2012), volatile personal and romantic relationships (Jonason et al., 2011; 2012; Jonason & Schmitt, 2012), and have earned the reputation of being considerably less trustworthy (Billet & Fekken, 2020). This combination of interpersonal trepidation, an elevated frequency of social conflict and a propensity to express their disdain of others (James et al., 2014; Rauthmann, 2012) may be contributing towards a series of varying physical and psychological health concerns experienced by the Dark Triad (Hudek-Knežević et al., 2016; Malesza & Kaczmarek, 2019).

Dark Triad and health

In considering salutary outcomes, narcissism often emerges as the only trait which manifests positive associations with health beneficial outcomes, both physical and psychological.

Whilst variation exists across the literature regarding specific health predictors, which can be attributed to the narcissistic preference for immediate gratification (Jones & Paulhus, 2011), narcissism still appears to generally gravitate towards more adaptive outcomes. For example, compared to Machiavellianism and, more pointedly, psychopathy, narcissists appear less inclined to consume alcohol, tobacco, and other substances (Jonason et al., 2015), whilst also engaging in beneficial practises. Amongst these practises are habitual exercise, the use of protective measures such as seatbelts, helmets, and sunscreen, and actively monitoring personal health by maintaining a routine medical check-up (Malesza & Kaczmarek, 2019), resulting in lower potential for asthma, cancer, and skin diseases.

Concomitantly, this precedent is also evident when observing psychological health. Jonason et al. (2015) found that narcissism was the only element of the Dark Triad which demonstrated positive links with hope and self-esteem, more robust social, psychological, and emotional well-being, and experienced substantially weaker degrees of both depression and anxiety. These findings suggest that, despite the intercorrelated nature of the Dark Triad (Jones & Paulhus, 2002), the qualities that are distinct to narcissism provide a supplemental protective barrier against some of the more commonly experienced issues regarding psychological health. Indeed, narcissism's capacity for the components which reinforce psychological health, such as mental toughness (Vaughan et al., 2018), self-esteem (McCain et al., 2016), and coping efficacy (Birkas et al., 2020) may facilitate the resistance to anxiety and depression (Birkas et al., 2016; Lyons et al., 2019), improving the potential for positive well-being to flourish.

The relationship between the Dark Triad and well-being echoes a paradigm frequently observed many times within Dark Triad literature. Specifically, narcissism, which is commonly referred to as the "brightest" of the Dark Triad traits (Rauthmann & Kolar, 2012), distinguishes itself from Machiavellianism and psychopathy by being the only trait to maintain a positive association towards an adaptive psychological quality. For example, narcissism has positive

affiliations to both hedonic and eudaimonic well-being (Aghababaei & Błachnio, 2015), endorses comparatively more positive notions of happiness and well-being (Joshani, 2021), and maintains greater levels of self-rated happiness and associations to subjective well-being (Limone et al., 2020). Despite this, the literature regarding this relationship remains equivocal, as there have also been instances where narcissism appears to be unaffiliated to positive mood (Egan et al., 2014) and happiness (Aghababaei et al., 2014).

However, the discrepancies in this relationship become more transparent once narcissism separates into its grandiose and vulnerable subtypes. Grandiose narcissism, the element which encapsulates the archetypal self-assurance and exhibitionism of narcissism (Wink, 1991), is related to greater life satisfaction and happiness (Egan et al., 2014), and serves as a buffer between well-being and the other elements of the Dark Triad, including the vindictive, socially avoidant vulnerable narcissism (Van Groningen et al., 2021). This effect can be credited to the grandiose narcissist's independent self-construal (Rohmann et al., 2019), which encourages their confidence in their own capabilities (Rose & Campbell, 2004) and facilitates their optimism (Jonason et al., 2018). However, despite its elevated life satisfaction (Giacomin & Jordan, 2016), this configuration is not entirely adaptive, as grandiose narcissism is also linked to more frequent displays of hostility, and simultaneously derives happiness from choices conducive to a fast life strategy, such as chasing status and fervent mate seeking behaviour (Jonason & Zeigler-Hill, 2018). Although these behaviours and choices remain a narcissistic priority, they are mediated by the analogous inclination to play it safe and satisfy their ego needs through more conservative means, such as meeting social expectations, forging social alliances, and ingratiating themselves with others. These inclinations could be the focal point for narcissism's divergence from the Dark Triad, as evidence suggests that narcissists draw a similar amount of happiness from these processes as they do from satisfying their cardinal urges (Jonason & Tome, 2019). Considering well-being, this translates into the pursuit

of eudaimonic, rather than hedonic well-being. As rhythmic social patterns (i.e., the regularity of engaging in basic social activities) have a positive impact upon well-being (Cai et al., 2017), the socially experienced, extraverted grandiose narcissist will come to expect positive affect from regularly seeking new social relationships, satisfying eudaimonic needs for engagement and meaning (Monacis et al., 2019).

Well-being and optimism

This beneficial element to narcissism, wherein its grandiose features provide protection against physiological and psychological ailments (Jonason et al., 2015; Lyons et al., 2019), has recently become a focal point in Dark Triad literature. The fact that happiness and positive attitudes can have a direct impact upon psychological health (Friedman & Kern, 2014) may provide the key to how narcissism differs from Machiavellianism and psychopathy. Evidently, narcissism, particularly the grandiose phenotype, is considered to have a positive mental attitude (Dębska et al., 2021), coupled with a propensity for optimism (Jonason et al., 2018). Optimism and well-being have a strong relationship (Carver et al., 2010), with the former also being strongly affiliated to approach coping strategies (Nes & Segerstrom, 2006), and can help mitigate stress (Hayes & Weathington, 2007), anxiety (Yu et al., 2015), and depression (Shapira & Mongrain, 2010).

As Chapter 4 attests, narcissism distinguishes itself by correlating positively with optimism, with the grandiose subtype emerging as the facilitating factor for this association. Due to the strong interactional quality between optimism and well-being (Carver et al., 2010), the relationship between grandiose narcissism and optimism could be a key contributor towards narcissism's deviation from the Dark Triad regarding well-being. As already mentioned, the grandiose characteristics of narcissism already provide a serendipitous protective quality (Egan

et al., 2014; Van Groningen et al., 2021). The expectation of future positive affect may be the linchpin to this unexpected yet beneficial element to an otherwise malignant personality trait.

This study explored how the intra-model division of the Dark Triad's affiliation to optimism impacted upon the variation in the individual traits experience of subjective well-being. Narcissism has been observed to maintain a positive association to subjective well-being, manifesting in more positive affect, less negative affect, and greater life satisfaction (Limone et al., 2020). The other elements of the Dark Triad, however, remain more concerned with the hedonic, pleasure-seeking approach to well-being, whilst also having positive links to negative affect. Judging by how optimism is linked to life satisfaction, positive affect, and subjective happiness (Chang et al., 2020), in a manner shared by optimism (Gallagher & Lopez, 2009), the difference in how narcissists manage their future expectations could prove a facilitating factor to their more adaptive relationship to well-being.

Therefore, the chief aim of this study is to investigate the degree to which optimism impacts upon narcissism's sense of well-being, whilst also monitoring whether variation in optimism levels has a direct and relative impact upon subjective well-being over time.

Method

Participants

Longitudinal data, naturally, requires a significant amount of time dedicated towards its collection. This project utilised three time-points for data collection, which is considered the appropriate minimum to monitor change (Willet, 1989), with the duration between approximately two to three months. The decision of the appropriate time period between waves was based upon the external constraints which are typical of longitudinal studies (Wang et al., 2017), which include restrictions of resources and time. Specifically, the use of opportunity sampling would target a student sample, which would be best achieved in the earlier part of the

academic year, so that there is less potential for attrition during exam periods. Respondents for Time-point 1 ($N = 182$: 66 male, 36.3%; 110 female, 60.4%; 6 other, 3.2%) had a mean age of 31.84 years ($SD = 13.23$, range = 18-74). The respondents for both Time-points 2 and 3 were the same ($N = 105$: 39 male, 37.1%; 62 female, 59%; 4 other, 3.9%), after consenting to be contacted again following their participation in Time-point 1, boasting a mean age of 34.63 years ($SD = 15.26$, range = 18-74). The most frequent participant nationalities were the UK and the USA in both Time-point 1 (UK: 35.7%; USA: 18%), and Time-points 2 and 3 (UK: 45.7%; USA: 16.2%). A full breakdown of participant nationalities is available in Appendix 2.

Measures

Dark Triad

As in Study 1, the three traits Machiavellianism, narcissism, and psychopathy, alongside the Dark Triad composite, were measured using the Short Dark Triad scale (SD3) (Jones & Paulhus, 2014). Participants used a 5-point Likert scale to indicate the extent to which they agreed with each statement ($1 = \text{“Strongly Disagree”}$ - $5 = \text{“Strongly Agree”}$). Alphas for all Dark Triad elements remained consistent across all three time-points: Machiavellianism (T1: $\alpha = .81$; T2: $\alpha = .80$; T3: $\alpha = .83$), narcissism (T1: $\alpha = .75$; T2: $\alpha = .74$; T3: $\alpha = .74$), psychopathy (T1: $\alpha = .75$; T2: $\alpha = .76$; T3: $\alpha = .80$), Dark Triad total (T1: $\alpha = .88$; T2: $\alpha = .87$; T3: $\alpha = .89$).

Expectancy Biases

The Life Orientation Test (LOT) (Scheier & Carver, 1985) provided a dichotomic measure of optimism and pessimism. This scale consists of twelve items, four consisting of optimistic phrases (e.g., “I always look on the bright side of things”) four with pessimistic phrases (e.g., “If something can go wrong for me, it will”), as well as four filler items which require removal. The LOT exhibited reasonably consistent reliability over the three time-points (T1: $\alpha = .89$; T2: $\alpha = .92$; T3: $\alpha = .93$).

An assessment of hopelessness was achieved using the General Hopelessness Scale (GHS). To maintain uniformity with the other measures, this instance utilised a 5-point Likert scale ($1 = \text{“Strongly Disagree”}$ - $5 = \text{“Strongly Agree”}$) rather than the typical 7-point version. The GHS contains a number of sub-factors. However, this particular study only required the total hopelessness score as a composite measure. The GHS also maintained relatively high reliabilities across all time-points (T1: $\alpha = .95$; T2: $\alpha = .96$; T3: $\alpha = .95$).

Subjective Well-being

Levels of subjective well-being were measured with the modified version of the BBC Subjective Well-Being scale (BBC-SWB) (Pontin et al., 2013). This is a 24-item scale which utilises a 5-point Likert scale to question participants upon aspects of their psychological well-being (e.g., “Do you feel happy with yourself as a person?”), their physical health and well-being (e.g., “Are you happy with your ability to perform daily living activities?”), and how they perceive their relationships (e.g., “Are you comfortable about way you relate and connect with others?”). The item content requires participants to evaluate the degree to which their personal experience lines up with the scenario in the question. As such, the responses utilise a “never” to “always” format ($1 = \text{“Never”}$ - $5 = \text{“Always”}$). Item number 4, which is unique through its concern with the participant’s experience of depression and anxiety, is the only reversed item. Taken together, the items total to provide a robust measure of subjective well-being which was consistently reliable across the three time-points (T1: $\alpha = .94$; T2: $\alpha = .95$; T3: $\alpha = .95$).

Procedure

Recruitment for this study utilised the opportunity sampling method. The survey containing all the required measures was distributed through various online means, such as social media, forum pages and survey sharing websites. The first page of the survey gave general information

on the study topic and purpose, informing the participant of the nature of longitudinal data collection and the expectations required of them if they wished to participate to the conclusion. The first page of the survey also satisfied the necessity for informed consent, appraising the participant of the requirement to collect a form of contact (in this case, an email address), solely for the purpose of the collection of the later stages, whilst also iterating the participant's right to withdrawal. Furthermore, as in Chapter 4, the first page also informed the respondents of the general purpose of the study, offered the option of feedback, and ensured full anonymity, for the intention of mitigating potential common method variance (Podsakoff et al., 2003; 2012).

Though participation was voluntary, respondents were implored to see the study through to the end as a measure to reduce potential attrition. The only exclusion criteria were that participants must be at least 18 years of age. Following the collection of the initial sample, participants were contacted after three months to facilitate the second wave of data collection, which was subsequently followed again three months later with the third and final wave.

Analysis plan

Following the three stages of data collection, participants who completed all three time-points ($N = 105$) were lined up to assess changes in their subjective well-being over time.

Correlational analyses were initially conducted to identify associations between the Dark Triad traits, the expectancy biases, and subjective well-being. This was to ascertain whether the values of each variable met expectations based upon the literature base (Jonason et al., 2018), and to observe any initial evidence of fluctuation between time-points.

The next step was to conduct a path analysis with the cross-sectional data ($N = 182$), to assess the mediating effect of expectancy biases upon the Dark Triad's subjective well-being. A range of indices assessed data-model fit. Specifically, chi-square (χ^2), Comparative Fit Index (CFI), Root-Mean Square Error of Approximation (RMSEA) and Standardized Root-Mean-

Square Residual (SRMR). RMSEA utilised the 90% confidence interval. A good fitting model requires CFI > 0.90, RMSEA < 0.08 and SRMR < 0.08 (Browne & Cudeck, 1993). CFI values of 0.86 to 0.90, and RMSEA and SRMR values of 0.08 to 0.10 indicate marginal fit (Nigg et al., 2009). Computation of bootstrapping estimates tested indirect effects, which resampled 10,000 times, following Jonason et al. (2018), using the bias-corrected method to produce 95% confidence intervals. Following this, longitudinal mediation analysis was conducted using the path diagram from the cross-sectional analysis.

Results

Descriptive Statistics

Data screening prior to analysis revealed that all skewness and kurtosis values from the three time-points fell within the recommended interval of -2.0 to +2.0 (Byrne, 2013). Furthermore, tests of assumptions reported no issues with multicollinearity, all VIF values <3.0 and all Tolerance values >0.10 (Tabachnick & Fidell, 2013). Normal P-P and scatterplots revealed no issues with heteroscedasticity or linearity. Table 2 displays descriptive statistics for all three time-points.

Zero-order correlations

Pearson bivariate correlations were conducted to examine associations between measures of the Dark Triad, expectancy biases, and subjective well-being. As can be observed in Table 3, Dark Triad traits intercorrelated in a typical manner (Jones & Paulhus, 2002), as well as replicating a similar pattern of association to the expectancy bias measures as seen in Chapter 4. Whilst all significant correlations achieved at least a small effect, in accordance with Gignac and Szodorai (2016), some appeared to be quite large (i.e., where r equals more than .30).

Furthermore, the two measures of expectancy bias, the LOT and GHS, expressed a particularly strong negative correlation (**TP1**: $r(180) = -.862, p < .001$; **TP2**: $r(103) = -.903, p < .001$ **TP3**: $r(103) = -.876, p < .001$), which is indicative of their efficacy to provide a measure of expectancy bias.

More salient to this study are the interactions between Dark Triad traits, expectancy biases and subjective well-being. The Dark Triad traits associated as expected, with subjective well-being expressing a significant negative association with Machiavellianism at time-points one and three (**TP1**: $r(180) = -.228, p < .001$; **TP3**: $r(105) = -.219, p = .025$); and psychopathy (**TP1**: $r(180) = -.241, p < .001$; **TP2**: $r(103) = -.349, p < .001$ **TP3**: $r(103) = -.347, p < .001$) at all three time-points. Furthermore, narcissism expressed positive associations with subjective well-being at all three time-points (**TP1**: $r(180) = .159, p = .032$; **TP2**: $r(103) = .309, p < .001$ **TP3**: $r(103) = .332, p < .001$).

Measures of expectancy bias also met expectations in regards to subjective well-being. The LOT showed strong positive associations (**TP1**: $r(180) = .689, p = .032$; **TP2**: $r(103) = .734, p < .001$ **TP3**: $r(103) = .770, p < .001$) and the GHS demonstrated strong negative associations (**TP1**: $r(180) = -.746, p = .032$; **TP2**: $r(103) = -.802, p < .001$ **TP3**: $r(103) = -.792, p < .001$) across all three time-points. A key observation at this point is that the more optimistic narcissist appears to report greater subjective well-being.

Table 2 - Descriptive statistics for all time-points

	<i>Mean</i>			<i>Std. Deviation</i>			<i>Skewness</i>			<i>Kurtosis</i>		
	<i>TP1</i>	<i>TP2</i>	<i>TP3</i>	<i>TP1</i>	<i>TP2</i>	<i>TP3</i>	<i>TP1</i>	<i>TP2</i>	<i>TP3</i>	<i>TP1</i>	<i>TP2</i>	<i>TP3</i>
SD3	68.3	66.7	66.6	16.1	15.1	16.3	0.266	0.438	0.645	-0.734	-0.054	-0.043
MACH	26.6	26.3	26.1	6.9	6.6	6.9	0.078	0.156	0.241	-0.365	-0.015	-0.315
NARC	22.4	21.7	21.9	6.2	5.9	6.1	0.372	0.472	0.609	-0.446	0.053	0.201
PSYCH	19.2	18.7	18.7	6.3	6.4	6.6	0.602	0.865	0.787	-0.15	0.824	0.173
LOT	18.3	18.0	17.7	7.1	7.9	8.1	-0.346	-0.34	-0.374	-0.24	-0.516	-0.697
GHS	69.2	68.5	68.9	20.8	22.6	21.4	0.396	0.488	0.374	-0.102	-0.156	-0.011
SWB	81.5	81.8	80.4	18.3	19.8	19.1	-0.386	-0.148	-0.164	-0.447	-0.916	-0.713

Note. SD3 = Short Dark Triad; MACH = Machiavellianism; NARC = Narcissism; PSYCH = Psychopathy; LOT = Life Orientation Test; GHS

= Hopelessness; SWB = Subjective Well-being; TP1 = Time-point 1; TP2 = Time-point 2; TP3 = Time-point 3

Table 3 – Zero-point correlations for all time-points

		SD3	MACH	NARC	PSYCH	LOT	GHS
MACH	TP1	.862**	-				
	TP2	.835**	-				
	TP3	.893**	-				
NARC	TP1	.780**	.483**	-			
	TP2	.709**	.348**	-			
	TP3	.720**	.441**	-			
PSYCH	TP1	.848**	.636**	.483**	-		
	TP2	.847**	.623**	.390**	-		
	TP3	.873**	.756**	.396**	-		
LOT	TP1	-.134	-.296**	.197**	-.214**	-	
	TP2	-.130	-.300**	.280**	-.260**	-	
	TP3	-.246*	-.352**	.183	-.410**	-	
GHS	TP1	.178*	.323**	-.162*	.263**	-.806**	-
	TP2	.109	.248*	-.315**	.295**	-.903**	-
	TP3	.194*	.310**	-.245*	.382**	-.876**	-
SWB	TP1	-.130	-.228**	.159*	-.241**	.689**	-.746**
	TP2	-.109	-.191	.309**	-.349**	.731**	-.802**
	TP3	-.109	-.219*	.332**	-.347**	.770**	-.792**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Cross-sectional analysis

Figure 5 displays the results of the mediation analysis using the total number of participants from the first time-point. The cross-sectional mediation model indicated excellent model fit $\chi^2(3, N = 182) = 3.248, p = .355, CFI = 1.0, RMSEA = .021$ (90% of CI of .000 to .129), SRMR = .012. The specific Dark Triad traits met expectations regarding their associations with expectancy biases, as both Machiavellianism and psychopathy negatively predicted optimism (**M**: $\beta = -.412, p < .001$; **P**: $\beta = -.187, p = .030$) and positively predicted hopelessness (**M**: $\beta = .400, p < .001$; **P**: $\beta = .235, p = .006$). Narcissism deviated from this by positively predicting optimism ($\beta = .486, p < .001$) and negatively predicting hopelessness ($\beta = -.469, p < .001$). Furthermore, expectancy biases also met expectations in their effect upon subjective well-being, with optimism displaying a significant positive effect ($\beta = .251, p = .002$) and hopelessness displaying a significant negative effect ($\beta = -.543, p < .001$).

Table 4 displays the total indirect effects of the expectancy bias measures upon the relationship between the Dark Triad traits and subjective well-being, alongside both the

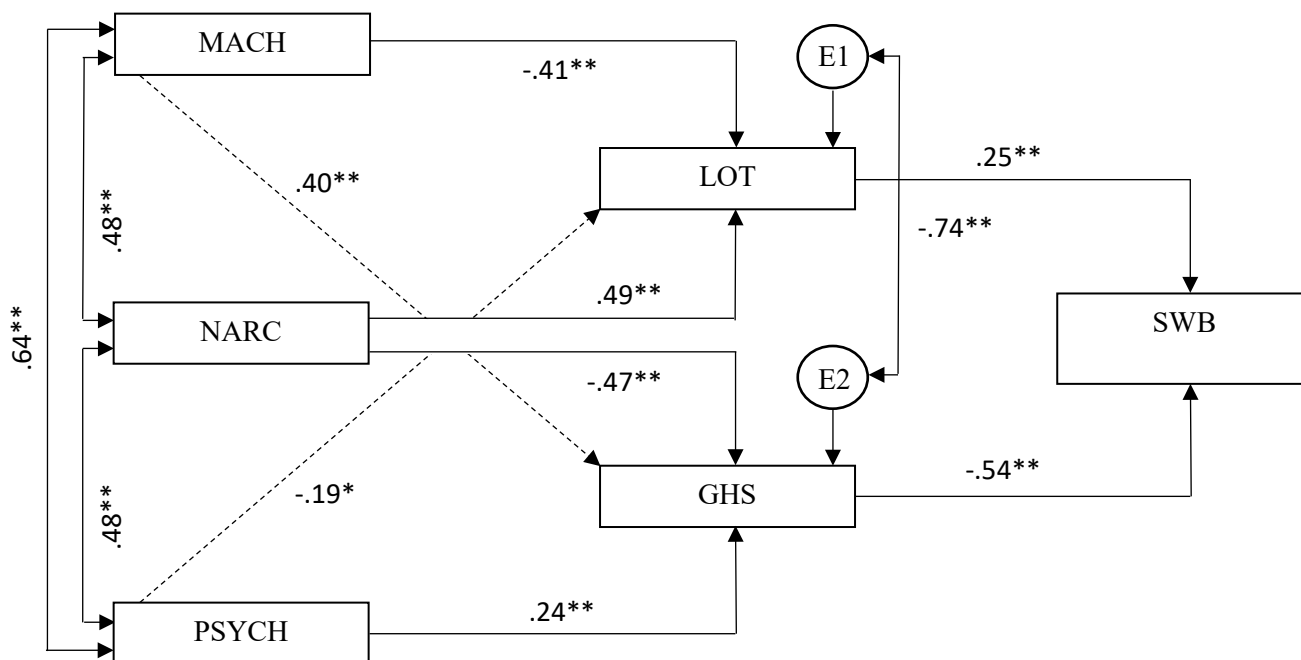


Figure 5 Mediation analysis utilising cross-sectional data (182 participants from time-point 1).

****** $p \leq .001$

***** $p \leq .05$

unstandardised and the standardised specific indirect effects. The pattern of effect continues to meet expectations, in that narcissism was the only trait to experience a positive effect upon subjective well-being.

As previously mentioned, regression coefficients between narcissism and the measures of expectancy biases were significant, as were the coefficients between expectancy biases and subjective well-being. The standardised indirect effect was .337, which comprises the standardised specific indirect effects of .122 for the LOT ($p = .030$) and .255 for the GHS ($p < .001$). The more pointed finding here is that the indirect effect for hopelessness is higher than that of optimism. However, this result makes sense when considering that the regression coefficient between narcissism and the GHS was negative ($\beta = -.469, p < .001$), which indicates that the absence of hopelessness may be a more powerful contribution to enhanced subjective well-being than optimism.

Table 4 - Indirect effects of Dark Triad traits upon subjective well-being through LOT and GHS

	<i>Total indirect</i>								
	<i>effects</i>			<i>Specific indirect effects</i>					
	<i>E</i>	<i>p</i>	LOT			GHS			
	<i>E</i>	<i>p</i>	<i>E</i>	<i>SE</i>	<i>p</i>	<i>E</i>	<i>SE</i>	<i>p</i>	
Mach	-.321	.001	-.275	-.103	.022	-.577	-.217	.001	
Narc	.377	.001	.360	.122	.030	.751	.255	.001	
Psych	-.175	.001	-.136	-.047	.030	-.372	-.128	.001	

Note: E = Estimate; SE = Standardised estimate

This comes in contrast to psychopathy and Machiavellianism, who both maintain similar associations with the measures of expectancy biases. However, the GHS had a stronger indirect effect upon subjective well-being than the LOT for both traits (**MACH**: LOT -.103, GHS -.217; **PSYCH**: LOT -.047, GHS -.128), which suggests that hopelessness, rather than the dichotomy between optimism and pessimism, is a more salient factor for poor subjective well-being in the more maladaptive of the Dark Triad traits.

Longitudinal analysis

Figure 6 displays the mediation model consisting of the Dark Triad scores from time-point 1, results regarding the expectancy bias measures of optimism and hopelessness from time-point 2, and the subjective well-being scores from time-point 3.

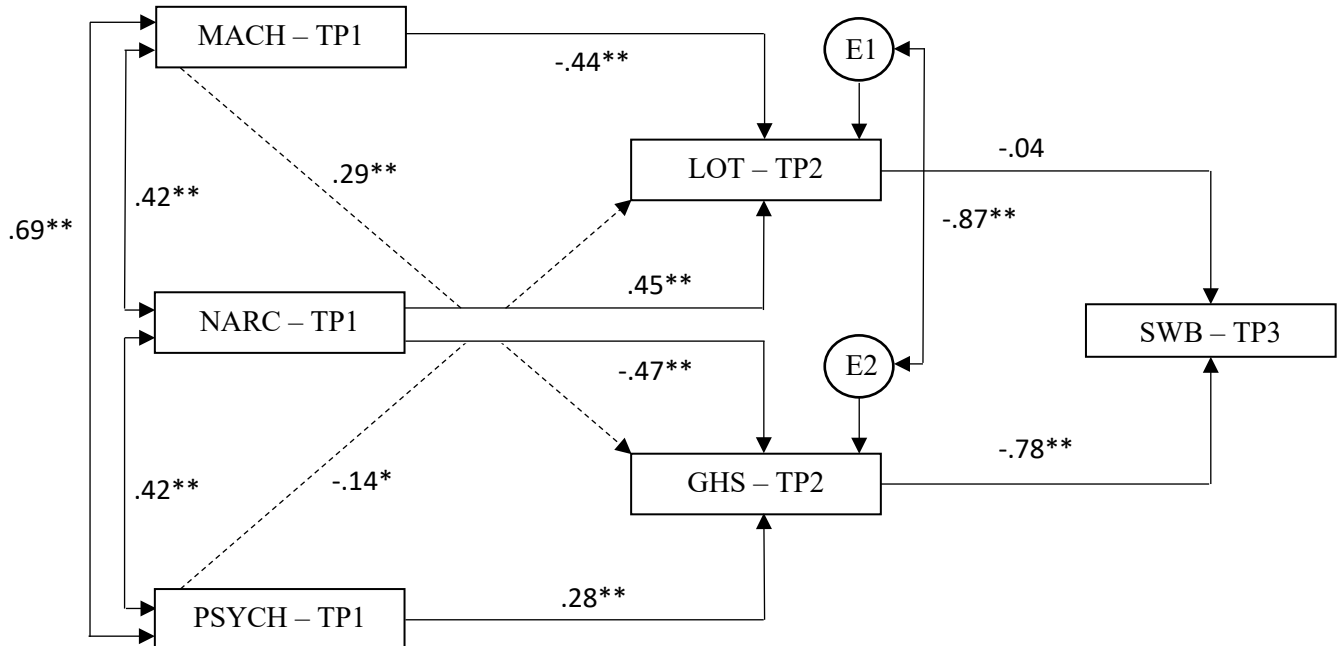


Figure 6 Mediation analysis for longitudinal data (105 participants across all time-points).

** $p \leq .001$

* $p \leq .05$

The mediation model revealed good fit, $\chi^2(3, N = 105) = 9.507, p = .023, CFI = .983, RMSEA = .144$ (90% of CI of .047 to .252), $SRMR = .030$. The most notable departure from the cross-sectional model is the interactions between the expectancy biases and subjective well-being, which were different. The negative impact of the GHS was more pronounced ($\beta = -.782, p <$

.001), suggesting that the increase of hopelessness has a subsequent impact upon levels of subjective well-being. The LOT did not demonstrate a significant association with subjective well-being ($\beta = -.038, p = .801$).

Table 5 displays the total indirect effects and the specific indirect effects of expectancy biases upon the Dark Triad's experience of subjective well-being. The total indirect effects indicate that narcissism's expectancies have a positive impact upon its well-being over time, whilst Machiavellianism and psychopathy experience a negative impact.

Table 5 - Indirect effects of Dark Triad traits upon subjective well-being through LOT and GHS

	<i>Total indirect effects</i>		<i>Specific indirect effects</i>					
	<i>effects</i>		<i>LOT</i>			<i>GHS</i>		
	<i>E</i>	<i>p</i>	<i>E</i>	<i>SE</i>	<i>p</i>	<i>E</i>	<i>SE</i>	<i>p</i>
Mach	-.211	.044	-.048	.017	.829	-.646	-.228	.025
Narc	.354	.002	-.055	-.017	.844	1.188	.371	.001
Psych	-.212	.010	.016	.005	.581	-.679	-.271	.005

Note: E = Estimate; SE = Standardised estimate

However, once again, according to the specific indirect effects, it appears as if the presence or absence of hopelessness is the more salient factor when considering the interaction between the Dark Triad traits and subjective well-being. This is because the LOT's failure to attain a significant indirect effect. Furthermore, the pattern of the LOT indirect effects is contrary to expectations, which brings the importance of fluctuating levels of optimism regarding the Dark Triad's subjective well-being into question.

Discussion

Across all time-points, the Dark Triad traits met assumptions by consistently correlating with both measures of expectancy biases and subjective well-being, i.e., narcissism positively correlated with optimism and subjective well-being whilst Machiavellianism and psychopathy correlated negatively with subjective well-being. Furthermore, interactions between the expectancy biases demonstrated the predicted pattern of association, i.e., the LOT correlated positively with subjective well-being, whilst the GHS correlated negatively. Although these results met expectations founded upon previous literature (Eraslan-Capan, 2016; Jonson et al., 2018; Scheier & Carver, 1992) the subsequent mediation analysis assessing the interaction between the Dark Triad and subjective well-being revealed a discrepancy. Particularly, optimism may not be as salient a predictor for well-being as hopelessness, specifically in relation to Dark Triad traits.

Cross-sectional analysis of the data shows that expectancy biases do indeed impact upon the Dark Triad's well-being, as total indirect effects revealed that narcissism experienced a boost to subjective well-being through their positive expectations of future events. This comes in contrast to Machiavellianism and psychopathy, whose expectancies delivered a negative mediating effect upon subjective well-being. However, specific indirect effects indicated that although the varying effects of optimism were present and significant for all traits, all three effects were weaker than those of hopelessness. Corroboration of this result occurred in the longitudinal model, where the LOT failed to have any significant impact upon subjective well-being, whilst the results for hopelessness remained reasonably consistent with the cross-sectional model. This occurs despite the fact that total indirect effects for both models surmised a positive influence of expectancy biases for narcissism, and a negative effect for Machiavellianism and psychopathy.

Despite the lack of significance of the specific mediating effect of optimism in the longitudinal model, these results are indicative of the stability of the individual Dark Triad trait's expressions of expectancy biases. The fundamental conclusion to make based upon this evidence is that whilst optimism clearly imparts an effect upon well-being in relation to Dark Triad traits, levels of hopelessness evidenced a more pronounced effect over time in this study.

This is surprising given that the literature would suggest that optimism, having a compelling association with positive well-being (Carver et al., 2010), could account for the marked difference in the Dark Triad's relationship with well-being (Aghababaei & Błachnio, 2015; Joshanloo, 2021; Limone et al., 2020). Specifically, that an optimistic outlook would encourage the positive well-being of narcissism, whilst the typically pessimistic/hopeless pattern of expectancies would contribute towards the negative well-being of Machiavellianism and psychopathy. Although the results of this study appear to support this notion for the latter, for whom the negative indirect mediating effect of optimism was detrimental to well-being, the case cannot be said for narcissism. These results instead seem to suggest that a negative association to hopelessness functions equal to if not better than optimism in promoting narcissism's well-being, potentially accounting for the link with narcissism and well-being in this study.

The impact of the role of hopelessness, and how it appears to take prominence over optimism, was an unexpected result, yet not one without precedent. In the context of this study, narcissism's negative association with hopelessness appears to have greater beneficial effects upon well-being, over time, than optimism. This expression of expectancies could be described as a greater affiliation towards hope and hopefulness, a trait which is consistently associated to positive well-being (Kato & Snyder, 2005; Slezackova, 2017), in both a directly associative (Ciarrochi et al., 2007; Vacek et al., 2010) and mediating (Frankham et al., 2020) capacity. Furthermore, whilst hope and optimism are highly correlated with each other, the degree to

which they correlate with other beneficial psychological characteristics (wellbeing being a prime example) often varies, implying that their contributions towards mental health are unique (Gallagher & Lopez, 2009).

Whilst hope and optimism appear to be similar predictors for several positive qualities, such as positive affect, life satisfaction and self-efficacy (Feldman & Kubota, 2015; Hutz et al., 2014), they differ in their effect upon well-being. Though both are positive predictors, hopeful expectations of the future appear to have a greater contribution towards subjective well-being (Demirli et al., 2015; Gallagher & Lopez, 2009; Kato & Snyder, 2005; Kardas et al., 2019), which, in turn positively impacts upon personal and professional performance (Malinowsk & Lim, 2015, Rand et al., 2011). Additionally, hope also appears to be a more stable predictor of well-being over time (Rand et al., 2020). This last point resonates well in the context of this study, as the effects of optimism were not as prominent in the longitudinal phase. Narcissism's negative association towards hopelessness, therefore, may instead represent "hope" as an expectancy bias. Operating in the same manner as optimism and hopelessness i.e., a particular perspective in which an individual perceives future events, hope, in this study, appears to facilitate a more robust association to well-being. This would warrant further study with more appropriate measures for hope, such as the Adult Hope Scale (Snyder et al., 1991), because despite the GHS containing a hope subfactor, a negative association towards hopelessness is not necessarily the best, or most nuanced indicator of hope.

The narcissist's relationship to subjective well-being could also be influenced by their cognitive strategies. Monacis et al. (2021) assessed the Dark Triad's well-being in relation to the individual traits approach to achieving happiness. These include the strategies of seeking a life of pleasure, seeking fulfilling engagement, and finding meaning within life. Whilst Machiavellianism and psychopathy were only related to seeking pleasure, only psychopathy found this to impact upon their well-being. Narcissism, however, was related to all three

strategies, yet found that only meaning and engagements had a mediating effect upon life satisfaction. This implies that it is only the eudemonic approach which contributes towards narcissism's subjective well-being. This finding was also observed by Womic et al. (2020), who found that meaning in life fully mediated the relationship between subclinical narcissism and subjective well-being. Furthermore, despite the mediating effect of these strategies, narcissism's pursuit of both hedonia and eudaimonia has a compounding effect, as individuals who pursue both have higher degrees of wellbeing than people who pursue only one or the other (Anić & Tončić, 2013; Huta & Ryan, 2010; Peterson et al., 2005).

How cognitive strategies relate to the results of this study resides in how they associate with expectancy biases. Gallagher and Lopez (2009) found that, between hope and optimism, eudaimonic well-being was more heavily predicted by hope. By contrast, optimism exhibited more robust effects on the indicators of hedonic well-being than hope. Regarding narcissism, this suggests that their optimism may be more important for maintaining the pleasurable aspects of well-being, and that hope may be more important for maintaining the purposeful, cognitive, and social aspects of their well-being.

Lastly, narcissism's variable longitudinal association with optimism could be related to the fluctuations between its own phenotypes. Specifically, a grandiose narcissist may experience episodes of vulnerability when experiencing concentrated levels of ego-threat (Gore & Widiger, 2016; Pincus & Lukowitsky, 2010). Considering this, variation in optimism levels could be attributed towards instances where the grandiose exterior is penetrated, leading to ego threat and psychological distress (Grubbs & Exline, 2016). Furthermore, excessive hope in narcissistic individuals is an expression of their own self-sufficiency (Potamianou, 1992), meaning that they can endure suffering through the entitled expectation of good fortune which is due to them through their grandiose fantasies (Akhtar, 2015). This could account for the

increased stability of narcissism's hope levels in comparison to optimism in this study, which appears to endure over time.

This study is not without its limitations, the first of which being the sample size. One of the main issues with longitudinal studies is attrition. This concept refers to the manner in which participants, for a number of reasons including motivation, morbidity and mortality, cease their involvement in a study. This study, specifically, experienced no-contact attrition, wherein participants who are willing to be involved in the early stages of a study fail to respond to the later stages (Young et al., 2006). One issue with this is that the remaining participants may not be a suitable representation of the initial sample (Salthouse, 2014).

Another issue is that for the end sample to be large enough for more sophisticated analysis, the initial pool of participants needs to be large enough to account for such attrition, which can be difficult during a time when traditional methods of data collection i.e., paper surveys and recruitment through chance, were unavailable. Whilst the initial campaign for recruitment was less effective than initially desired, the attrition rate was 42.3% between timepoint 1 to timepoint 3. As attrition rates are often reported between 30% and 70% (Gustavson et al., 2012), this study appears to have average attrition. Whilst some methods of participant retention have been successful, such as the use of private messaging tools on various social media platforms (Bennets et al., 2021), this would violate the anonymity promised to the participant in the context of this study.

Another limitation was the use of composite measures for the Dark Triad traits, through the use of the SD3. As the previous chapter attested, there was a significant difference in how both grandiose narcissism and primary psychopathy interacted with optimism, which highlighted the need for more precise measurement tools when considering the more nuanced cognitive functions of the traits. However, as mentioned above, the potential for participant attrition in longitudinal studies is relatively high, and as data collection for both this and the

next phase of the project were conducted simultaneously, briefer measures were employed to account for potential survey fatigue. Future research into this area may benefit from utilising the more nuanced measures when subjective well-being is the only outcome criteria under investigation.

Conclusion

Whilst expectancy biases do appear to have a mediating quality upon the Dark Triad's individual expression of subjective well-being, this study indicates that the traits associations to hopelessness are more stable over time. This comes as a contrast to Jonason et al. (2018), as well as the previous chapter, which asserts the merits of optimism, touting a positive perspective as a potential cause for narcissism's deviation from Machiavellianism and psychopathy. However, these results indicate that narcissism's negative association to hopelessness is a more constant characteristic to their positive outlook, a pattern which can be inversely observed with Machiavellianism and psychopathy.

Chapter 6 - The mediating effect of expectancy biases upon the Dark Triad's moral foundations and social values

Introduction

The Dark Triad traits have long been associated with social malfeasance (Furnham et al., 2013; Paulhus & Williams, 2002), often enacting egocentric, agentic social strategies and the pursuit of one's selfish desires over the needs of others and the wider community (Deutchman & Sullivan, 2018; Jonason et al., 2010). The difference in perspective regarding what the Dark Triad traits constitute as acceptable behaviour (Egan et al., 2015), highlights the importance that personal values and moral perspectives, being motivational in nature (Rohan, 2000), may have upon facilitating individual choices and actions.

Investigations into Dark Triad value systems have focused upon the specific values endorsed and expressed by each of the traits. Expectedly, the Dark Triad traits appear to be high in agency yet low in communalism (Jonason et al., 2010), favour personal enjoyment and self-promotion (Jonason et al., 2018), and have the propensity towards present-hedonic time perspective, a perspective which amounts to living for the moment and seeking immediate rewards (Birkás & Csathó, 2016). However, a more specific assessment of personal values exists. Schwartz's universal value types (Schwartz, 1992) describes ten universal social value types: security (national security, social order), tradition (devoutness, humility), conformity (obedience, honouring parents), benevolence (helpfulness, loyalty), universalism (social justice, equality), self-direction (creativity, independence), stimulation (exciting life, varied life), hedonism (pleasure, enjoying life), achievement (success, ambition), and power (authority, wealth).

Research regarding how the Dark Triad relates to this array of values has identified an association with the values of hedonism, achievement, and power (Kajonius et al., 2015), which

can be argued as a tactic for “standing out” to facilitate their short-term goals (Jonason et al., 2020; Kwang et al., 2013). Furthermore, the Dark Triad is inversely correlated with the values of universalism, benevolence, tradition, conformity, and security (Persson & Kajonius, 2015), values which adhere to the structure of society as well as those which show interpersonal concern for others. As social values can influence the manner which individuals perceive the world, and within how they choose to behave and interact, certain value configurations can influence individual prerogatives. For example, competitiveness is encouraged by achievement and power, whereas cooperativeness is bolstered by benevolence and universalism (Lu et al., 2013). Likewise, personal values can influence individuals to harbour negative viewpoints, such as utilitarian political perspectives (Moss & O’Connor, 2020), prejudices (Anderson & Cheers, 2018), and sexism (Feather & McKee, 2012).

Typically, a prerequisite of these viewpoints is a positive association with power, achievement and hedonism and a negative association with the values of universalism and benevolence. Since such a maladaptive pattern of association is also associated with the Dark Triad traits (Kajonius et al., 2015; Persson & Kajonius, 2015), it could be these values which account for their stereotypical spitefulness, social dominance (Duriez & Van Hiel, 2002), and anti-egalitarian positions (Zeigler-Hill et al., 2020).

Of course, because of the distinct qualities of the three traits, there is a degree of variability amongst these trends. For example, whilst the Dark Triad has a propensity towards hedonism, this association manifests chiefly through Machiavellianism and psychopathy, as these value levels appear to fluctuate when it comes to narcissism (Balakrishnan et al., 2017; Kajonius et al., 2015). However, narcissism does appear to place greater value upon achievement and power, particularly when considering the respect and control that comes with status rather than the prestige of a position (Balakrishnan et al., 2017). Distinctions also occur when considering the Dark Triad’s negative correlation with benevolence and conformity, in

which Machiavellianism and narcissism deviate respectively (Jonason et al., 2020). Distinctions of this sort are reflected in the external expressions of values, such as narcissism's weaker association with sadism, spitefulness, and anti-egalitarianism (Zeigler-Hill et al., 2020).

Previous Dark Triad literature has highlighted narcissism's respective "brightness", in which narcissism exhibits either weaker or no association towards an anti-social behavioural tendency (Rauthmann & Kolar, 2012). A recent dispositional revelation is that narcissism is the only trait of the three to correlate positively with optimism (Jonason et al., 2018), an association which may facilitate such adaptive aspects (Hickman et al., 1996; Veselka et al., 2010; Zhang et al., 2015). Whilst optimism is a relatively unexplored concept regarding the specific universal values, there have been studies that explored the effect upon superordinate value dimensions. For example, greater individualism and egalitarianism are consistently associated with higher optimism (Fischer & Chalmers, 2008; Karaivanova, 2020), a pattern which is also expressed by narcissism (Jonason et al., 2015; Zeigler-Hill et al., 2020).

Furthermore, another study (Sagone & De Caroli, 2016) explored how value priorities relate to optimism and resilience by utilising two over-arching value dimensions incorporated into Schwartz's model, Conservation versus Openness to Change, and Self-Transcendence versus Self-Enhancement (Schwartz, 1992). The first relates to the conflict between the motivation to preserve the status quo (tradition, conformity) and the motivation to follow one's own intellectual and emotional interests (self-direction), the second relates to the conflict between concern for the welfare of other people (benevolence, universalism) and concern for personal interests (power, achievement). Results pertaining to the Dark Triad revealed that the Self-Enhancement dimension was positively related to optimism, which indicates that the values of power, achievement, stimulation and, to a degree, hedonism, are possibly fuelled by an optimistic perspective. As these are the values that are most commonly expressed by the

Dark Triad, and narcissism in particular, there is a precedent that optimism levels could influence these views.

Morality is another facet of personality that serves as a directive for an individual's behavioural tendencies. Predictably, the Dark Triad is a reasonable demonstration of a dysfunctional relationship with morality, evidenced by stunted moral development (Campbell et al., 2009), and a low concern for honesty and prosocial behaviour (Djeriouat & Trémolière, 2014). This exacerbates the propensity for utilitarian decision-making and thinking styles (Karandikar et al., 2019), which are typically categorised with diminished concern for prosocial, caring behaviours (Djeriouat & Trémolière, 2014). This is exemplified predominantly through psychopathy, which is as to be expected considering its links with diminished empathy. Regarding moral decision making, there are two processes which are drawn from moral philosophy. Utilitarianism focuses upon the repercussions of an individual's actions within the framing of right vs wrong, without necessarily questioning the reasons behind the action itself, whereas deontology focuses upon the consequences of one's actions in addition to the action in question (Brosius, 2017).

Regarding psychopathy, Patil (2015) posits a dual-process model of judgement when facing moral dilemmas. This comprises concomitant processes of emotional (responsive) considerations, which deliberate consequences in regard to causing potential harm; and deliberative (utilitarian), which logically weighs the outcomes of a situation. These philosophical processes manifest into two underlying mechanisms, outcome aversion and action aversion. The former alters decisions out of fear of causing potential harm to others, whilst the latter focuses instead upon a harmful action, rather than the result. According to Patil (2015), psychopaths' deficient empathic concern for others is accompanied by little aversion to either of the outcome or action processes, resulting in a purely utilitarian bias, and a greater perceived acceptability for potentially damaging, even sacrificial consequences.

The Dark Triad's empirical intercorrelations would suggest a predilection for utilitarian judgements, as evidence suggests that emotionally callous personalities beyond psychopathy also inhabit such pragmatic tendencies (Bartels & Pizarro, 2011). Djeriouat & Trémolière (2014) attempted to test this logic by exploring the correlations between the Dark Triad and utilitarian judgements, the Honesty/Humility element of the HEXACO personality inventory and the Harm/Care element of the Moral Foundations questionnaire. The latter two components encapsulate an individual's capacity for fairness, modesty, and honesty, and the concerns for the protection of others.

Whilst all three of the Dark Triad traits were associated with utilitarianism, the association was negatively mediated by both Honesty/Humility and Harm/Care only when psychopathy or Machiavellianism were the predicting variable. This means that these two traits encompass a greater utilitarian proneness, which is driven by a concomitantly diminished concern for the protection of other people's physical integrity and upholding prosocial behaviours. Narcissism, however, did not share these mediating effects, meaning that their utilitarian association was not governed by such reduced concerns.

As narcissism embodies the "brightest" of the Dark Triad traits, therefore, is a paradigm which also exists within the Dark Triad's appreciation of morality. For example, narcissism entertains more liberal judgements than both Machiavellianism and psychopathy (Arvan, 2013), which are typically more concerned with fairness and reciprocity (Graham et al., 2009). Furthermore, narcissism has a much weaker propensity for moral disengagement (Egan et al., 2015; Sijtsema et al., 2019), which suggests that their use of antisocial behaviour is contextual, considering it is only applied towards individuals who they evaluate as undeserving of their good graces. Otherwise, narcissism could be attributed with a superficial yet socially desirable system of morality, as the social-enhancing nature of narcissism would wish to maintain an impression of positive moral character for the purpose of gaining and maintaining social

approval (Jonason et al, 2015). This comes as a comparison to the diminished concerns for all aspects of morality regarding psychopathy, and the flexible moral beliefs typical of Machiavellianism. Zuo et al. (2016) investigated how narcissism deviated from the Dark Triad regarding personal morality, specifically, associations with moral identity and prosocial behaviour. Whilst results followed the trend of narcissism encapsulating an adaptive association to personal morality, one key conclusion is that self-esteem moderated this relationship, as the link between narcissism and morality would decrease as self-esteem rose. This reinforces the notion of narcissism's superficial, self-serving morality.

As already mentioned, previous literature has elucidated narcissism's positive association to optimism, and the potential this brings in facilitating the traits adaptive qualities (Hickman et al., 1996; Jonason et al., 2018; Veselka et al., 2010; Zhang et al., 2015). Aside from one study that found scores of personal morality in optimistic students are significantly higher than pessimistic students (Ghanizadeh & Jafari, 2016), there has been little investigation into the underlying influence that optimism may place upon an individual's moral foundations. However, endorsement of optimism has been linked towards greater moralistic trust (Uslaner, 2002) and more liberal viewpoints (Graham et al., 2009), whilst also contributing to the maintenance of narcissism's grandiose delusions (Bortolon et al., 2019). If narcissism's sense of morality is indeed superficial and self-serving (Jonason et al., 2015; Zuo et al., 2016), then optimism could be a mechanism which facilitates behavioural adaptation, depending upon the context, and could be an indirect influence upon which course of action would garner the most benefit to their self-enhancement.

The present study therefore investigated the potential role that the varying levels of optimism endorsement, which has been observed amongst the Dark Triad (Jonason et al., 2018), may have upon the different pattern of social and moral values expressed by the three traits. Specifically, as evidence points towards narcissism as encompassing the most prosocial

value systems, whilst also being the most optimistic, their positive perspective upon life could facilitate more advantageous value system through positive expectation of future benefit, rather than the pessimistic and cynical psychopathy and Machiavellianism. Furthermore, the results found in the previous chapters, in which the beneficial effect of narcissism's combined expectancies encouraged positive subjective well-being, also highlighted the beneficial effect of a negative association towards hopelessness. As these two expectancies are diametric opposites, the interplay between the two of them is just as important for the outcome of this study as their individual mediating quality.

Method

Procedure

The project used a longitudinal format in order to assess the mediating effect of varying levels of expectancy biases upon the Dark Triad's expression of moral foundations and social values. Data collection therefore employed a survey, which was constructed of measures of the Dark Triad, optimism, hopelessness, moral foundations and social values, which would be administered to the same cohort of participants over multiple time-points in order to appropriately examine the indirect effects of expectancy biases upon values.

Recruitment for this study utilised the opportunity sampling method. The survey containing all the required measures was distributed through various online means, such as social media, forum pages and survey sharing websites. The first page of the survey gave general information on the study topic and purpose, informing the participant of the nature of longitudinal data collection and what was required of them if they wished to participate to the conclusion. The first page of the survey also satisfied the necessity for informed consent, appraising the participant of the requirement to collect a form of contact (in this case, an email address), solely for the purpose of the collection of the later stages, whilst also iterating the

participant's right to withdrawal. To repeat the same process as in Chapters 4 & 5, the first page also informed the respondents of the general purpose of the study, offered the option of feedback, and ensured full anonymity, for the intention of mitigating potential common method variance (Podsakoff et al., 2003; 2012).

Though participation was voluntary, respondents were implored to see the study through to the end as a measure to reduce potential attrition. The only exclusion criteria were that participants must be at least 18 years of age. Following the collection of the initial sample, participants were contacted after three months to facilitate the second wave of data collection, which was subsequently followed again three months later with the third and final wave.

Participants

This project utilised three time-points for data collection, which is considered the appropriate minimum to monitor change (Willet, 1989), with the duration between approximately two to three months. The decision of the appropriate time period between waves was based upon the external constraints which are typical of longitudinal studies (Wang et al., 2017), which include restrictions of resources and time. Specifically, the use of opportunity sampling would target a student sample, which would be best achieved in the earlier part of the academic year, so that there is less potential for attrition during exam periods. Respondents for Time-point 1 ($N = 182$: 66 male, 36.3%; 110 female, 60.4%; 6 other, 3.2%) had a mean age of 31.84 years ($SD = 13.23$, range = 18-74). The respondents for both Time-points 2 and 3 were the same ($N = 105$: 39 male, 37.1%; 62 female, 59%; 4 other, 3.9%), after consenting to be contacted again following their participation in Time-point 1, and had a mean age of 34.63 years ($SD = 15.26$, range = 18-74). The most frequent participant nationalities were the UK and the USA in both Time-point 1 (UK: 35.7%; USA: 18%), and Time-points 2 and 3 (UK: 45.7%; USA: 16.2%). A full breakdown of the participant nationalities is available in Appendix 2.

Measures

The majority of the measures in this study were described in the Chapter 5. This includes the Short Dark Triad Scale (SD3) (Jones & Paulhus, 2011), the Life Orientation Test (LOT) (Scheier & Carver, 1985) and the General Hopelessness Scale (GHS).

Moral Values

The moral foundations questionnaire (MFQ) (Graham et al., 2011), is a measure of moral concern based upon five universal moral intuitions, Harm/care, Fairness/reciprocity, Ingroup/loyalty, Authority/respect, and Purity/sanctity. The questionnaire's format utilises each of the moral intuitions as a sub-heading to display three theoretically relevant concepts. Furthermore, the questionnaire is split into two sections, moral relevance and moral judgements, meaning that the main intuitions will have six concepts overall, totalling to 30 items.

Item responses are measured on a 6-point Likert scale, with participants evaluating the degree to which they find the moral concepts relevant to their moral persuasion in the first section ($1 = \text{“Not at all relevant”} - 6 = \text{“Extremely relevant”}$), to how well they agree with a concept in the second ($1 = \text{“Strongly disagree”} - 6 = \text{“Strongly agree”}$).

For the sake of eliminating potential respondent fatigue, the current study opted for the shortened version of the MFQ, which reduces the concepts associated to the moral intuitions down from three to two. This version of the MFQ is considered to be of near-equal quality to the 3-item version (Graham et al., 2011; Smith et al., 2017), making it an ideal option for a questionnaire with multiple separate measures. Alphas for the MFQ remained relatively consistent across three time-points (T1: $\alpha = .80$; T2: $\alpha = .85$; T3: $\alpha = .88$). These reliabilities were also slightly better than average (Graham et al., 2011).

Social Values

The short version of the Schwartz Value Survey (SSVS) was utilised as a measure for social values (Lindeman & Verkasalo, 2005). This is a condensed version of Schwartz's value survey (SVS) (Schwartz, 1992), which contained 57 items that represented the 10 motivationally distinct values described in the seminal theory (Schwartz, 1994; 1996). These values consist of Power, Achievement, Hedonism, Stimulation, Self-Direction, Universalism, Benevolence, Tradition, Conformity, and Security. The purpose of the adaptation of the SVS to the SSVS, like the MFQ, was to reduce the potential for respondent fatigue in order to facilitate greater empirical research into value theory. This was achieved by reducing the item count from the 57 descriptors down to the 10 values. This direct assessment of the 10 values, which are accompanied by descriptive nouns, heavily reduces the item count whilst maintaining the core principles of Schwartz's value theory.

The SSVS utilises a 9-point Likert scale which is scored from 0-8, where 1 indicates a low importance, 4 indicates moderate importance, 8 highlights supreme importance, and 0 specifies that a value is opposed to an individual's principles. As a collection of single-item measures, assessing the SSVS as a composite measure may not be the most suitable approach. Nevertheless, the alphas attained here somewhat resembled those achieved in the original paper when measuring as a composite scale (Lindeman & Verkasalo, 2005). A more suitable method for assessing single-item reliabilities is the test-retest method, utilising intraclass correlations as the method (Hays et al., 2012). Figures drawn from this method (see Table 1) indicate that the SSVS contains moderate to good reliabilities (Koo & LI, 2016).

Analysis plan

Following the three stages of data collection, participants who completed all three time-points ($N = 105$) were lined up to assess changes in their moral and social values over time.

Correlation analyses were conducted to identify associations between the Dark Triad traits, the expectancy biases, moral foundations and social values. This was to ascertain whether the values of each variable met expectations based upon the literature base (Jonason et al., 2018), and to observe any initial evidence of fluctuation between time-points.

Table 1 - Test-retest reliabilities using ICC values attained from SSVS scores across three time-points

Schwartz Values	ICC
Power	0.64
Achievement	0.66
Hedonism	0.74
Stimulation	0.67
Self-direction	0.59
Universalism	0.77
Benevolence	0.57
Tradition	0.69
Conformity	0.73
Security	0.64

Note. All correlations significant at $p < .001$. ICC = Intraclass correlation

The next step was to conduct a path analysis with the cross-sectional data ($N = 182$), to assess the mediating effect of expectancy biases upon the Dark Triad's moral foundations, and the newly established groups of values. A range of indices assessed data-model fit. Specifically, chi-square (χ^2), Comparative Fit Index (CFI), Root-Mean Square Error of Approximation (RMSEA) and Standardized Root-Mean-Square Residual (SRMR). RMSEA utilised the 90% confidence interval. A good fitting model requires $CFI > 0.90$, $RMSEA < 0.08$ and $SRMR <$

0.08 (Browne & Cudeck, 1993). CFI values of 0.86 to 0.90, and RMSEA and SRMR values of 0.08 to 0.10 indicate marginal fit (Nigg et al., 2009). Computation of bootstrapping estimates tested indirect effects, which resampled 10,000 times, following Jonason et al. (2018), using the bias-corrected method to produce 95% confidence intervals. Following this, longitudinal mediation analysis was conducted using the path diagram from the cross-sectional analysis.

Results

Principal Component Analysis of Schwartz Values

In the pursuit of parsimony, the Schwartz values were parcelled into three value groups using a principal components analysis. Single-item measures have a complicated reputation, with some sources categorising their use as problematic in academic research (Wanous et al., 1997), whilst others have attested that the use of single-item measures can be beneficial when used in an appropriate context (Fuchs & Diamantopoulos, 2009). As a means to create a more straightforward analysis, the ten single-item values were parcelled into groups to be used as latent variables within structural equation modelling. This method is often used by researchers to improve the reliability of items by grouping them together with other items which share linear relations, a process which raises common variance whilst reducing the number of variables in an analysis (De Bruin, 2004). However, this process should only really be applied to unidimensional data, as factor analysis of parcels may mask the elements of multidimensional data, leading to the acceptance of a mis-specified model (Bandalos, 2002).

This method is subject to a number of data assumptions. The Kaiser-Meyer-Olkin measure of sampling adequacy measures a dataset's suitability for factor analysis, which for this study was adequate (KMO = .667). Furthermore, Bartlett's test of sphericity measures the suitability for data reduction, necessitating adequate correlations between the variables to justify the reduction to a smaller number of components. This test was significant ($\chi^2(45) =$

313.935, $p < .001$), allowing the PCA to proceed. Standard deviations for all values were also below 3, which is indicative of no outliers.

Table 2 - Descriptive statistics for all time-points

	Mean			Std. Deviation			Skewness			Kurtosis		
	TP1	TP2	TP3	TP1	TP2	TP3	TP1	TP2	TP3	TP1	TP2	TP3
SD3	68.25	66.72	66.60	16.07	15.10	16.30	0.266	0.438	0.645	-0.734	-0.054	-0.043
MACH	26.63	26.32	26.10	6.86	6.59	6.85	0.078	0.156	0.241	-0.365	-0.015	-0.315
NARC	22.40	21.69	21.86	6.19	5.93	6.10	0.372	0.472	0.609	-0.446	0.053	0.201
PSYCH	19.22	18.71	18.65	6.27	6.37	6.63	0.602	0.865	0.787	-0.15	0.824	0.173
LOT	18.27	18.00	17.70	7.12	7.87	8.13	-0.346	-0.340	-0.374	-0.24	-0.516	-0.697
GHS	69.15	68.50	68.90	20.82	22.60	21.41	0.396	0.488	0.374	-0.102	-0.156	-0.011
Moral Foundations	76.13	75.99	75.87	13.32	14.63	16.18	0.092	0.239	0.240	0.869	0.355	0.878
Power	3.16	3.14	3.25	1.97	1.84	1.82	0.335	0.266	0.358	-0.505	-0.573	-0.697
Achievement	4.95	4.82	4.66	2.05	1.91	1.85	-0.174	-0.251	-0.101	-0.745	-0.556	-0.803
Hedonism	4.49	4.30	4.43	2.17	2.08	2.16	-0.022	-0.084	-0.009	-0.703	-0.593	-0.825
Stimulation	4.86	4.51	4.81	2.04	2.05	2.02	-0.112	-0.116	-0.241	-0.898	-0.536	-0.531
Self-direction	6.41	5.93	5.99	1.69	1.78	1.75	-0.903	-0.463	-0.390	0.196	-0.751	-0.764
Universalism	5.88	5.66	5.64	2.13	2.17	2.09	-0.794	-0.715	-0.724	-0.347	-0.445	-0.328
Benevolence	6.51	6.30	6.14	1.68	1.71	1.66	-1.191	-1.191	-0.989	1.102	1.143	1.252
Tradition	3.42	3.10	2.93	2.22	2.17	1.87	0.46	0.466	0.569	-0.532	-0.455	0.068
Conformity	3.29	3.32	3.30	2.13	1.99	2.02	0.424	0.552	0.446	-0.358	0.117	0.005
Security	4.84	4.67	4.65	2.05	1.95	1.93	-0.221	0.220	0.120	-0.514	-0.776	-0.537
Conservatism	11.87	11.09	10.89	4.98	4.94	4.83	0.341	0.531	0.670	-0.365	0.035	0.552
Progressivism	23.31	22.40	22.58	5.19	5.61	5.73	-0.258	-0.549	-0.332	-0.773	-0.104	-0.729
Self-Gratification	12.03	12.26	12.33	4.69	4.43	4.41	-0.018	0.026	0.220	-0.920	-0.547	-0.631

Note. SD3 = Short Dark Triad; MACH = Machiavellianism; NARC = Narcissism; PSYCH = Psychopathy; LOT = Life Orientation Test; GHS = Hopelessness

Following these assumption tests, the Schwartz values were subject to a principal component analysis, which identified three distinct factors. The first consisted of the values conformity, tradition and security, which was labelled as Conservatism due to the values propensity for stability, restraint and maintaining the status quo. The second consisted of the values universalism, benevolence, self-direction and stimulation, which was labelled as Progressivism for its qualities of acceptance, independent thought and concern for others. The last group contained the values of power, achievement and hedonism, which because of the agentic, goal-oriented nature of the values was named Self-Gratification. Factor loading for these three groups, alongside variances and cumulative percentages, are displayed in Table 3.

Table 3 - PCA Pattern Matrix

	Component		
	1	2	3
Conformity	0.847		
Tradition	0.805		
Security	0.738		
Universalism		0.796	
Benevolence		0.674	
Self-direction		0.669	
Stimulation		0.626	
Power			0.860
Achievement			0.853
Hedonism			0.456
Variance (%)	24.055	21.088	19.916
Cumulative (%)	24.055	45.143	65.058

Percentages based upon Rotation Sum of Squared Loadings

Reliabilities for the three factors used for parcelling remained consistent across all time-points, with Conservatism maintaining the strongest alphas (T1: $\alpha = .72$; T2: $\alpha = .73$; T3: $\alpha = .77$), followed by Progressivism (T1: $\alpha = .66$; T2: $\alpha = .70$; T3: $\alpha = .75$) and Self-Gratification (T1: $\alpha = .61$; T2: $\alpha = .63$; T3: $\alpha = .62$) respectively.

Descriptive Statistics

Data screening prior to analysis revealed that all skewness and kurtosis values from the three time-points fell within the recommended interval of -2.0 to +2.0 (Byrne, 2013). Furthermore, tests of assumptions reported no issues with multicollinearity, all VIF values < 3.0 and all Tolerance values > 0.10 (Tabachnick & Fidell, 2013). Normal P-P and scatterplots revealed no issues with heteroscedasticity or linearity. Table 2 displays descriptive statistics for all three time-points.

Zero-order Correlations

Since the sample used for this phase of the study is the same as the Chapter 5, correlations between the Dark Triad and expectancy bias measures are identical. Correlations for all measures can be seen in Table 4. All significant correlations are considered to be above the threshold for a medium effect (i.e., $r \geq .20$) in accordance to revised guidance (Gignac & Szodoari, 2016).

Looking towards moral values, the MFQ attained a significant association only to psychopathy in time-point 1 ($r(182) = -.179, p < .016$). Time-points 2 & 3 revealed significant negative correlations between the MFQ and both Machiavellianism (**TP2**: $r(105) = -.296, p < .001$ **TP3**: $r(105) = -.386, p < .001$) and psychopathy (**TP2**: $r(105) = -.327, p < .001$ **TP3**: $r(105) = -.353, p < .001$). Narcissism, however, displayed no significant correlations to the MFQ at any time-point. These results indicate that the moral perspective maintained by both

Machiavellianism and psychopathy is adversative to the morals described in the MFQ, which meets the selfish, disdainful characteristics of these traits. Furthermore, the LOT expressed consistent positive associations with the MFQ (**TP1**: $r(182) = .248, p < .001$; **TP2**: $r(105) = .342, p < .001$ **TP3**: $r(105) = .406, p < .001$), and the GHS expressed consistent negative associations (**TP1**: $r(182) = -.226, p < .001$; **TP2**: $r(105) = -.379, p < .001$ **TP3**: $r(105) = -.498, p < .001$). These correlations suggest that a more optimistic individual may have greater moral concern, and that an individual with greater hopelessness is less concerned with their moral principles, potentially due to an apathetic mindset rather than the acceptance of amorality.

In addressing the social value factors, psychopathy was the only trait to demonstrate a significant correlation with Conservatism across all three time-points (**TP1**: $r(182) = -.238, p = .014$; **TP2**: $r(105) = -.253, p < .001$ **TP3**: $r(105) = -.265, p < .001$). However, all three traits expressed roughly the same positive association with Self-Gratification; Machiavellianism (**TP1**: $r(182) = .416, p < .001$; **TP2**: $r(105) = .420, p < .001$ **TP3**: $r(105) = .429, p < .001$), narcissism (**TP1**: $r(182) = .466, p < .001$; **TP2**: $r(105) = .432, p < .001$ **TP3**: $r(105) = .430, p < .001$), psychopathy (**TP1**: $r(182) = .404, p < .001$; **TP2**: $r(105) = .280, p < .001$ **TP3**: $r(105) = .411, p < .001$); whilst simultaneously failing to achieve a significant association with Progressivism.

Measures of optimism and hopelessness correlated in a (predictably) oppositional manner with all the value groups. However, aside from one instance with the LOT and Progressivism ($r(105) = .232, p = .017$), there were no other significant associations between the expectancy biases and Progressivism and Self-Gratification. Conservatism, however, maintained a consistently positive association to the LOT (**TP1**: $r(182) = .233, p = .017$; **TP2**: $r(105) = .233, p = .017$ **TP3**: $r(105) = .277, p = .004$), and a consistently negative association to the GHS (**TP1**: $r(182) = -.235, p = .016$; **TP2**: $r(105) = -.238, p = .015$ **TP3**: $r(105) = -.337, p < .001$).

Table 4 - Zero Point Correlations

	SD3	MACH	NARC	PSYCH	LOT	GHS
Moral Foundations						
<i>TP1</i>	-.256**	-.262**	-.049	-.312**	.316**	-.355**
<i>TP2</i>	-.256**	-.296**	.028	-.327**	.342**	-.379**
<i>TP3</i>	-.320**	-.386**	-.038	-.353**	.406**	-.498**
Conservatism						
<i>TP1</i>	-.181	-.159	-.045	-.238*	.233*	-.235*
<i>TP2</i>	-.164	-.177	.048	-.253**	.233*	-.238*
<i>TP3</i>	-.213*	-.258**	.008	-.265**	.277**	-.337**
Progressivism						
<i>TP1</i>	.032	-.015	.111	-.010	.100	-.045
<i>TP2</i>	.112	.037	.120	.116	.087	.001
<i>TP3</i>	-.052	-.111	.025	-.035	.232*	-.143
Self-Gratification						
<i>TP1</i>	.520**	.416**	.466**	.404**	.136	-.086
<i>TP2</i>	.471**	.420**	.432**	.280**	.082	-.100
<i>TP3</i>	.508**	.429**	.430**	.411**	.068	-.097

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Moral Foundations analysis

Cross sectional analysis

Cross sectional mediation displayed excellent model fit $\chi^2(3, N = 182) = 2.970, p = .396$, CFI = 1.000, RMSEA = .000 (90% of CI of .000 to .125), SRMR = .033. As this phase utilised the same sample as the previous chapter, interactions between the Dark Triad and expectancy biases remained the same.

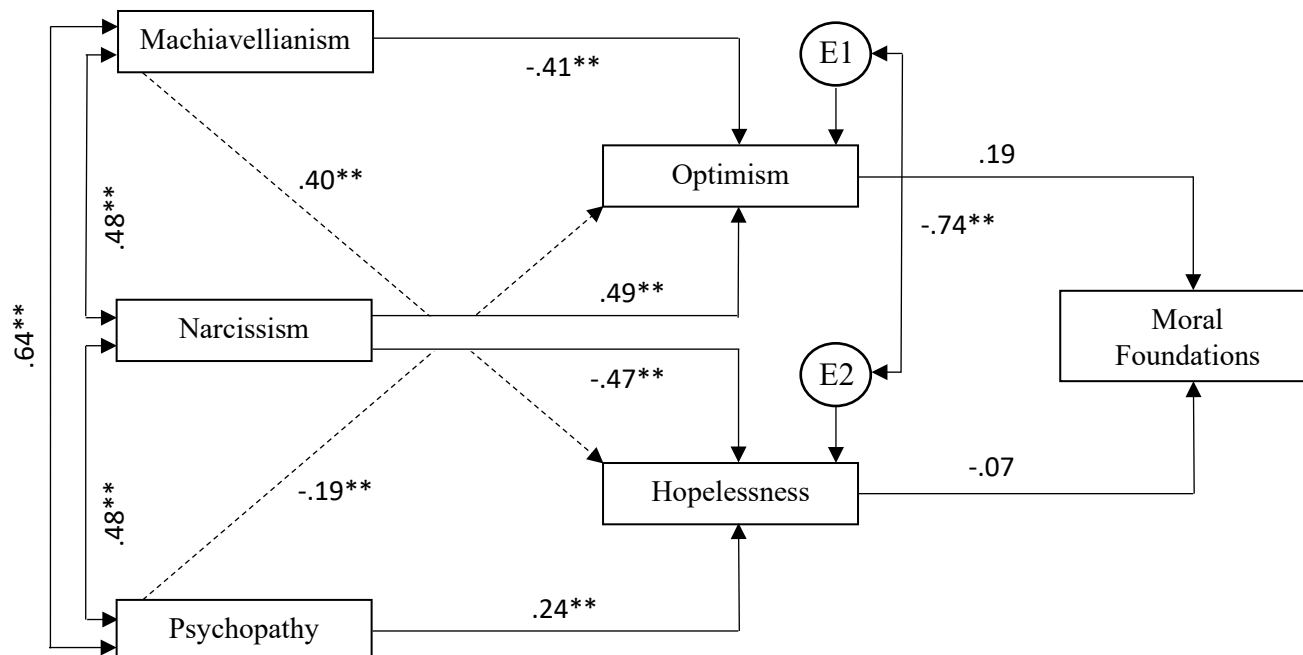


Figure 1. Mediation analysis utilising cross-sectional data (182 participants from timepoint 1).

****** $p \leq .001$

***** $p \leq .05$

Expectancy biases interacted with the MFQ in the manner expected, as optimism displayed a positive effect ($\beta = .189, p = .120$) and hopelessness displayed a negative effect ($\beta = -.0745, p = .545$). However, neither of these associations were significant, which questions the impact that expectancy biases may have upon the Dark Triad's relationship with moral foundations. This finding becomes more evident when appraising the indirect effects, as displayed in table 5. Total indirect effects for all Dark Triad traits were significant. However, none of the specific indirect effects for these traits attained significance, nor did they appear

particularly large. At this stage, the data appears to suggest that there is limited mediational quality of expectancy biases between the Dark Triad traits and moral foundations.

Table 5 - Indirect effects of Dark Triad traits upon moral foundations through LOT and GHS

<i>Total indirect effects</i>								
<i>effects</i>			<i>Specific indirect effects</i>					
			LOT			GHS		
	<i>SE</i>	<i>p</i>	<i>E</i>	<i>SE</i>	<i>p</i>	<i>E</i>	<i>SE</i>	<i>p</i>
Mach	-.107	.001	-.151	-.078	.178	-.057	-.029	.665
Narc	.126	.002	.198	.092	.193	.074	.035	.685
Psych	-.053	.039	-.075	-.035	.132	-.037	-.017	.570

Note: E = Estimate; SE = Standardised estimate

Longitudinal analysis

Cross sectional mediation displays excellent model fit $\chi^2(3, N = 105) = 3.572, p = .312, CFI = .998, RMSEA = .043$ (90% of CI of .000 to .176), SRMR = .05. As this phase utilised the same sample as the previous chapter, interactions between the Dark Triad and expectancy biases remained the same.

However, the measures of expectancy biases are vastly different to the cross-sectional model. As Table 6 indicates, hopelessness now has a specific indirect effect for all three of the Dark Triad traits. Whilst the total indirect effects for Machiavellianism are now non-significant, narcissism and psychopathy's effects remain significant, suggesting that fluctuations in hopelessness levels are more influential upon moral foundations.

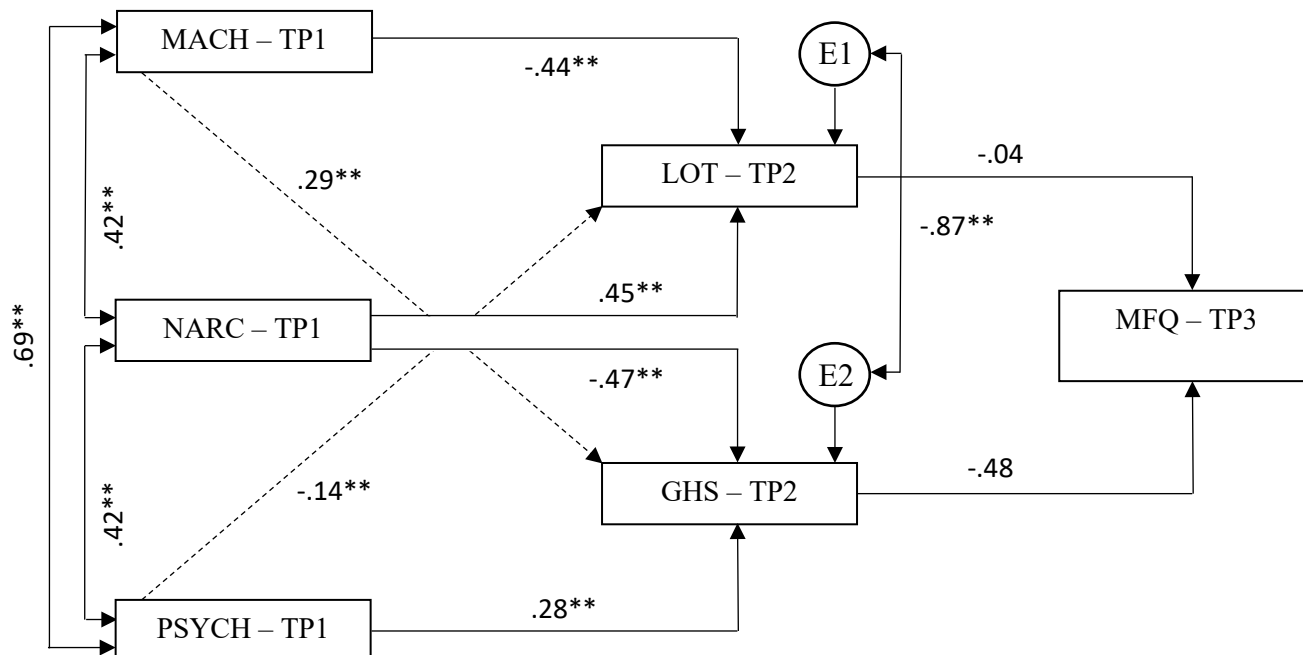


Figure 2. Mediation analysis (105 participants from all three time-points) utilising Dark Triad figures from timepoint 1, expectancy biases from timepoint 2, and moral foundations from timepoint 3

Table 6 - Longitudinal indirect effects of Dark Triad traits upon moral foundations through LOT and GHS

<i>Total indirect effects</i>			<i>Specific indirect effects</i>					
			LOT			GHS		
	<i>SE</i>	<i>p</i>	<i>E</i>	<i>SE</i>	<i>p</i>	<i>E</i>	<i>SE</i>	<i>p</i>
Mach	-.123	.077	.039	.016	.834	-.335	-.140	.029
Narc	.210	.001	-.045	-.017	.836	.616	.227	.011
Psych	-.128	.019	.013	.005	.591	-.352	-.133	.009

Note: E = Estimate; SE = Standardised estimate

Social values analysis

Cross sectional mediation analysis

The first hypothesised mediation model, constructed to assess the impact of expectancy biases upon social values, eliminated the value group Progressivism, as this factor failed to significantly correlate with either of the expectancy biases or the three Dark Triad traits.

Model fit for this model proved to be quite poor $\chi^2(6, N = 182) = 78.4, p > .001$, CFI = .848, RMSEA = .258 (90% of CI of .209 to .311), SRMR = .154. This prompted a different approach to the mediation model, in which Self-Gratification, which despite having strong correlations to the Dark Triad traits had no association to expectancy biases, was removed. Figure 7 displays the modified mediation model, which focussed solely upon Conservatism.

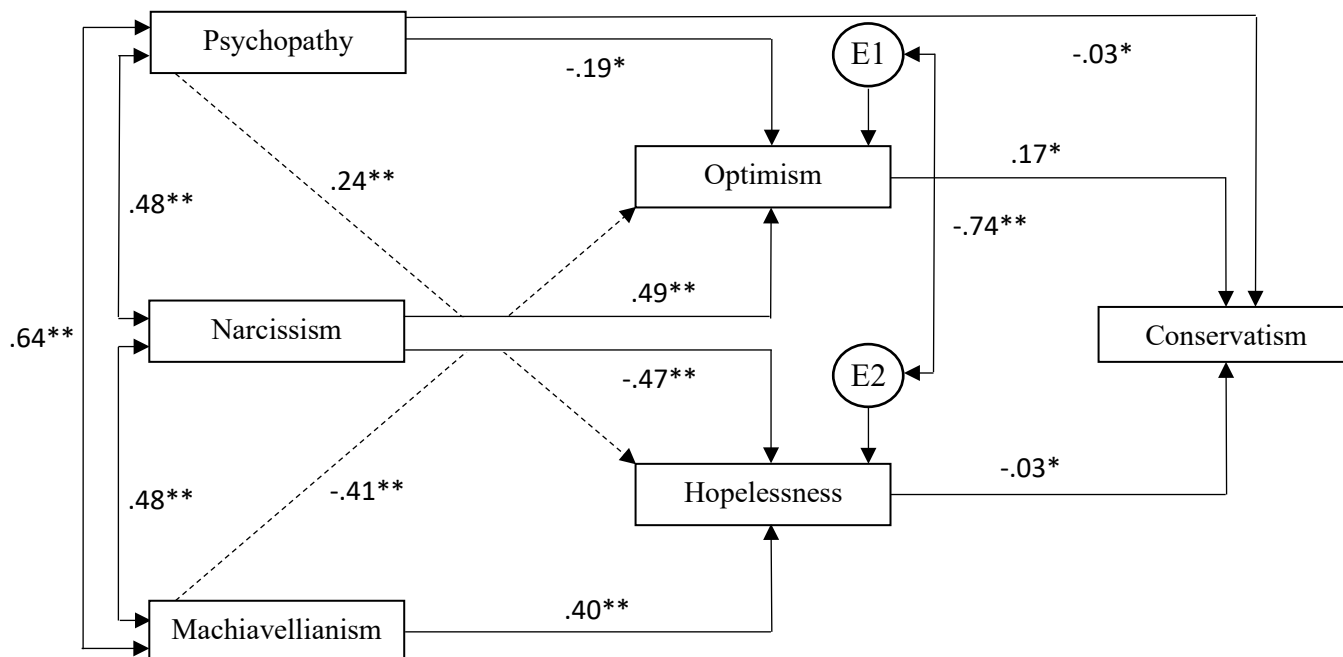


Figure 7 Mediation analysis between the Dark Triad traits and Conservatism via expectancy biases (182 participants from timepoint 1)

During the construction of the mediation model, a direct link between psychopathy and Conservatism was included to bolster the model fit. This was after the correlation analysis revealed that psychopathy was the only trait to consistently show a significant association to this value group. The mediation model proved excellent model fit $\chi^2(2, N = 182) = .379, p = .827$, CFI = 1.000, RMSEA = .000 (90% of CI of .000 to .087), SRMR = .006. The mediating effects of expectancy biases upon Conservatism operated in the manner expected. As the total

indirect effects displayed in table 7 attest, narcissism experienced significant positive mediation effects ($\beta = .034, p = .011$), whilst Machiavellianism experienced significant negative mediation ($\beta = -.149, p = .012$). Psychopathy, however, did not achieve significant indirect effects. In a similar manner, the specific indirect effects show that narcissism had small, positive mediation effects with both expectancy biases, whilst Machiavellianism and psychopathy had similarly small, but negative effects. However, all these observations were non-significant.

Table 7 - Indirect effects of Dark Triad traits upon Conservatism through LOT and GHS

	<i>Total indirect effects</i>		<i>Specific indirect effects</i>					
	<i>effects</i>		LOT			GHS		
	<i>SE</i>	<i>p</i>	<i>E</i>	<i>SE</i>	<i>p</i>	<i>E</i>	<i>SE</i>	<i>p</i>
Mach	-.149	.012	-.053	-.069	.196	-.010	-.013	.812
Narc	.034	.011	.069	.082	.221	.013	.016	.825
Psych	-.092	.079	-.026	-.031	.144	-.007	-.008	.781

Note: E = Estimate; SE = Standardised estimate

Longitudinal analysis

Figure 8 displays the mediation model consisting of the Dark Triad scores from time-point 1, results regarding the expectancy bias measures of optimism and hopelessness from time-point 2, and the Conservatism scores from time-point 3.

The mediation model, as with the cross-sectional data, proved to have excellent fit $\chi^2(2, N = 105) = .716, p = .699, CFI = 1.000, RMSEA = .000$ (90% of CI of .000 to .143), SRMR

= .013. The results generally resemble those of the cross-sectional model, with the notable differences being that the total indirect effects were more pronounced, and that psychopathy's indirect effects were not significant. Specific indirect effects also followed the cross-sectional trend. However, these effects were still non-significant, which implies that the interaction between the expectancy biases is a more important concept regarding the Dark Triad's values than either one of the biases in isolation.

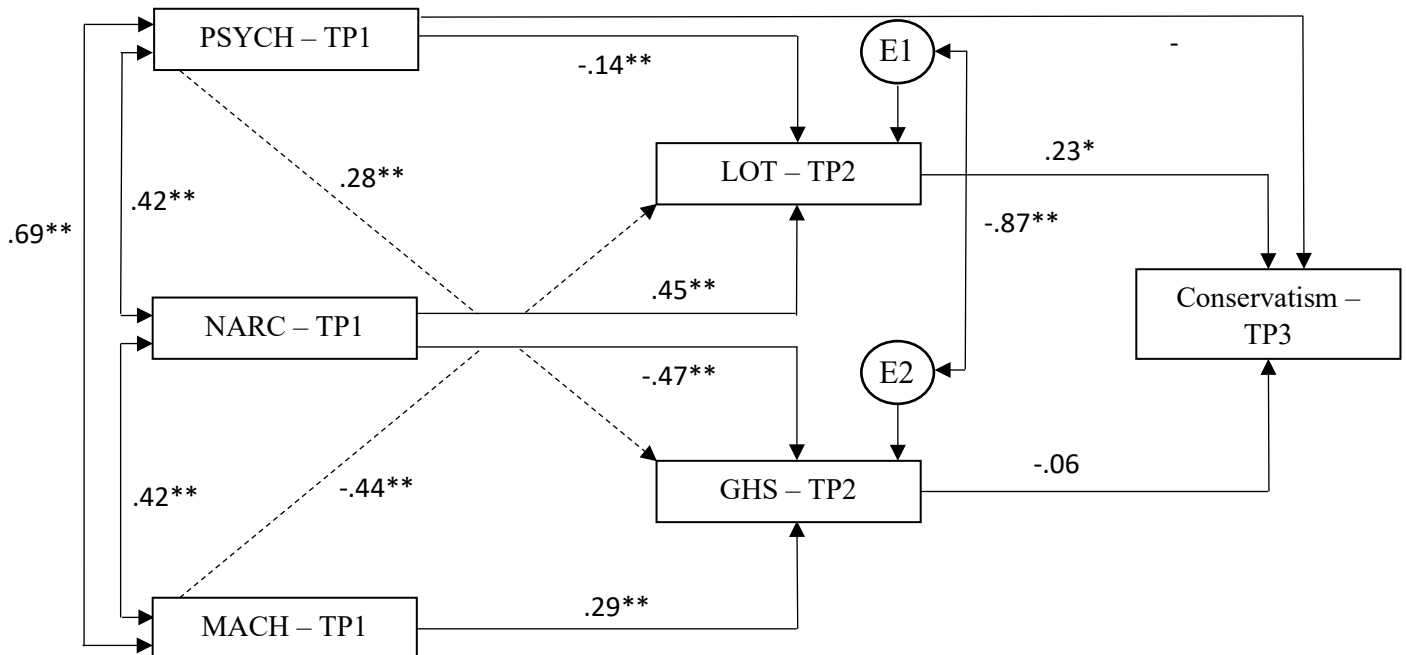


Figure 8 Longitudinal mediation analysis between the Dark Triad traits and Conservatism via expectancy biases (105 participants across all time-points).

Table 8 - Indirect effects of Dark Triad traits upon Conservatism through LOT and GHS

<i>Total indirect effects</i>								
	<i>effects</i>		<i>Specific indirect effects</i>					
	<i>SE</i>	<i>p</i>	LOT			GHS		
			<i>E</i>	<i>SE</i>	<i>p</i>	<i>E</i>	<i>SE</i>	<i>p</i>
Mach	-.229	.023	-.075	-.104	.107	-.013	-.019	.689
Narc	.058	.005	.086	.106	.138	.025	.030	.735
Psych	-.130	.253	-.025	-.032	.164	-.014	-.018	.594

Note: E = Estimate; SE = Standardised estimate

Discussion

This study explored how expectancy biases influence the Dark Triad's expression of social and moral values. Correlational analysis revealed that, as expected, Machiavellianism and psychopathy showed significant negative associations with the MFQ, whereas narcissism displayed no significant correlation. This lack of a significant association with morality supplements the notion that narcissism's displays of desirable morality are ultimately self-serving (Djeriouat & Trémolière, 2014; Zuo et al., 2016), rather than a genuine inclination. However, it also reinforces the "brightest trait" argument, because even though the moral attitude may be shallow and superficial, the adaptive behaviours that they use to maintain this façade are at least adaptive and prosocial, which is a stark contrast to those of Machiavellianism and psychopathy. Correlation analysis also revealed that expectancy biases, as measured by the LOT and GHS, expressed significant, positive associations with the MFQ. This indicates that optimistic individuals may have a greater regard for upholding moral values, whereas those who feel greater hopelessness seem less concerned. Whilst there have been examples where

hopelessness has been associated with a moral dearth (Dilmaç, 2017), it has been more evident that hopelessness is influenced by a decline of moral values (Fahlquist & Roeser, 2015; Khan et al., 2014). The influence of optimism upon morality, however, has seen little attention within psychology. These results, therefore, open the door to a new avenue of research regarding how expectations of future events may impact upon moral attitudes, potentially shifting the conversation from philosophical debate to psychological empiricism.

Mediation analysis revealed that the total scores of optimism and hopelessness had a significant affect upon moral values in relation to all three Dark Triad traits. Specifically, the combination of both expectancy biases had a positive effect upon narcissism's morality, whereas they had a negative effect upon the morality of Machiavellianism and psychopathy. However, specific indirect effects for expectancy biases in isolation produced no significant results. This pattern of results may suggest that it is the combined association of biases which impact upon the Dark Triad's moral standing, rather than specific optimism or hopelessness levels. For example, narcissism's simultaneously positive relationship to optimism and negative association to hopelessness may facilitate a generally positive outlook upon the world, wherein a narcissist can evaluate their moral judgements with the expectation of positive results. Whereas to the contrary, a pessimistic Machiaval who also experiences hopelessness would be more cynical about the world and other people's intentions, thus providing a justification for their pragmatism. In the case of the self-serving narcissist, whose moral choices are inspired by winning the approval of others (Djeriouat & Trémolière, 2014), a good result would consist of making the choice which resonates the most effectively, leading the positive appraisals from others. The cross-sectional mediation results suggest that this process may not occur to the same extent if the balance between the two biases shifts.

However, the longitudinal mediation data paint a different picture. These results show that total indirect effects maintain the same pattern of results for narcissism and psychopathy,

but not for Machiavellianism, whose total effects were not significant. However, unlike the cross-sectional data, the specific indirect effects of hopelessness were significant for all three of the Dark Triad traits, a stark contrast to the coinciding indirect effects of optimism. This result has some interesting implications for narcissism. As already established, narcissism has a dubious relationship with morality, where seemingly moral judgements are driven, primarily, by a selfish ulterior motive. However, this doesn't account for the instances where narcissists display antisocial, amoral, and generally disruptive behaviour (Duchon & Drake, 2009; Jones et al., 2017), since one of narcissism's main prerogatives is to maintain social approval. However, as posited by Zuo et al. (2016), narcissism's moral judgements can be moderated by self-esteem, meaning that the positive affiliation with morality diminishes as self-esteem rises. Ergo, a narcissist will be more inclined to make prosocial moral judgements when their self-esteem is low, most likely as a means for self-enhancement to invigorate self-esteem via positive affirmation from others. The display of prosocial morality would be employed as a tactic to bolster diminished self-esteem, by way of constructing a "moral" self-image. Self-esteem is highly correlated to both optimism and hopelessness (Davies et al., 1992; Dori & Overholser, 1999), in that high optimism predicts high self-esteem, and high hopelessness predicts low self-esteem. The context of this study could illuminate the underlying processes of the narcissist's moral decision-making. Fluctuation of optimism levels, with the concurrent stability of low hopelessness, could influence the narcissist's self-esteem, triggering the desire to be more moral. Therefore, the influence of expectancy biases upon narcissism's moral values may exist in conjunction with the narcissist's current self-esteem levels.

Correlation analysis of social values revealed that all three Dark Triad traits associated positively with Self-Gratification but did not significantly associate with Progressivism. This met expectations and matched the Dark Triad's agentic social strategies (Jonason et al., 2010; 2018), a disposition in which individuals place greater concern upon their own goals and

prerogatives, whilst encompassing a diminished concern for the general well-being of others. However, only psychopathy displayed a consistently significant association with Conservatism. This is at odds with other studies, in which narcissism and Machiavellianism have had associations to some of these values (Kajonius et al., 2015). These results may be due to the parcelling of the values into three groups, but it is also possible that the Dark Triad's intercorrelations with psychopathy are the inspirations behind the previously observed aversion to these values. Despite this, the correlation analysis revealed that it was only Conservatism that had significant associations with the expectancy biases. This implies that intrapersonal levels of optimism and hopelessness may not have much of an affect upon social values, aside from those which adhere to community and conformity. In this regard, an optimistic outlook may reinforce these values, maybe by building upon the link between optimism and trust, and how this expands to include other people and institutions (Franke & Elliot, 2021; Gürol & Kerimgil, 2010; Uslander, 1998). Whereas a hopeless outlook may cause individuals to lose faith by their surrounding societies (Lester, 2001; Marsh, 1994). This selective association creates a narrow potential of influence for the specific biases, a factor which heavily affected the structural model.

Initial mediation analysis was conducted without Progressivism, due to the weak relationship between the values set, Dark Triad and expectancy biases. Assessment of the initial mediation model also saw the removal of Self-Gratification when it displayed mediational quality between the Dark Triad and expectancy biases. This meant that SEM continued only with Conservatism as the focal value. Both the cross-sectional and longitudinal mediation analyses revealed that expectancy biases only had an indirect effect in relation to Machiavellianism and narcissism, as psychopathy failed to attain significant indirect effects. Furthermore, specific indirect effects for all traits in both cross-sectional and longitudinal analyses were non-significant. This gives the impression that whatever impact expectancy

biases have upon the Dark Triad's values, it is not due to either optimism or hopelessness in isolation.

Though the total indirect effects for narcissism and Machiavellianism were significant, the effects for narcissism were small. This gives the impression that any mediation effect that expectancy biases might have upon narcissism's values is relatively minor. The marginal effect, however, may provide some illumination regarding a recent insight which revealed that narcissism's communal behavioural bias was equal to their propensity for agency (Jonason & Fletcher, 2018). This point appears to be at odds with other Dark Triad literature, which espouses that the traits are typically agentic, with a disregard for communal values (Jonason et al., 2010). The inverse relationship between narcissism and hopelessness may account for this division, as reduced levels of hopelessness are also associated to greater collectivism (Du et al., 2014). Since the Conservatism variable from this study consists of the tradition, conformity, and security values, all of which correlate with collectivism (Oishi et al., 1998), this value group contains expressions of communal behaviours. The meagre indirect effect of expectancy biases upon narcissism's Conservatism may facilitate a desire to integrate, to some degree, within a community and, in a similarly superficial manner as their moral values, construct a prosocial appearance for the purpose of self-enhancement. This link may be tenuous, due to the shallow mediation effect, but it does suggest an insight upon the discrepancies regarding narcissism's agentic/communal behaviour bias (Jonason & Fletcher, 2018; Rauthmann & Kolar, 2013). Furthermore, this process can be replicated with Machiavellianism. Negative total indirect effects between Machiavellianism and Conservatism were significantly stronger than they were for narcissism. Additionally, Machiavellianism's association to expectancy biases opposes that of narcissism i.e., low-optimism, high-hopelessness. If expectancy biases effect upon Dark Triad values influence Conservatism, it could influence the degree to which

they choose to integrate within society. This could be reflected in Machiavellianism's superior agency levels over narcissism (Jonason & Fletcher, 2018; Jonason et al., 2010).

However, the differences between the total and indirect effects of expectancy biases, which was observed in both the cross-sectional analysis of moral values and both methods of analysis for social values, are potentially a major limitation of this study. These inconsistencies in these significance levels could, statistically, resemble the mediating relationships already described. However, there is also the possibility that this is a statistical artefact. A statistical artefact can occur when there is a flaw in the research design, with the implication that the findings do not reflect the real world but are, rather, an unintended consequence of measurement error. This could be potentially caused by the participant attrition as described in Chapter 5, which saw a 42.3% reduction in the participant number between time-points 1 & 3. This issue with attrition can create an "attrition bias" wherein the differences between the participants who leave the study and those that continue can be the reason for the observed effects in a study, rather than the manipulation of data within analysis (Nunan & Bankhead, 2018). The differences between the people who are likely to leave or continue a study are varied. One possible explanation for an artefact in this study could be that individuals high in the Dark Triad traits were less likely to complete all three of the time-points, possibly due to their higher capacity for boredom (Pfattheicher et al., 2020) and lower levels of conscientiousness (Jakobwitz & Egan, 2006). Higher conscientiousness is a consistent predictor of performance (Hurtz & Donovan, 2000; Robert & Cheung, 2010) whilst low conscientiousness is related to procrastination (Lee et al., 2006) and low self-motivation (Cheng & Ickes, 2009). This would create the potential for the remaining cohort of participants to not fully represent the Dark Triad traits.

Another possible limitation of this study is an issue with the value parcelling. The SSVS represents the individual Schwartz values by using one item taken from the corresponding set

of questions in the original Schwartz Value Scale. Whilst the shorter scale was declared to be a useful, time-saving substitute for the original, boasting good reliability and validity (Lindeman & Verkasalo, 2005), there is a potential that this could be comprised when parcelled into groups. When the values which share a similar position within Schwartz's (1992) value circumplex are grouped together, they will, naturally, no longer represent their core elements, instead now comprising a new superordinate value that loosely resembles its constituent parts. Whilst this was useful for the purpose of this study, as a more parsimonious structural model made for a concise analysis, there is the potential that errors may occur in the analysis as a result of this reduction of value specificity. This may also be exacerbated by the previously mentioned debate regarding the use of single-item measures in academic research (Wanous et al., 1997), as it may contribute even further towards the diluting of the values.

However, this opens up the possibility of further research into this area. The presence of total indirect effects shows that there is some mediating effect of expectancy biases upon some of the Dark Triad's values. Therefore, a similar investigation which uses the original Schwartz value scale would be beneficial to fully elucidate these mediating qualities. This study was effective in highlighting this potential. However, the use of shorter measures as a means to reduce survey fatigue and participant attrition, which was a necessary procedure when considering the concurrent measurement of moral foundations, may not have been sufficient in fully encapsulating the Dark Triad's values. Using the complete values survey will mean that each of the ten values will have a dedicated number of items, which can then be used to create latent variables within SEM, ultimately allowing for more detailed analysis.

Conclusion

Whilst Machiavellianism and psychopathy expressed suitably negative correlations to moral foundations, narcissism achieved no significant association, suggesting that previous examples of them showing good moral behaviour may be superficial and self-enhancing.

Expectancy biases may only have a minor, perhaps even secondary, influence upon narcissism's morality. Hopelessness revealed itself as a more stable predictor of the Dark Triad's moral foundations over time. However, the influence of expectancy biases upon narcissism's moral foundations may only take effect in conjunction to fluctuations of other psychological constructs, such as variations in self-esteem, meaning that their overall mediating effect is not constant.

Furthermore, expectancy biases had very little effect upon the Dark Triad's social values. Those that occurred only existed for narcissism and Machiavellianism, pertaining only to a small number of Schwartz's values. However, these associations for narcissism are weak, which suggests that there exists very little effect.

Chapter 7 – General Discussion

This doctoral thesis explored how expectancy biases, specifically, optimism and hopelessness exhibit a mediating effect upon the subjective well-being and value systems of the Dark Triad. This was based upon the work of Jonason et al. (2018), who highlighted the differing association between the Dark Triad traits and optimism, wherein narcissism emerged as the only trait from the model to express a positive association towards optimism. This contributed towards a growing body of Dark Triad literature in which narcissism elevates itself as the “brightest” of the three traits (Rauthmann & Kolar, 2012). This brightness reveals a series of positive outcomes, which include healthy personal practises (Ingledeew & Brunning, 1999; Steptoe et al., 2006) and a superior resilience to negative mindsets (Baker, 2007; Nes & Segerstrom, 2006).

The tendency for narcissism to correlate with optimism was an interesting finding when considering the beneficial effects which accompany both trait and bias. For instance, elevated levels of optimism are frequently linked to a resilience to depressive tendencies (Ji et al., 2017; Shapira & Mongrain, 2010), remains effective in moderating the ruminating effects of anxiety (Hirsch et al., 2012; Yu et al., 2015), and is positively associated with higher levels of both self-esteem (Davis et al., 1992) and self-efficacy (Sezgin & Erdogan, 2015). These are relationships which are often also associated with narcissism (Depression: Fang et al., 2021; Tritt et al., 2010; Anxiety: Akehurst & Thatcher, 2010; Roberts et al., 2013; Self-esteem: Hart et al., 2021; Self-efficacy: Beattie et al., 2017).

Whilst pathological narcissism has an historically positive association with optimism, especially when focussing upon the narcissistic expectation of successful task performance (Farwell & Wohlwend-Lloyd, 1998; Hickman et al., 1996; Tamborski et al., 2012), Jonason et al. (2018) revealed the variation in the Dark Triad’s expectancies from a trait-disposition

perspective. This invokes the suggestion that the positive outlook expressed by subclinical narcissism is more of a typical, everyday aspect of the trait. Therefore, as a feature of the trait rather than a contextual predisposition (ie., is only employed when presented with certain situations or tasks), there is the possibility that narcissism's optimistic outlook could facilitate the underlying beneficial qualities that are present in both trait and bias.

This potential mediational relationship was the focal interest to this project. The first stage was to first consider the findings of Jonason et al. (2018) to establish their validity. This was determined with a simple replication study, which established that narcissism expressed positive and negative associations to optimism and hopelessness, respectively. These results were a direct contradiction to the associations found with Machiavellianism and psychopathy. However, the initial total variance between the Dark Triad traits and optimism was unsatisfactory, which inspired a further exploration to include phenotype measures of narcissism and psychopathy. This revealed that only the grandiose elements of narcissism were associated with optimism, as the vulnerable phenotype imitated other Dark Triad traits in their greater associations to pessimism and hopelessness. This met initial expectations (Farwell & Wohlwend-Lloyd, 1998; Kealy et al., 2017), and supports the hypothesis that the grandiose features of narcissism are the source to the beneficial qualities seen within the trait. Furthermore, hypotheses one and two of this study were also met as expected.

The lack of association between optimism and vulnerable narcissism also contributes towards greater understanding of the phenotypic distinctions. Whilst both forms of narcissism are capable of overt and covert behavioural expressions (Pincus et al., 2014), the vulnerable phenotype often encapsulates the traits anti-social behavioural tendencies and intrapersonal maladjustments with greater frequency and propensity. This includes dispositional anger (Maciantowicz & Zajenkowski, 2020), depression (Erkoreka & Navarro, 2017), and shame (Bilevicius et al., 2019). Therefore, the inclusion of hopelessness into their expectancies can

exacerbate depressive moods, typically characterized by feelings of emptiness and agitation rather than an observable sadness (Pincus et al., 2014). These outcomes occur when the narcissist does not receive the occupational, social, and recreational support to which they believe they should be entitled. The addition of hopelessness into this mix encourages them to withdraw further into their torpor, a strategy concocted to conceal their imperfect self, reinforcing the perceptions that their conditions will not improve, and that they are a perennial victim to injustice. This is a typical characteristic of hopelessness (Beck et al., 1974; Kocalevent et al., 2017), and could be a pivotal mechanism in the fluctuations between grandiose and vulnerable narcissism (Gore & Widiger, 2016).

Recent research has shed some light onto the oscillations between narcissistic subtypes (Edershile & Wright, 2021), which suggests that the two phenotypes are separate dispositional qualities which exhibit their own fluctuations of grandiosity and vulnerability. Specifically, that individuals who are dispositionally grandiose express both grandiosity and vulnerability, the overall levels of which vary over time, whereas dispositionally vulnerable individuals tend to have high levels of vulnerability and low levels of grandiosity. The expression of grandiosity for the vulnerable narcissist can manifest in elaborate fantasies (Pincus et al., 2014; Raskin & Novacek, 1991), in which the narcissist constructs scenarios consisting of self-admiration, power, and revenge as a coping strategy to avoid addressing the underlying stress and anxiety that they are experiencing. Hopelessness, of course, is a perspective which offers no means for an individual to change their dismal future prospects (Beck et al., 1974). The vulnerable narcissist, who therefore experiences hopelessness and agitation due to their anxiety, shame, and fragile ego (Miller et al., 2011), will delve into their grandiose fantasies rather than address their own inadequacies, ruminating and blaming others through a lens of entitlement. This creates a vicious cycle in which their subsequent behaviour, typically negative, will lead to even greater shame, emotionality, and social rejection (Besser & Priel, 2010; Freis et al., 2015).

The role that hopelessness plays in this process is a valuable addition to the literature, in which future research should also focus upon. The focus of which should centre upon the mediating potential that hopelessness may provide for other qualities with which the trait and bias are both associated, such as depression, anxiety, and self-esteem.

The purpose of phases 2 and 3, as illustrated in Chapter's 4 and 5, was to explore the mediating quality of expectancy biases upon the Dark Triad's subjective well-being, followed by their adoption of social and moral values. These investigations revealed several significant findings. Firstly, it appears as though expectancy biases have little mediating effect upon the Dark Triad's social values. The only previous examples regarding expectancy biases, primarily optimism, focused upon the superordinate value dimensions rather than the specific values, finding that optimism correlates with self-enhancing values (Sagone & De Caroli, 2016). This suited the Dark Triad model, which is itself typically self-enhancing (Jonason et al., 2015). However, the findings of this study revealed that expectancy biases were only weakly correlated to the parcelled values, much less able to manifest a substantial mediating effect upon the Dark Triad's value systems. Though the parcelling of the values into groups transpired to increased parsimony in the structural model, scrutiny of the correlations between the individual values and expectancy biases prior to this process also reveals little association, as seen in the table below.

Correlations between expectancy biases and
Schwartz social values (Phase 3)

	<i>Optimism</i>	<i>Hopelessness</i>
Power	.137	-.099
	.065	.183
Achievement	.075	-.143
	.313	.054
Hedonism	.104	-.081
	.162	.275
Stimulation	.087	-.165*
	.240	.026
Self-direction	.026	-.049
	.730	.508
Universalism	.072	-.093
	.336	.210
Benevolence	.256**	-.255**
	.001	.001
Tradition	.222**	-.201**
	.003	.007
Conformity	.239**	-.215**
	.001	.004
Security	.032	-.017
	.666	.821

** Correlation is significant at the 0.01

* Correlation is significant at the 0.05

Therefore, one significant finding from this project is that optimism and hopelessness appear to have little influence upon social values, aside from the associations between benevolence, tradition, and conformity. Of these three, only benevolence has had a consistent negative relationship to the Dark Triad (Kajonius et al., 2015). This heavily reduces the potential for expectancy biases to have any effect upon the Dark Triad's values.

Findings regarding the other explored facets, subjective well-being, and moral foundations, were more compelling. To focus first upon subjective well-being, the findings were in line with previous research which shows narcissism to have the strongest positive association to subjective well-being (Aghababaei & Błachnio, 2015; Egan et al., 2014). The current results also extended this literature base by revealing that expectancy biases do have a mediating quality upon the Dark Triad's individual expression of subjective well-being. However, this study indicates that the model's association to hopelessness is simultaneously a more powerful mediator of subjective well-being than optimism, whilst also being a more stable predictor of subjective well-being over time. This was observed primarily through narcissism, to which a positive association with optimism in combination with and a negative association with hopelessness had a beneficial mediating effect upon subjective well-being. However, during the longitudinal phase there was an observable failure of optimism to achieve a significant consistent mediating effect for any of the Dark Triad traits, whereas hopelessness remained robust. The fact that narcissism's total effects continued to be both positive and significant despite optimism's instability is a testament to this, also promoting the notion that a negative association with hopelessness can be a more resilient foundation to a positive expectancy.

The results of this study align with previous research. Specifically, findings reveal that psychopathy and Machiavellianism are negatively associated with moral foundations where they score low on preserving fairness and preventing harm. (Efferson et al., 2017; Međedović

& Petrović, 2016). However, there was no significant association between narcissism and moral foundations. Despite this, the indirect mediating effects of expectancy biases proved positive for narcissism and negative for Machiavellianism and psychopathy. Though Machiavellianism failed to maintain a significant mediation effect over time, inferring that expectancy biases may not have a very robust effect upon the trait's moral foundations, narcissism and psychopathy managed to maintain a significant mediating effect. Furthermore, hopelessness emerged as a more reliable mediator in the longitudinal phase.

These findings for narcissism, however, failed to align with previous literature, where narcissism appeared to demonstrate a socially desirable form of morality (Jonason et al., 2015). This seems fitting for the narcissist, whose desire for social approval may inspire a derisory moral façade, the only function of which to amass social approval and enhancement. The effect of expectancy biases in the scenario is interesting because, despite significant indirect effects, only hopelessness produced significant mediation with the traits. This suggests that hopelessness, or, in the case of narcissism, the lack thereof, is a more stable expectancy bias in its mediating effect upon moral foundations. As previously mentioned in Chapter 6, Zuo et al. (2016) suggested that narcissism's moral judgements are moderated by self-esteem, meaning that the positive affiliation with morality diminishes as self-esteem rises. Narcissists moral judgements are therefore moderated by their levels of self-esteem, which correlates highly with both optimism and hopelessness (Davies et al., 1992; Dori & Overholser, 1999). Specifically, high optimism predicts high self-esteem, and high hopelessness predicts low self-esteem. Since narcissism's negative association towards hopelessness is more stable than their positive association towards optimism, it is possible that, as optimism levels vary, fluctuations in their self-esteem will inspire more pro-social moral choices. Ultimately, this insinuates that the effect of expectancy biases upon narcissism's moral foundations is an ancillary effect from

variations in their self-esteem. To investigate this further would require some contemplation upon the relationship between self-esteem and morality.

The outcomes of this doctoral research project have some novel implications for the Dark Triad. Whilst psychopathy and Machiavellianism performed as expected throughout, narcissism produced some findings which require further scrutiny. Specifically, these regard the shift from optimism as the potential chief catalyst for some of narcissism's beneficial aspects to a dearth of hopelessness, and the potential for how self-esteem may influence narcissism's behaviour during periods of vulnerability.

Dark Triad and hopelessness

When Jonason et al. (2018) investigated how the Dark Triad differed upon expectancy biases, specifying optimism, pessimism and hopelessness, the main conclusion asserted that narcissism was the most optimistic of the three traits. This conclusion was derived from three separate cohorts of participants from different countries, USA, Hungary, and Brazil. Each of these displayed a positive association between narcissism and optimism measures, and a negative association for Machiavellianism and psychopathy. However, the three traits also associated with hopelessness in an equally divisional manner, with Machiavellianism and psychopathy consistently displaying positive associations and narcissism showing negative associations. This outcome was relatively ignored by the authors, who chose instead to focus upon the divisions within optimism. This is understandable, as a contemporary trend in Dark Triad research has focused upon narcissism's relative brightness (Rauthmann & Kolar, 2012; Volmer et al., 2016), so for the conclusion to fall upon optimism, as another favourable psychological construct, would be a new addition to this course in the literature.

However, the results of this project suggest that narcissism's association with hopelessness should also receive further scrutiny. Whilst the relationship with optimism was clearly present, the negative association with hopelessness, which may be tentatively described

as a “hopeful” perspective, was stronger and more consistent throughout. This interpretation, naturally, raises several questions regarding the role of hopelessness within Dark Triad research, the dichotomy between hopelessness and hope as expectancy biases, and whether hope is a more effective lens for future events than optimism.

Hope and hopelessness are two constructs which appear to operate upon oppositional ends of the same psychological dimension (Henry, 2004). Despite this, the two are distinctive enough to warrant their own body of literature, theoretical models, and research applications. For example, the theories of Beck and Abramson, as described in Chapter 3, depict hopelessness as a diathesis-stress model in which negative life events produce negative self-schemas, resulting in adverse expectations of the future. This leads to a negative-outcome expectancy, in which an individual will exaggerate the potential for undesirable events whilst downplaying the possibility of desirable outcomes. Furthermore, the presence and frequency of negative events occur as a direct response to a perceived, yet not necessarily true, flaw of their own character e.g., they aren't progressing professionally because they're not competent (Beck, 1979; Abramson et al., 1989). Hope, on the other hand, can be defined as a thinking process which encourages personal agency regarding the accomplishment of personal goals (Snydney et al., 1999). This agency is associated with a method of “pathways thinking” in which people visualise plans to meet their goals, based upon perceptions of their own capabilities (Snyder et al., 2002), cumulating in the motivation to pursue and achieve their goals. This creates a positive-outcome expectancy, the antithesis of hopelessness, wherein individuals look to the future with the confidence that good things will happen and that they will fulfil their desires. Hope, therefore, is a positive goal-oriented state which can be actively engaged through the purposeful desire for positive outcomes whilst simultaneously wishing for the amelioration of a negative, potentially dreaded outcome (Lazarus & Lazarus, 1991).

The presence of a hopeful perspective can bring with it several advantages. For instance, evocation of hope has been observed as a mechanism for reduced stress (Chadwick et al., 2016), a reduction of functional impairment (Hirsch et al., 2011), with the heightened capacity for agency also contributing towards the reduction of depression (Arnau et al., 2007; Kwok & Gu, 2019). This increases the likelihood of a struggling individual seeking both informal and formal forms of psychological aid when experiencing suicidal ideations (McDermott et al., 2017). Furthermore, hope has a reciprocal relationship with coping theory (Folkman, 2010), in that coping can foster hope when it has fallen low to stressful circumstance, and that hope can sustain coping when an individual moves forward into challenging conditions. This affiliation to the hope-coping relationship has positive ramifications for individuals who are dealing with various illnesses, such as cancer (McClement & Chochinov, 2008; Sachs et al., 2012), HIV (Yadav, 2010), and multiple sclerosis (Madan & Pakenham, 2014). These beneficial effects have stimulated the need for hope-inspiring behaviours and hope-fostering interventions from nurses and clinicians (Felder, 2004; Salamanca-Balen et al., 2021). This can have an impact upon the patient's quality of life, even at the point where it is ending, and can also contribute towards positive subjective well-being (Nierop-van Baalen et al., 2020; Werner, 2012).

Hope's affiliation to subjective well-being is a relationship more pertinent to the results of this project, the results of which suggested that hope may be a more suitable predictor than optimism for the Dark Triad's subjective well-being. These two psychological constructs have a similar foundation, often finding interchangeable use in layman's-terms to describe a positive expectancy, to effectively resemble the same phenomena. However, there have been a plethora of studies which distinguish the two constructs, often finding that each have a unique predictive or contributory power towards another factor or psychological variable. In a study directly comparing the two, Bryant and Cvengeos (2007) tested the dimensions of hope (agency and

pathways) against the optimism-pessimism dichotomy. They found that, despite intercorrelations, optimism had a stronger influence upon coping strategies than hope, whereas hope was a more powerful predictor of self-efficacy. The key conclusion was that hope focuses more directly on the personal attainment of specific goals, whereas optimism focuses more generally upon the expected quality of future outcomes. Optimism and hope have also been frequent subjects of studies which explore their relative mediational effect upon various aspect of subjective well-being, in a multitude of different contexts.

For example, hope appears to maintain a more powerful and more consistent predictive capacity for subjective well-being than optimism (Ciarrocchi & Deneke, 2005; Genç & Arslan, 2021; Kardas et al., 2019; Mohindru & Sharma, 2019; Vacek et al., 2010). Specifically, that the more passive characteristics of positive expectations, such as optimism, have less of an impact on subjective well-being than a more agentic hopeful disposition (Pleeging et al., 2021). Furthermore, the agency factor of hope is associated with greater life satisfaction (Bailey et al., 2007; Hassan et al., 2018; Shogren et al., 2007), job satisfaction and work happiness (Youssef & Luthans, 2007), and has a greater affect upon positive affect and life satisfaction regarding academic performance (Rand et al., 2020). Hope has also been associated with less severe depressive symptoms in patients with advanced or chronic illnesses, such as cancer (Fischer et al., 2018; Rajandram et al., 2011), though a combination of the two expectancies was the best fit for alleviating anxiety symptoms.

Associations between the Dark Triad model and hope appear to be a relatively unexplored relationship within Dark Triad literature. Narcissism, however, has received at least some meagre attention in this vein. An unpublished manuscript authored by Snyder and Cheavens (1997) reported that high-hope individuals appeared to be unrelated with narcissism. However, whilst this manuscript has been cited by others as evidence of no relation between the two constructs, there exists one substantial consideration to refute the claim. Specifically,

this assertion transpired prior to the emergence of the Dark Triad model, developed by Paulhus and Williams in 2002, after which focus upon the measurement of the subclinical forms of narcissism, Machiavellianism and psychopathy become more prominent. Before this point, the most useful measurement of subclinical narcissism was the Narcissistic Personality Inventory (Raskin & Hall, 1979), which distinguished itself from other contemporary measures by focusing purely upon narcissism as a personality trait (Emmons, 1987). Snyder and Cheavens (1997), however, failed to find a correlation between hope and narcissism when the latter was identified using the Selfism Scale (Phares & Erskine, 1984). This scale measures narcissism as a cognitive construct, referring to the belief that problems can find their most efficient resolutions through construing situations in an egocentric or selfish fashion. However, this views narcissism as an attitudinal rather than a motivational construct, failing to consider the emotional and interpersonal processes to narcissistic behaviours (Emmons, 1987; Masterson, 1981).

As a measure of narcissism, use of this scale is scarce, instead only employed to measure the prioritisation of one's own desires. Therefore, the lack of association between hope and narcissism in this case may be a case of using an inappropriate measurement instrument, as the cohort's true narcissism levels were not properly assessed. Furthermore, whilst Snyder and Cheavens (1997) concluded that the agency of high-hope individuals leads them towards the strategic development of personal goals, their supposed lack of narcissism also means that they understand the goals of others and, to some degree, work communally towards achieving them. Recent study which emphasises the more communal nature of narcissism, however, brings this conclusion into question (Gebauer et al., 2012; Luo et al., 2014; Nehrlich et al., 2019).

When exploring the difference in the Dark Triad's behavioural measures of agency and communion, Jonason et al. (2018) evinced that narcissism was as equally communal as it was

agentic. Though research into agentic and communal narcissism espouses that the two are separate entities (Gebauer et al., 2012), motivational foundations function in a similar manner with regard to self-enhancement (Nehrlich et al., 2019). Jonason et al., (2018) also mused that the adoption of communal behaviours can satisfy ego-needs in societies where such behaviour is rewarded. Therefore, as narcissism can also be communal, Snyder and Cheaven's (1997) dismissal of narcissistic hope could be refuted. This presents the possibility for future research to assess the impact that hope may have upon narcissism's subjective well-being. As both hope and narcissism are reasonably well associated with positive subjective well-being (Genç & Arslan, 2021; Zajenkowski & Czarna, 2015), and, as the results of this project highlight, narcissism evinces a negative association with hopelessness, there is potential for a strong mediating relationship between the trait and expectancy that is well worth investigating.

Narcissism, optimism, hope and self-esteem

The findings from this project illuminate a possible scenario, wherein the mediating quality of expectancy biases upon narcissism's expression of positive moral behaviour may hinge upon their current level of self-esteem. This conclusion builds upon those of Zuo et al. (2016), who posited that narcissism's moral judgements are moderated by self-esteem, meaning that the positive affiliation with prosocial moral choices diminishes as self-esteem rises, and vice versa. According to Zuo et al., this will result in narcissists who are moral when experiencing low self-esteem, and narcissists who are amoral during periods of high self-esteem. The fluctuations of optimism, within the context of this study, perform as an ancillary effect of self-esteem, in which optimism diminishes alongside self-esteem. The findings of this study weave an intricate tapestry of affect between narcissism, optimism, hope and self-esteem, where some direct effects influence behaviour and some other observable associations are the product of ancillary effects. Figure 9 provides a visual representation of the process of how narcissism's moral behaviours may be a product of lowered self-esteem.

As Figure 9 demonstrates, the moderation of narcissism's moral foundations occurs following a threat of their ego, an event which can have a corresponding reduction to the self-esteem of grandiose narcissism (Green & Charles, 2019). Concurrently, the point where a grandiose narcissist experiences a period of vulnerability, which is common in the face of narcissistic injury (Edershile & Wright, 2021), is where optimism suffers a similar reduction. Low levels of self-esteem evince more moral behaviours in narcissists (Zuo et al., 2016), which, whilst superficial in nature due to the ulterior purpose of promoting and bolstering a more just and compassionate self-image, serves a beneficial purpose in raising self-esteem.

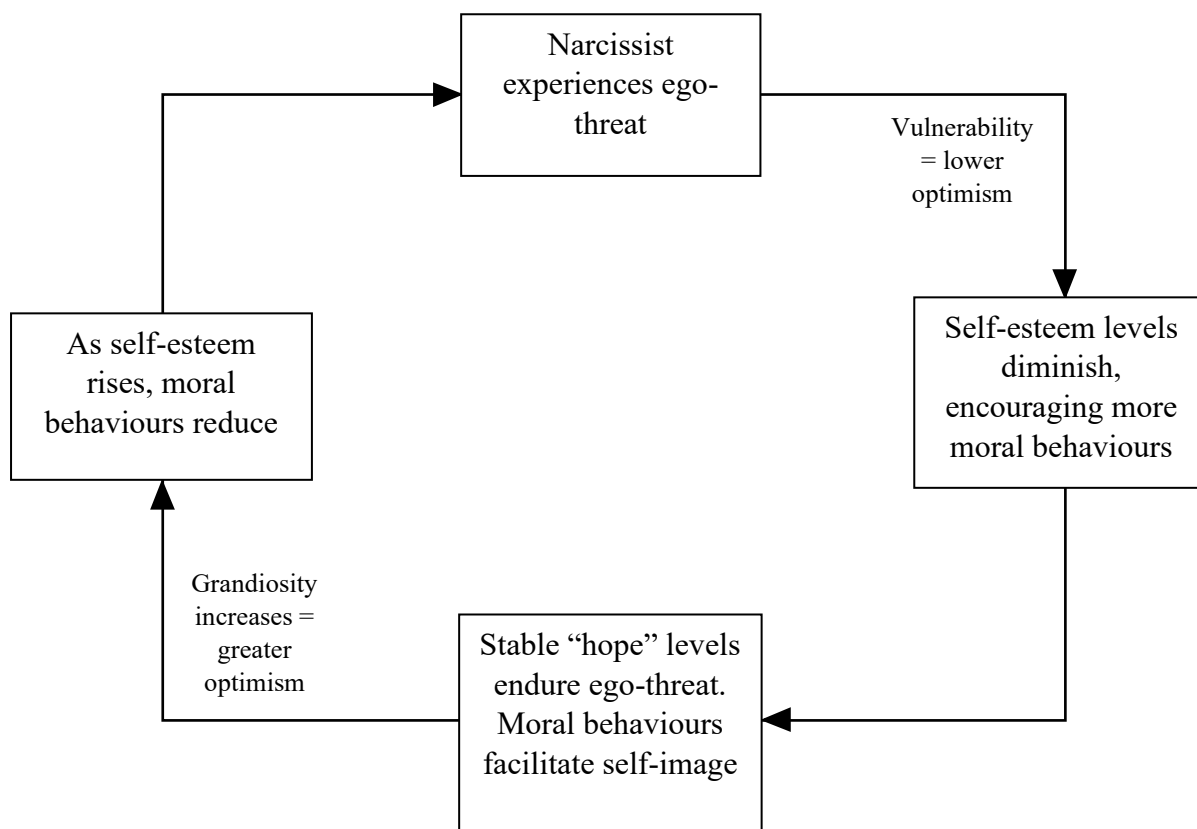


Figure 9 Cycle of effect between narcissism's self-esteem and moral behaviours

This has the potential to backfire, as explicit attempts to increase other people's regard for the self are potentially quite transparent, leading to further damage to self-esteem when they are summarily challenged on their intentions (Canevello & Crocker, 2011). However, the self-centred attitude of narcissism may focus simply upon the moral actions themselves, whilst being dismissive of others' contemptuous opinions and perspectives upon their intentions.

This, combined with stable hope levels, would reinforce self-esteem, bringing with it improved levels of optimism, and, ultimately, a gradual reduction in moral behaviours. This process would account for the examples of narcissism's socially desirable moral complex, despite their weak association towards moral foundations (Djeriouat & Trémolière, 2014; Karandikar et al., 2019).

Naturally, this theoretical process is conjectural, as this is the first example which illuminates its potential. However, these speculations remain grounded in theory. For example, the affiliation of morality and self-esteem (Meriwether, 2003; Rahnama et al., 2017; Soral & Kofta, 2020), narcissism's discrepant self-esteem (Bosson et al., 2008; Zeigler-Hill et al., 2010) and the different operations of hope and optimism (Bryant & Cvengros, 2004; Gallagher & Lopez, 2009; Bruininks & Malle, 2005). Therefore, to fully explore how reasonable this conjectural model may be in predicting the mechanisms of narcissism's displays of morality, further research could investigate the specific degree to which self-esteem contributes to moral foundations, and how hope may supplement weakened self-esteem.

Limitations

The main limitation that this research project experienced was issue surrounding the data collection and attrition rates for the longitudinal phases. Whilst the attrition rates, at 42.3% between time-point's 1 and 3, were within the average range of frequently reported rates of 30 to 70% (Gustavson et al., 2012), this left a final sample of only 105 participants. From the outset, the initial plan of analysis for the longitudinal phases was to utilise latent growth curve modelling to assess any change within the expectancy biases and any effect this may have had upon the Dark Triad's subjective well-being and their social & moral values. However, a sample of 105 was considered too low to use this method of analysis. Various rules-of-thumb have been applied to structural equation modelling in terms of a minimum sample size. For example, a minimum sample size of 100 or 200 (Boomsma, 1982), 5 or 10 observations per

estimated parameter (Bentler & Chou, 1987), or even 10 cases per variable (Nunnally, 1994). Though some have considered these as insufficient, they are still practical in their use (Wolf et al., 2013). As a restricted form of structural modelling, there is an argument that latent growth curve modelling can still be utilised with smaller sample sizes (Hamilton et al., 2003; McNeish & Harring, 2017).

However, this recommendation is typically administered in studies which focus upon rare yet considerably more identifiable conditions, such as Fragile X syndrome (Hatton et al., 2006), in which the unique characteristics seldom occur within a population. Although fewer participants may be available, due to the scarcity of people who qualify, or who are willing to participate, the study of change over time for these issues is still of interest to investigate, making the use of a small sample size unavoidable (Shi et al., 2021). However, since the Dark Triad is a domain of personality, it suffers the typical issue of being resistant to direct measurement, meaning that its prevalence within a cohort is nowhere near as definitive as a diagnosable condition. This is further compounded by the uncertainty concerning Dark Triad prevalence rates, in which clinical versions of the traits pose low yet varying rates (Psychopathy – 1%: Neumann & Hare, 2008; Narcissism – 6.2%: Stinson et al., 2008). As subclinical states are typically more common, though less severe, than their clinical counterparts, these rates suggest that a small sample may not have a particularly large “Dark” contingent. This would make a low sample size quite problematic for an effective latent growth curve model. However, future research following this doctoral project could re-open the data collection for another series of waves to bolster the participant numbers, allowing for an attempt at latent growth curve modelling for a more in-depth analysis.

This is considered a limitation as the investigation had to resort to a less sophisticated method of analysis in sequential mediation. Though this eventuality was considered in the planning stages as a very real possibility, is it still unfortunate that LGM had to be abandoned.

Another limitation of this project was the efficacy of the data collection process. Whilst the development of the general hopelessness scale, which required two phases of data collection, as well as the separate replication and phenotype analyses of Chapter 4, achieved large sample sizes, the longitudinal data collection for Chapters 5 and 6 did not follow suit. Collection for the first time-point yielded only 185 participants, which was significantly lower than the stages which preceded it. This is a reasonably small sample size for an initial wave of data collection because, as previously mentioned, attrition rates for longitudinal studies can occur up to 70% (Gustavson et al., 2012), causing the potential for an increasingly smaller sample for analysis with every successive wave. The main cause for this incongruity between research tasks was that some of the more typical means of data collection using the convenience sampling method, such as handing out paper surveys and utilising student samples, were unavailable due to the constraints of Covid-19. Losing access to student samples, which typically provides a vital boost to any doctoral project sample, was a severe detriment to attaining a large data pool of participants at the first time-point. Naturally, the hiatus from face-to-face, lecture-hall based teaching in favour of web-based interactions removes the possibility of a quick yet plentiful bout of data collection. This required an over-reliance upon data collection methods through social media and survey sharing websites. Though these are effective, they are most effective when used in conjunction with a large convenience sample. Furthermore, there is potential that the pandemic itself caused a reduction in online users, as priorities undoubtedly refocused during this time.

Final considerations

Like all forays into psychological research, the results of this doctoral study should be considered by the context within which they were procured. Because of the abstract nature of psychology, particularly within personality study where the object of analysis evades direct measurement, an emergent pattern of results and causal attributions are frequently the focus of

subjective interpretation. These interpretations, which have the potential to be influenced by researcher bias, prejudice, and other personal idiosyncrasies, can lead to conflicting opinions amongst researchers, who may have reached differing conclusions upon the same topic. Therefore, it is a prudent measure to consider how the cultural context and contemporary issues may have impacted upon a study's outcomes. This is an important issue within social science, as mental processing and attitudes can impact not only upon a population's unique psychological paradigms, such as conformity, control, and intelligence (Triandis, 1999), but also in the differing manner to which psychological study is approached cross-culturally (Gergen et al., 1996). It behoves a researcher to therefore consider the potential limitations inherent within their locally constructed paradigms, whilst simultaneously reflecting upon the contributions from exogenous cultural sources. The dismissal of these differing approaches would only be to the detriment of a productive dialogue.

To consider these different contexts within the scope of this doctoral project is to deliberate upon how the emergent results might have differed if they were procured within a different cultural sphere, or at a different point in time. Of supreme relevance to this project is the cross-cultural conceptualisations of wellbeing. Whilst positive psychology aims to seek universal commonalities between groups, cross-cultural psychology focuses more upon a relativising perspective, in which wellbeing is conceptualised and defined differently (Joshanloo, 2014). Whilst these two perspectives can be combined (Lomas, 2015), relativistic mediators such as history, tradition, politics, and values are more salient influence upon expressions of wellbeing (Joshanloo, 2014; Uchida & Ogihara, 2012).

For example, cultural response bias is the tendency to interpret information according to a culturally derived predilection, and as such can have an impression upon a person's psychology. The effects of this culturally based lens of perspective can have a negative impact upon self-reported subjective wellbeing in certain regards (Lai et al., 2013). Chinese culture is

a prime example, where the orthodox ethos reflects upon the philosophical training in Confucianism, Taoism, and Buddhism. This thought triad advocates spiritual cultivation, self-retrospection and -transcendence, whilst admonishing hedonism and excess (Lu, 2001). As a result, people may be more modest and less likely to rate themselves at the extremes of a positive response. This contrasts with the western conceptualisation of wellbeing, which places more emphasis upon hedonism and eudaimonia (Joshanloo, 2014).

Considering these cultural divisions, alongside a similar scenario for morality (Chiu, et al., 1997; Vauclair et al., 2012), it would be prudent to assume that the results of the present study would also be subject to culturally constructed characteristics. Also, considering that the Dark Triad traits, especially narcissism, appear to be quite sensitive to country-level variables (Jonason et al., 2020) (e.g., narcissism was higher in less developed countries with more hierarchal culture systems; Machiavellianism was more prevalent in more advanced countries; sex differences in psychopathy were larger in places with more inequality), a sensible course of action would be to replicate the study cross-nationally to examine whether the findings were a universal expression of Dark triad outcomes or whether they may be subject to the influence of relative cultural foundations.

Similarly, the historical context in which a piece of research exists is a salient factor in the outcome criteria, especially when considering aspects such as attitudes and wellbeing. Over time there is the potential that mental processing and conceptions, much in the same way as some constructs can be culture-bound, can fluctuate depending upon oscillations within social processes (e.g., communication, conflict, rhetoric) (Gergen, 1985; 1992). This highlights the potential for variations in socially constructed concepts, creating historically independent mental processes (Graumann & Gergen, 1996), which can change over time in the face of contemporary circumstances. This ties in with the social constructionist viewpoint, which places knowledge within the process of social exchange (Gergen, 1992; Graumann & Gergen,

1996). Though whilst the sphere in which such social exchange occurs i.e., diverging/conflicting communications, can have a dramatic change upon topics which appear static in the present (e.g., the concept of the child), exchanges surrounding contemporary issues can affect upon psychological outcomes in a much smaller timeframe.

A similar reflection can therefore be pertained to the moment in time in which the research was conducted, alongside the cultural context of where it was produced. Naturally, current events, whether they be personal or global, can impact upon an individual's psyche. Both positive and negative events can have a corresponding affect upon mood (O'Brien et al., 2012), though whilst this relates to the diurnal happenstance experienced by everybody, major events can create a generational shift in psychology. For example, World War 2 was a major historical event, with dire implications for the people living at the time. The experience of which had immense impact upon their psychological processes, creating huge generational differences with those who were living afterwards (Rogler et al., 2002). Whilst this is a major historical event, and as such more significant than the shifting of contemporary issues, it is also an example of how current events can alter psychological processes. Of a more current concern, and in relevance to the timescale of this project, was the impact of the Covid-19. Though the severity of this event was by no means as violent and dire as WW2, the anxiety and concern for the health of the self and loved ones, the general upheaval of everyday life, combined with the isolation felt by many no-doubt left a significant impact upon people's psychology.

For instance, the uncertainty regarding the threat of Covid-19 helped to trigger elevated feelings of anxiety and depression (Choi et al., 2020; Hyland et al., 2020; Rossi et al., 2021), with varying perceptions of said threat impacting negatively upon the well-being of individuals who purport lower levels of resilience (Paredes et al., 2021). Furthermore, and of greater relevance to this study, was the relationship between the pandemic and feelings of hopelessness. Whilst having more direct proximity to Covid-19 had a greater impact upon

feelings of hopelessness, such as those experienced by nurses (Hacimusalar et al., 2020; Shaw, 2020), the measures taken in an attempt to mitigate the virus also had a detrimental impact upon psychology. For instance, the removal of social support through the necessity of social distancing and isolation encouraged greater hopelessness (Zuo et al., 2021), as did the lifestyle and economic disruptions (Shanahan et al., 2020). It is entirely within reason that these observable effects could have had an impact upon the results of this study, especially considering that the data collection for which occurred during the early to mid-stages of the pandemic, there could have been an attitudinal shift, such as elevated levels of state anxiety, loneliness, and isolation - which would not have been present prior. This may even be the case if data collection were to occur currently now that the social influence of Covid-19 is significantly less prominent. It would be an interesting experiment to compare the results of this study to a replicated effort taken now or in a year's time, to explore whether the impact of the pandemic was as salient an influence as this study may consider.

In conducting this project, one particular frustration had emerged which could result in subsequent research ventures in the future. Specifically, this centres upon the utility of the SD3 within research that focuses upon the Dark Triad as the central topic, rather than in instances where the Dark Triad is included as a potential variable. This revealed itself most succinctly in the second portion of the first phase of this project, as described in Chapter 4, where the use of specific phenotype measures of the Dark Triad traits were utilised to further examine the pattern of associations with expectancy biases, as reported by Jonson et al. (2018). The results were compelling, as they identified a divergent pattern of association with the narcissism sub-types, which indicated a more intricate picture of the narcissistic outlook. However, this also brought into question the efficacy of the SD3 for this manner of research. Whilst the SD3 is a useful tool for identifying the Dark Triad within research (Maples et al., 2014), it has no means for identifying the vulnerable and secondary sub-types for narcissism and psychopathy,

respectively. This is a vast oversight, as the results of this project confirm, yet the use of more comprehensive measures, such as the Hypersensitive Narcissism Scale (Hendin & Cheek, 1997) and the Levenson's self-report psychopathy scale (Levenson et al., 1995) coupled with the SD3 or an array of others could contribute towards potential survey fatigue when considering the inclusion of other study variables. Therefore, the development of a new measure for the Dark Triad which would include the phenotypic distinctions, alongside other similarly "dark" personality traits (i.e., sadism) may be a valuable addition to the literature.

The final consideration for this project is the performance of the General Hopelessness Scale, the development of which is described in Chapter 3. This scale was developed to take the role of the Beck Hopelessness Scale, which was initially used to measure hopelessness in Jonason et al. (2018). The main rationale for this change surrounded concerns with the BHS factor structure (Boduszek, & Dhingra, 2016), but also, more importantly, that the BHS may have issues with detecting low or subclinical levels of hopelessness (Young et al., 1992). As the Dark Triad is a subclinical model, it was a sensible tactic to utilise a measure which was also capable of determining hopelessness at a subclinical level within a cohort. The GHS, for its part, performed consistently in each stage in the project, frequently exhibiting alphas of .90 to .95, and showing appropriate, consistent correlations with other measures of expectancy biases. Furthermore, the GHS matched the pattern of correlations with the Dark Triad traits attained by Jonason et al. (2018), who utilised the BHS as their measure of hopelessness. The strength of the GHS had a profound effect upon the outcomes of this project, as the revelation regarding narcissism's inverse association with hopelessness became one of the more salient findings following analysis. It was the stability of this relationship which appears to encourage narcissism's positive outlook, rather than the erstwhile assumption of the contribution of optimism. One of the key differences to the GHS which reinforced this contribution is the incorporation of a sub-factor denoting "hope" and hopeful expectancies. Whilst this reflects

the positively worded items from established hopelessness measures, such as the BHS, the composition into a quantifiable sub-factor gives negative associations with this measure a more genuine reflection of a hopeful perspective. This creates grounds for inclusion in any future research which may expand upon the findings of this research project, especially pertaining to the contribution that hope may have as a more prominent predictor of beneficial effects than optimism.

Avenues for future research

It is almost an expected that the conclusion of a research project will open door for possible new research projects, as the procurement of findings and the fulfilment of research questions typically begets further questions as the search for knowledge continues. This research project is no exception, and though the potential for future research has been alluded to thus far, it would be prudent to consolidate these ideas and expand upon how a strategy for their approach.

The most palpable avenue for future research is to continue to explore how expectancy biases perform in as a mediating variable for other characteristics of the Dark Triad. Specifically, explorations into the mediating role of hope would be of particular interest, as this has remained a relatively unexplored relationship amongst the Dark Triad. Moreover, it would be interesting to observe how hope, alongside optimism and hopelessness might account for the numerous observed distinctions between narcissism from Machiavellianism and psychopathy. As this project has revealed, a perspective which is both optimistic and hopeful can have a beneficial impact upon an individual's well-being. This investigation, which was conducted off the back of previous literature which had identified narcissism as having greater subjective well-being (Aghababaei & Blachnio, 2015; Egan et al., 2014), identified that a positive outlook certainly contributed towards the beneficial element of narcissism's psychology (at least in comparison to psychopathy and Machiavellianism). It stands to reason then, that other examples in which narcissism distinguishes itself a the "brightest" trait

(Rauthmann, 2012) could be similarly influenced by the same style of outlook. For example, narcissism shows a comparatively better capacity for cognitive empathy (Ali et al., 2009; Wai & Tiliopoulos, 2012) over Machiavellianism and psychopathy; it will tend to only use reactive over dispositional aggression, and typically only in response to an ego-threat (Jones & Neria, 2015); and also displays a comparative lack of moral disengagement (Egan et al., 2015). Furthermore, in regards to mental health, narcissism has a distinct tendency to experience lower levels of both depression (Gómez-Leal et al., 2019; Shih et al., 2019) and anxiety (Birkás et al., 2016; Sabouri et al., 2016). Whilst some of these examples may or may not be related to expectancy biases or general worldview, they do provide examples of how narcissism separates itself from the darkness of the Dark Triad. Investigations into how expectancies might influence these behaviours and predispositions would help to reveal not only the machinations of narcissism, but also supplement the importance of a positive outlook in regards to mitigating antagonistic characteristics i.e., aggression, moral disengagement etc.

Another key take-away from this project, specifically from the first phase of Dark Triad investigation, is the importance of including the subtypes for both narcissism and psychopathy when the Dark triad is the focal point of study. Whilst these elements are typically included when each are the study focus (i.e., study focuses primarily upon psychopathy, or primarily upon narcissism), they are often omitted when studying the Dark Triad, opting instead to use the single factor versions. This may be to achieve parsimony or to reduce potential attrition, something that this project suffered from. However, the results between the two stages of phase one saw a marked increase (from 26% to 58%) in the explained variance of latent optimism when the putative subtypes were included. This strongly reinforces the point of utilising the subtypes when studying the Dark Triad. This is particularly salient with narcissism, whose subtypes are almost characteristically oppositional despite their shared tendencies of self-absorption, entitlement, and callousness (Freis, 2018). It would therefore be recommended that

future Dark Triad research consider the inclusion of narcissistic and psychopathic subtypes to glean more precise findings.

Despite this recommendation, the second and third stages of this current project continued to use the single factor Dark Triad traits as a hopeful means to mitigate attrition in the longitudinal data collection. However, the conceptual links found in these studies will serve as justification for future studies, in which the subtypes for both narcissism and psychopathy could be included. What follows are some specific suggestions for a few studies based upon the findings of the current project:

The first suggestion is the development of a new measurement scale for “Dark Behaviour” for use in studies where the Dark Triad is the focal point of study. This new scale would include measurement for both psychopathic and narcissistic subtypes, as well as possibly including other maladaptive qualities such as sadism. Since the development of the Dark Triad conceptual model by Paulhus and Williams in 2002, there has been a huge body of work dedicated to the subclinical versions of these traits. Despite the vastness of this collective work, the majority tend to use only a couple of measurement tools – the frequently cited Short Dark Triad Scale (Jones & Paulhus, 2014), often initialised to SD3, and the Dirty Dozen (Jonason & Webster, 2010), an even shorter measure consisting of just 12 items. Both of these measures were derived from the more extensive, detailed, and, in the case of narcissism and psychopathy, clinical measures used for decades prior to the development of the Dark Triad, and are often utilised in Dark Triad research. Whilst the Dirty Dozen has received some criticism (Kajonius et al., 2016), the SD3 almost appears to be the standard tool for measurement due to its prevalence amongst Dark Triad study. However, despite this prevalence, it doesn’t account for the differences between psychopathic and narcissistic subtypes, which would mean that in order to assess these variables a researcher would have to utilise other, possibly much larger measurement tools. Indeed, the second stage of the first phase of the current project contained

96 items simply to measure the Dark Triad elements. The development of a new measurement scale in a similar style to the SD3, but with the inclusion of elements derived from the Hypersensitive Narcissism Scale (Hendin & Cheek, 1997) for vulnerable narcissism, and the Levenson's self-report psychopathy scale (Levenson et al., 1995) for secondary psychopathy, would be extremely beneficial to the further progression to Dark Triad research.

More specific to the outcomes of this project would be a further exploration of the relationship between the Dark Triad, expectancy biases and well-being. The main adjustment to the study in the current project would be to include measurement for the subtypes, whether that be to use existing measurement tools or the new scale described above, to explore if there are any further distinction between narcissistic subtypes in particular. Furthermore, in addition to the expectancy bias measures used in this project, there would also be an inclusion of a measure for hope. This was one of the key findings of the project, that an inverse relationship to hopelessness maintained a stronger influence upon subjective well-being than optimism. So, to include a measure that identifies levels of hope, rather than the absence of hopelessness, such as the Miller Hope Scale (Miller & Powers, 1988) or the Adult Hope Scale (Snyder et al., 1991), would extend this study further, and add to the literature which details the distinctions between hope and optimism's contribution towards wellbeing (Bailey et al., 2007; Bryant & Cvengros, 2004; Pleeging et al., 2021). Another addition which would be worthwhile to include would be a measure of psychological well-being, with which narcissism shows a similarly positive distinction compared to Machiavellianism and psychopathy (Aghababaei & Blachnio, 2015; Bagheri Sheykhangafshe et al., 2021; Joshanloo, 2021), and also has strong links to both hope and optimism (Jahanara, 2017; Kardas et al., 2019). Taken together, this would provide greater insight to how future expectancies can affect the Dark Triad's experience of wellbeing.

Another worthwhile extension of study would be to focus more upon how expectancy biases and self-esteem may impact upon narcissism's general morality, in both its grandiose

and vulnerable forms. This could include moral foundations, moral disengagement and moral judgements, and how future expectancies may mediate these characteristics. Of particular interest may be the inclusion of self-esteem. This is due to a suggestion that fluctuations in self-esteem may moderate narcissism's personal morality (Zuo et al., 2016). To achieve this, a more ambitious longitudinal study would have to be conducted, which would be unfettered by the time constraints of a post-graduate research project. A multi-year, multi-wave data collection campaign would be necessary to appropriately observe change in self esteem levels.

It can be quite difficult to assess the practical applications of research concerning personality traits. However, the results of this research may have produced one conjectural idea for consideration, pertaining to the treatment for Dark Triad individuals who may be experiencing poor wellbeing. Considering narcissism's characteristic propensity for a positive outlook, and the resultant distinction of their more positive wellbeing, a worthwhile tactic may be to somehow encourage positive expectancies. This may be more useful for individuals who maintain more frequent bouts of vulnerable narcissism, and may require regular monitoring to assess its efficacy, yet it may become a productive tactic for reducing depression and/or anxiety.

The Dark Triad has proven itself time and time again to be a far more complex conceptual model than even its original authors could have conceived. The past twenty years since its formation have seen countless studies which employ the three intercorrelated traits as a lens in which to view the more common, every-day level of malevolence expressed through personality. The findings of this project represent an additional drop into the rich pool of literature which explores how the three traits behave similarly, as well as how they differ. Whilst each addition to this pool will highlight some new area or underlying mechanism which may previously have attributed to some other factor, this specific project places a heavy emphasis upon perspective. Though motivations for the behaviours often expressed by the Dark

Triad traits have often been attributed to an external locus or cognitive defect, it is important to remember that such motivations are often tempered simply by how an individual manages their expectations of the future.

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Appendices

Appendix 1 – The General Hopelessness Scale (R denotes reverse-keyed item)

1. I know I can accomplish what I'm trying to do (R)
2. Things typically don't work out for me
3. I don't see things ever going my way
4. If I try hard enough, I can get what I want (R)
5. When bad things happen, I can easily pick myself back up (R)
6. I doubt I'll get the things that other people have
7. I often find things to be out of my control
8. If something bad could happen, it probably will
9. Sometimes, everything seems pointless
10. I feel that giving up is easier than failing
11. I know that others notice my failings
12. I struggle to focus on all that I have to do
13. When things go wrong, I start to feel depressed
14. I avoid attempting new things in case I find them difficult
15. I can't imagine getting what I want
16. I usually have more bad things happen than good
17. I worry that new people will quickly notice my shortcomings
18. I can't find the energy to do the things I need to do
19. I get nervous performing tasks when other people are there
20. If I don't get something right after a few tries, I'll probably never get it right
21. I believe I can make things better for people (R)
22. I look forward to the future with optimism (R)
23. Things always seem to happen that stop me from getting anywhere
24. I am hopeful about the future (R)
25. Seeing other people's successes inspires me to be better (R)

Appendix 2 – Demographic breakdown by country for longitudinal phases

Participant Demographics for Chapter 4 & 5

		Time-point 1		Time-points 2 & 3			
		<i>n</i>	%	<i>n</i>	%		
Gender							
	Male	66	36.3	39	37.1		
	Female	110	60.4	62	59		
	Trans-Male	1	0.5	1	1		
	Trans-Female	2	1.1	2	1.9		
	Non-Binary	3	1.6	1	1		
Nationality							
	UK	65	35.7	UK	48	45.7	
	USA	33	18.1	USA	17	16.2	
	Australian	7	3.8	Australian	5	4.8	
	Canadian	7	3.8	Canadian	5	4.8	
	Indian	6	3.3	Indian	3	2.9	
	Irish	5	2.7	Swedish	3	2.9	
	Chinese	4	2.2	Dutch	2	1.9	
	Russian	4	2.2	Malaysian	2	1.9	
	South African	4	2.2	Russian	2	1.9	
	German	3	1.6	South African	2	1.9	
	Italian	3	1.6	Spanish	2	1.9	
	Lithuanian	3	1.6	Austrian	1	1	
	Swedish	3	1.6	Croatian	1	1	
	Brazilian	2	1.1	Czech	1	1	
	Croatian	2	1.1	Danish	1	1	
	Czech	2	1.1	German	1	1	
	Dutch	2	1.1	Irish	1	1	
	Greek	2	1.1	Italian	1	1	
	Malaysian	2	1.1	Mexican	1	1	
	Mexican	2	1.1	Peruvian	1	1	
	Polish	2	1.1	Saudi Arabian	1	1	
	Spanish	2	1.1	Slovenian	1	1	
	Welsh	2	1.1	Tanzanian	1	1	
	Algerian	1	0.5	Turkish	1	1	
	Austrian	1	0.5	Welsh	1	1	
	Bulgarian	1	0.5				
	Danish	1	0.5				
	Egyptian	1	0.5				
	Israeli	1	0.5				
	Norwegian	1	0.5				
	Pakistani	1	0.5				
	Peruvian	1	0.5				
	Romanian	1	0.5				
	Saudi Arabian	1	0.5				
	Singaporean	1	0.5				
	Slovenian	1	0.5				
	Tanzanian	1	0.5				
	Turkish	1	0.5				
<i>Total</i>		<i>N = 182</i>		<i>Total</i>		<i>N = 105</i>	