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Exploring personal attribution styles and stress responses in medical students - an interpretative phenomenological analysis

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ABSTRACT

This was a qualitative study exploring personal attribution styles amongst a group of medical students, in relation to their physiological and psychological stress response. Medical students perceive higher levels of stress compared to other student populations (Sohail, 2013). This research aimed to explore how personal attribution styles are related to the subjective experience of stress. Within this were 5 objectives; to explore how they make sense of their physiological and psychological reactions to stress; attributional styles; gender differences and the experience of stress; individual experiences of stress and eustress and coping mechanisms in relation to attribution theories. A snowball sample of six medical students, in an equal proportion of genders, was invited to keep a diary to capture present accounts of the meanings they ascribe to their stress response. A focus group interview was then carried out to obtain a retrospective account of their experiences. After an interpretative phenomenological analysis was carried out, the two main themes that emerged were attribution of stress and gender differences. This research concluded that even though the participating medical student attribute the causes of their stress to their degree, this is done without any blame, suggesting that they thrive within this environment.

KEY WORDS:	MEDICAL STUDENTS	Attribution	STRESS	EUSTRESS	IPA

Introduction

Stress: one concept

Baum (1990:654) has described stress as any 'emotional experience accompanied by biochemical, physiological and behavioural changes'. There are many schools of thought to explain what the term stress means. Amongst these are biological and psychological approaches: according to biological models, the stress response arises when the body is exposed to a threat. This will trigger the stress response, which is a cluster of physiological changes. An exam or prolonged exposure to cold are experiences which can induce the stress response (Pinel, 2009).

Selye (1950) proposed the term generalised adaption syndrome (GAS), which describes the body's reaction to short and long term stress. The stress response is attributed to the activation of the hypothalamic-pituitary-adrenal axis (appendix 6). A series of physiological processes will cause the individual to experience physiological changes; increased rapid breathing causing extra oxygen being transported to the brain resulting in accelerated heart rate and increased alertness (Swaap et al., 2005). These changes are part of the body's fight-or-flight response, which over a short period of time can be beneficial, as the individual gears up to meet a perceived danger. However, persistence of these physiological changes over a prolonged period of time can have adverse consequences for the individual's body, cognition and social behaviour (Seaward, 2006). Effects of this can include sleep problems, increased anxiety, loss of cognitive and affective flexibility, and social withdrawal (Lieberman et al., 2002).

In contrast, psychological approaches argue that stress is the connection between an individual and the environment, which is appraised as either challenging or beyond ones resources, and ultimately a threat to wellbeing (Lazarus and Folkman 1984). Although the physiological and psychological stress response often is separated, McEwen (2007) has connected the concepts. Stress involves a two-way communication between the brain and the cardiovascular, immune and other systems via the neural and endocrine mechanisms. Hence, biological changes are experienced and interpreted by an individual.

Stress, a hindrance or motivator

According to the American Psychological Association (APA: 2014) some stress can be beneficial at times. This produces a boost that heightens awareness, motivates and provides the drive and energy to assist individuals through certain challenging situations, and ultimately leads to superior cognitive and behavioral performances. This is referred to as eustress (Rice, 1992).

The concept represents positive responses to external stressors (Fevre et al., 2006). In support, is Yerkes and Dodson's law (1908), which posits that a certain amount of stress and physiological arousal is necessary to focus motivation and attention to perform at an optimum working capacity. However, Gibbons et al., (2008) propose that extreme stress that is continuous, over a prolonged time, can be physically and psychologically incapacitating. This can have serious health consequences and adversely affect the immune, cardiovascular, neuroendocrine, and central nervous system. Additionally, this can be emotionally damaging and have a negative impact on mental health.

Gender differences

According to Steptoe (1983) male and female cognitive, psychological and physiological responses to stress vary. Research has identified greater HPA and autonomic responses as more common amongst males when exposed to psychosocial stressors such as public speaking (Verma et al., 2011) – something that is central to learning styles during a medical degree. Contrary to this, women are more likely to respond to stress by reporting physical and emotional symptoms (APA, 2015). Consequently, understanding gender differences in the underlying stress mechanisms amongst medical students, is important to clarify the potential psychological and physiological adverse risks this can have for their mental and physical health as a result of commencing a medical degree.

Medical students have been found to be subject to high incidence of personal distress that is characterised by psychological changes. These changes can potentially have adverse consequences on academic performance (cognitive functioning and learning), competency, professionalism and health (Alkadhi, 2013; Abdulghani et al., 2011). Along with aforementioned consequences, Dyrbye et al., (2005) and Vitaliano et al., (1984) have identified additional: expectations from parents and senior medical professionals, limited support from universities, responsibilities when caring for patients and the emotionally demanding nature of medical training. Dyrbye et al., (2005) have suggested that for some students, mental health deteriorates after commencing a medical degree, and remains poor throughout training. On a personal level, stress originating from the profession has been identified as contributing to substance abuse, broken relationships and suicide. On a professional level, student distress has been found as contributing to cynicism, which consequently may affect a student' relationship with the faculty, patients, and ultimately the culture of the medical profession.

Consequently, commencing a medical degree is stressful for some students, and that this can potentially have a detrimental effect on mental and physical health. Firth-Cozens (1987) argues that for some, this can impact personal and professional lives during the degree, and may continue throughout their medical career.

Understanding attributional styles

Cognitive theories of emotion are concerned with establishing the cognitions connecting environmental circumstances to emotional responses (Leon and Hernandez, 1998). Attributions are referred to as the processes by which we attempt to extract causal information from behavior (Culpeper, 1996). According to Malle (2011) the ontology of attribution theories posits that an individual's experiences of emotions are based on the conscious evaluations made about physiological sensations in a particular social setting. Attributions are cognitive processes, which are used to understand the causes of behaviour. Observing behaviour will result in the perceiver attempting to make sense of this by ascribing different motivational tendencies, causes and underlying characteristics to the individual performing the behaviour. It is the observer's beliefs about the causes of the behaviours that will determine the reactions towards and future expectations for the individual performing the behaviour (Norris-Watts and Lord, 2004). Hence, attribution processing is the way in which an individual uses information to arrive at causal explanations for a behaviour or event (Fiske and Taylor, 1991).

The role of physiological arousal for emotions

Schachter-Singer's (1962) two-factor theory suggests that emotions are a product of physiological arousal and cognitive interpretation of this arousal. This model proposes that attribution processing is the process of identifying the cause of an event. The information available will determine how the individual attribute physiological arousal to different emotions. An emotional state has two components: physiological arousal and an appropriate cognition. Both are necessary for an emotional state to arise (Zajonc, 1984). An individual must causally attribute the arousal to the cognised emotional source (Reisenzein, 1983). However, there is no pattern of physiological arousal for different emotions. Instead, there is a nondistinct general physiological arousal when experiencing an emotion (Pastorino and Doyle-Portillo, 2013). The two-factor theory links the causality between cognition, affect and physiological response to be reciprocally determined (Gerin et al., 2006). This supports choosing this theory to explore the link between attribution styles and physiological stress, as a stress response only will occur if both physiological arousal and a cognition are present.

Emotions: the role of the environment

Lazarus (1982) proposed the theory of cognitive appraisal. This suggests that the way a person construes an event will shape the emotional and behavioural response. The process of cognitive appraisal reflects the unique relationship shift between an individual and the environment. In this process, an individual evaluates how a particular experience within the environment can be relevant to the feeling of wellbeing (Folkman et al., 1986). The process consists of two stages: primary and secondary appraisal. Shweder (1993) suggest that these come together to determine if the environment-individual interaction is considered significant for wellbeing. Primary appraisal is an assessment of the significance of an event for the individual: whether this is a threat or an opportunity. In the secondary appraisal stage, the individual considers the ability to cope or take advantage of the situation (Bippus and

Young, 2012). In relation to stress research, appraisal theory has been used to clarify the mental processes influencing stressors (Folkman and Lazarus, 1986). Furthermore, Harvey et al., (2010) suggests that cognitive appraisal of a stressor can help to predict other factors influencing an individuals' stress response. Therefore, cognitive appraisal is important to consider when studying the stress response.

Research connecting attribution theories and stress has found that in stressful circumstances, individuals attribute internal or external causes to events. An individual will infer causal explanations for events as being caused by oneself or the environment (Augoustinos and Walker, 1995). Hence, as medical students have been found to experience high levels of stress (Abdulghani et al., 2011), they are likely to search for more causes of attribution.

Differences in attribution styles

According to Al-Tahhan and Nashawati (1989) there are gender differences within attribution styles- specifically in causal attributions for academic success and failures (Stipek, 1984). In relation to medical students, research has found that females show less self-enhancing patterns of causal attribution (Beyer, 1999) and successful academic outcomes are attributed externally or to own effort (Erkut, 1983). In contrast, males perceive internal causes, especially lack of ability as less important for attributions towards successful outcomes. Thus, this is a way of protecting their self-esteem against failure (Bascow and Medcalf, 1988). The implication of this is that the students are more likely to conclude that external forces are responsible for poor and successful performance (Shepperd et al., 2008), hereby is the risk of degrading abilities for academic success (Ickes and Layden, 1978) or not take responsibility, and ultimately improve academic their failures.

According to Weiner (1985) attribution theories can be used to explore and understand motivations in academic settings. These have been found to be useful predictors of subsequent affective and behavioural responses in achievement contexts. With support of Stipek and Weisz (1981), a student's understanding about the causes of events, influences the ability to 'control' future events in academic settings. Therefore, this rationalises the use of attribution theories to investigate the relationship between attributions and damaging stress, and attributions and the benefits of eustress for a medical student.

As stated above, prolonged stress can be physically and mentally damaging. Thus, it is important to understand individual responses to stress, to appreciate the short and long-term personal and professional implications for medical students. An insight into the connection between attributions and stress can assist to clarify the level of stress caused by the different environmental settings. Furthermore, this will help to identify the situations and environments where stress is beneficial.

The issue of stress for medical students has predominantly been addressed by quantitative and mixed approaches (Lee and Graham, 2001; Barikani,

2008) - resulting in limited qualitative studies in the literature about how a medical student makes sense of the physiological and psychological stress experience. Additionally, there is limited knowledge about what is attributed to the subjective reactions to stress during a medical degree. Because of this gap, this study aimed to explore what medical students' attribute to their physiological and psychological reactions to stress with respect to theories of attribution.

Aim and objectives

The overall research question this study aimed to explore was how personal attribution styles are related to the subjective experience of stress in a group of medical students. Within this there were a number of research objectives:

1. To find out how participating medical students make sense of their physiological and psychological reactions to stress.

2. To explore their attributional styles.

3. To gain an insight into gender differences and the experience of stress.

4. To understand individual experiences of stress and eustress in a group of medical students.

5. To investigate coping mechanisms and how these might be related to attribution theories.

Methodology and methods

Methodology

The theoretical positioning of this research lies in the relationship between personal attribution styles and the experience of physiological and psychological stress response within a small group of medical students. As the nature of this study involved personal accounts, the use of a qualitative method was the rationale choice (Patton, 2002). The epistemology of qualitative research is concerned with understanding and describing an individual's social reality through exploring and analysing aspects of life from the perspectives of different demographic groups (Krauss, 2005). Lingard et al. (2008) proposes that the advantage of qualitative research is its ability to offer abstract textual descriptions of individual experiences of a given research. This is achieved by providing information about the 'human' side of a topic. Thus in this study a double hermeneutic was present:

> The participants are trying to make sense of their world; and the researcher is trying to make sense of the participants trying to make sense of their world (Smith and Osborn, 2007:53).

Contextualised to this study, the medical students try to make sense of the role of the environment in relation to their physiological and psychological stress response and the researcher attempts to study this process – thus justifying carrying out a qualitative investigation (Smith et al., 2009).

Data collection tools

This study used the same research sample to gather data through diaries and focus group interviews. Diaries were used to capture present accounts of the meanings ascribed to their stress response to understand attributions. The focus group was then used to obtain a retrospective account of their experiences.

Diaries

Diaries were used to identify everyday stressors, their intensity and to gather rich sources of information about the participants' experiences and behaviours on a daily basis (Kenten, 2010). The diaries were based upon background research of stress and attribution (appendix 6: example of diary). The advantage of using diaries were that logs of reactions, feelings and behaviours in the immediacy of an experience can be captured consistently over time, and allow the researcher access to on-going everyday behaviour in an unobtrusive manner (Leadbetter, 1993).

Focus group interviews

A focus group interview was carried out to discuss the participants' experience including content of the diaries (appendix 8). This method encourages group interaction through sharing and commenting on other individuals' experiences and opinions (Kitzinger, 1995), making it particularly useful to discuss emerging themes from the stress dairies. Focus groups are discussion-based interviews (Millward, 2012) and this element can generate a different type of verbal data from one-to-one interviews. Focus group design offers participants the opportunity of representing themselves as well as making a collective representation as medical students. This provides valuable insight into the construction of meanings and their impact on action (Callaghan, 2005). Additionally, it offers the researcher a way to examine what, how and why an individual processes information.

The researcher considered the responsibilities of being the moderator before carrying out this study. Moderator involvement refers to managing the group processes and dynamics, and whether the focus group will take a structured or less structured approach (Morgan, 1997). The researcher is responsible for the outcome of the focus group, so acts to facilitate discussion and to allow free participation.

The researcher used King and Horrocks (2010) as inspiration for planning and structuring the focus group interview. The questions used were designed to be open-ended and non-directive, as this offers the participants the opportunity to share their personal experiences within a group (Willig, 2006).

Finally, as forwarded by Smith and Osborn (2007) the interviewer used, but was not bound to the questions within the interview schedule (appendix 9).

Sampling

Radcliffe and Lester (2003) have identified medical students as a hard to reach group. This busy student body is subject to heavy workloads, balancing time between academia and clinical training. Furthermore, different timetables and term dates results in isolation from other student populations. Thus with the use of personal networking, the participating medical students were recruited via a snowball sampling method. This sampling technique is useful to gain access to populations that are usually hard to reach (Faugier and Sargeant, 1997).

The participants were six medical students between the ages of 20-26, all currently undertaking a medical degree. The main criterion of this research was that the participants were currently enrolled at any point of their degree. Another critical criterion is that this research could not interfere with their education. Lastly, as attribution styles across genders were being explored, this study had to have an equal proportion of male and female participants. Krueger and Casey (2014) have identified the optimum level of participation for focus group interviews as five to eight people, rationalising choosing six participants for this study. Additionally, there are points favoring use of smaller groups as opposed to a larger cohort: participants can limit each other's opportunity to share insights and observations and sharing personal experiences have been found to be more comfortable in smaller groups. Also, rationalising the chosen sample size for collecting data through the focus group interview. Finally, Smith and Osborn (2007) suggest that small homogeneous sample sizes are advantageous when using the selected data analysis method, interpretative phenomenological analysis (IPA).

Process of data analysis

The emphasis of this study was how personal attribution styles are related to the subjective experience of stress. As the preliminary focus was the participants' understanding of a particular experience (Smith and Osborn, 2007), using IPA was considered favourable.

The ontology of IPA is concerned with how individuals attribute meanings to their interactions with the environment (Smith et al., 1999). The epistemology of IPA is detailed examination of individual cases (Smith et al., 2009). It is important to recognise that the approach is not rigid (Smith and Osborn, 2007); instead the researcher is encouraged to embrace it in an adaptable way, which is flexible to the particular topic of investigation. This means that data can be obtained via recordings from both one-to-one, focus group interviews (Fade, 2004) and diaries (Boserman, 2009). Therefore justifying the choice of these methods to obtain data from participants.

Smith et al. (1999) propose two approaches to IPA: the ideographic case study and the theory building approach. The former is suitable for small homogeneous samples with a desired outcome of an in-depth description. The latter approach is useful for larger sample sizes when a theoretical model is the desired result. This study will make use of the idiographic case study. Transcription of verbal information to written data is a part of the analytical process. According to Oliver et al. (2005) transcription is a powerful act of representation. Mergenthaler and Stinson (1992) have developed seven principles for transcription of data. These guidelines were followed to ensure confidentiality, consistency and quality, and to minimize ambiguity across the data set. Additionally, this also ensured that the transcripts accurately represented the participant's beliefs and opinions from the original recordings. An IPA was applied to the transcribed interview data. This is concerned with analysing interviews and identifying themes, which then are clustered together to meaningful representations. This research followed the steps as outlined by Smith et al. (2009) to carry out this IPA.

According to Biggerstaff and Thompson (2008) this method offers a researcher essential simplicity, paradoxical complexity and methodological rigour as a research tool. The power of IPA is judged by the light it sheds within a broader context (Fade 2004). However, Pringle et al. (2011) disagree with this notion and argue that this might be difficult to achieve when using a homogenous sample size, as the sample size is too specific. To overcome this potential drawback, the researcher attempted to have a rich and transparent account of the data whilst connecting the IPA findings to existing literature propositions (Smith et al., 2009).

Ethical considerations

According to Capron (1989) research ought be guided by the principles of beneficence, respect for people, justice and autonomy. These should guide researchers to address initial and ongoing tension between the needs and goals of the research and rights of the participants (Orb et al., 2000). The researcher considered beneficence to be particularly important for this study. This aims to maximise good outcomes for participants, humanity and science (Smith, 1995). The researcher made every effort to minimise harm and secure participants wellbeing (King and Horrocks, 2010), by ensuring that they were not be led down a more stressful path as a result of taking part in this study.

Before carrying out this research, guidance documentation such as the World Health Organisations guidance for health-related research when working human participants (2011) and professional codes of conduct (British Psychological Society, 2010) were consulted to ensure that the planned research was ethically considerate.

Ethically, there were four areas this research aimed to address to ensure protection of the participants. Firstly, research planned with busy student populations (Enns et al., 2001) needs to address time as an ethical consideration to ensure the research does not interfere with the education. The researcher carefully selected diaries as one of the methods to collect

data. These can be simply organised so they are easily accessible and fit into the students' own schedule. The focus group was also carried out a time most convenient for the participants. Secondly, because focus groups are based around interaction within a social context, there were other ethical issues to address. The researcher could not ensure strict and absolute confidentiality, as the participants might have disclosed information after leaving the focus group. To prevent this potential problem, the researcher ensured that the participants were made aware of this before taking part (Corey et al., 1993). Although not a solution, it can reduce the participants' apprehensions. Thirdly, over disclosure of personal information was also considered as a possible ethical issue (Smith, 1995). As the participants exposed themselves to both each other and researcher there were possible privacy concerns. Furthermore, the issue of pressures to disclose private information due to the intensity of group interaction (Morgan, 1997) was addressed in the participant information sheet (appendix 3) and repeated by the researcher prior to initiating the focus group. Finally, before ending the focus group interview, the researcher took time to debrief to allow the participants to discuss their reactions either in the group or on a one-to-one basis (appendix 8).

King and Horrocks (2010) have outlined the basic ethical considerations for conducting qualitative research. This includes informed consent, no deception, right to withdraw, debrief and confidentiality (appendix 2-5). As this research used themes from the diaries as means of discussion in a focus group interview, the researcher made every effort to secure explicit informed consent from individual participants and avoid passive and group assent (James and Platzer, 1999).

Analysis and discussion

In support of the literature (Sohail, 2013) it was clear from the collected data, that this is a student population who is exposed to high levels of stress. However, conflicting with other studies (Gaugran et al., 1997), the participating medical students were found to adapt and positively accept this as an aspect of their degree. Consequently, it should be considered if medical students innately thrive better within this environment and that many are able to adapt to the experience of stress so this become eustress. After a thorough IPA was carried out (appendix 10 for analytic process), the following themes emerged: attribution of stress and gender differences.

Attribution of stress

From the data it was evident that the students attribute the causes of their stress to their degree. Within this theme, the following subthemes emerged: *theoretical implications*, *the role of self-serving* and *fear of failure and eustress*.

Theoretical implications

The participating students were found to attribute stress to their degree, however, interestingly this is done without any blame.

This comes across as Amy talks enthusiastically about how busy she is as a result of her degree.

> *'In my fourth year I have been extremely busy and stressed due to the workload and my timetable […] but I'm having a great year!'* (Amy, focus group, 544-547).

Beth suggested that it might be in their nature to cope with the stress that follows the degree.

> *'I'd argue that because we went into medicine we are quite high flyers, so we have the ability to cope with the extra stress that comes with it anyway'* (Beth, focus group, 417-418).

This appears to be a student population that seem to prosper in a stressful and demanding learning environment. This is in line with Lazarus (1982) theory of cognitive appraisal; although experiences are perceived as stressful, the subjective evaluation is positive and therefore these are not appraised as harmful to wellbeing. Hence, there is a general acceptance of stress as just being an aspect of the degree.

Amy argued that they should learn to adapt to and cope with the stress that will come later in their career sooner rather than later.

> *'There shouldn't be done more from the university's part, to help us be less stressed… it is a tough career […] there will be really stressful times and where we need to be able to cope with this….'* (Amy, focus group, 618-621).

Josephine disclosed how the demanding nature of a stressful teaching experience turned into a positive experience.

> '*Asked to do an on the spot CVS exam. I hadn't done one in a long time and didn't want to look stupid […] Pleasantly surprised with how much I remembered […] feel confident in my own skills*' (Josephine, diary entry 4).

Ultimately, it should be considered that this students' population perceive the process of learning to cope with stress as a motivator to work hard, and furthermore an aspect of their medical training (Alexander and Haldane, 1979).

The role of self-serving bias

This subtheme explored the role of self-serving bias for medical students. Interestingly the data suggested that this was a factor in relation to extra-curricular activities.

In his diary Pete described how his work could be interference to his degree.

> '*I had to finish work early […] my boss wouldn't let me. I was frustrated about his inflexibility and preoccupied I would delay other peoples' plans'* (Pete, diary entry 1).

Amy discussed that activities outside of their degree could feel like hindrances for their career.

> '*I suppose what causes me more stress is extra-curricular stuff […] like having a social life and working.'* (Amy, focus group 392-396).

Interestingly a new theory, which was not explored within the literature review, was found suitable to the analysis of this sub-theme. Research on attribution within academic settings has found that self-serving bias leads student attributional styles (Bernstein, 1979). This is the tendency to take personal responsibility for desirable outcomes and externalise for undesirable outcomes. Self-serving attribution processes reflects a sincere attempt to understand why things happened as they did (Shepperd, 2008). Self-serving attributional patterns emphasises external factors as the causes of academic failure and internal factors as a source of academic success (Arkin and Maruyama, 1979). However, inconsistent with the findings of Firth (1986), rather than attributing failure to their degree, the participating medical students predominantly attributed their fear of failure to external factors. This is supported by Miller's (1994) study, which found that medical students described difficulties in managing their social life to fit around their academic career. Ultimately, more research is needed to clarify this, as key research around attributions and self-serving bias are from the 1970-1980 (Shepperd et al., 2008).

Fear of failure and eustress

From the statements it is clear that fear of failure is a factor leading the production of eustress.

Amy discussed she would always prepare for teaching sessions.

> '*The teaching style scares me and I get really stressed about it, but I […] won't turn up without having done any anatomy.'* (Amy, focus group, 296-300).

Pete explicitly described this:

> '*[…] I coped really well with the stressful event. I used the feeling of stress as a motivator.'* (Pete, diary entry 2).

This is important in relation to the findings of Gibbons et al. (2008) who identified that the learning process that follows caring for patients within clinical placements is an important source of eustress for healthcare students. Furthermore, students who employ a positive attitude towards perceived degree issues cope better with the stress that might follow.

Josephine disclosed the enjoyment she experienced when caring for a patient.

> '*Asked to take a history and examine a patient. This was stressful, but good stress as I felt it was my chance to display my skills. Felt an excitement heart rate'* (Josephine, diary entry 4).

Beth forwarded concerns of the teaching style, but with an acceptance of this.

> '*I think there are issues with the problem-based-learning-approach, but its just PBL isn't it? You just have to get on and over with it*' (Beth, focus group 189-191).

Byrne (1996) proposed the term the academic self-concept, which involves an evaluation and description of one's perceived academic abilities. This comprises global beliefs about self-worth in connection to ones perceived academic competence. This is a multidimensional construct involving internal and external comparisons. The first is comparisons with the performance of peers. The latter is ones own comparisons within subjects. The concept has been found a significant predictor of academic achievement (Lyon, 1993). This is important in relation to the findings of Styles' (1993) - the degree constituting an authoritarian and inflexible learning system. Consequently, it should be considered that the learning system does not constitute a hindrance for academic performance. Instead, the combination with a students' fear of failure positively influences the stress response and thereby aid towards academic success. Hence, medical students might be affected by the nature of their education system, however whether this is disadvantageous is uncertain. Ultimately, it might be that academic success is likely to increase their self-efficacy (Schunk, 1981).

Gender differences

The second theme identified was gender differences. In support of existing literature, it was clear that the students experienced stress differently depending on their gender. Within this theme the following sub-themes arose: *the understanding of stress*, *verbalisation* and *coping mechanisms*.

The understanding of stress

This subtheme refers to gender differences and attributions to the understanding of stress.

They communicated their understanding of the concept of stress. This entailed psychological and physiological symptoms.
.
> '*When something emotional makes you have physical symptoms and affects how you function'* (Josephine, focus group, 43-44).

For the males, the concept did not involve the experience of any symptoms.

> *'I'd argue you don't have to have symptoms […] its more a feeling of not being able to cope'* (Harry, focus group, 47-48).

As evident here, the male students did not necessarily consider the concept of stress to have any physiological aspect. In contrast, the females presented a multidimensional evaluation of stress as both a physiological and psychological concept. This is somewhat inconsistent with ideas of Schachter-Singer's (1962) two-factor theory of attribution, which establish a co-dependency between a cognition and physiological arousal. Consequently, this difference might be a result of male and female differences in mechanisms of neural control of emotion regulation - the HPA-axis, autonomic nervous system and the prefrontal cortex (Buchanan et al., 2010). Hence, the underlying neural differences in the processing of a stressor can serve to explain gender differences in the understanding of the concept. This is in line with the findings of Aronson et al. (2005) who argue that the emotions that arise as a result of the interpretation and explanation of a stressful situation can either be with or without physiological arousal. Ultimately, this can explain their differences in the interpretation of the concept.

Verbalisation

Within the subtheme of verbalisation, the data suggested gender differences in terms of how the students communicated what they attributed to the experience of a stressor, and furthermore, how they responded to this.

Harry compared how he deals with stress in comparison to his girlfriend.

> *'My girlfriend is medical, but I think I cope with the stress better… but again I express it different … sometimes she can be a bit hormonal and snide… I don't do that...'* (Harry, focus group 566-569).

Pete suggested that females are more expressive about stress.

> *'Women verbalise stress more than men'* (Pete, focus group, 107).

This is in line with a study of Brody and Hall (1993), who found that females are more emotionally expressive than males. Ultimately, it might be that females express more emotion because they experience more emotion (Adelmann and Zajonc, 1989). Interestingly, although their evaluations were different, they still expressed similar intensities in their experience of physiological symptoms to stress. This might be a result of the medical language they are required to turn to within a healthcare setting (Bourhis et al., 1989).

Harry and Josephine expressed their physiological experience of stress in similar ways.

> *'Anger due to a situation in hospital […] Felt fear and anxiety, sweatiness, high heart rate and elevated pulse.'* (Harry, diary entry 11).

> *'Overthinking whilst cycling into a meeting in uni. Feel tremendous nervousness with mild excitement. Physically sick and unusually out of breath and flustered.'* (Josephine, diary entry 7).

From a developmental perspective theories have suggested that from a young age children learn the social appropriate rules for the expression of an emotion (Brody, 1985). Boys learn to conceal and girls to openly express their feelings. Hence, the expression of an emotion is more socialised than the experience of an emotion (Kring and Gordon, 1998).

The differences within attribution to and responses to a stressor can be clarified by Lazarus (1982) theory; the primary appraisal stage is represented in the females' evaluation of the stressor and the secondary appraisal stage represents a coping mechanism towards the experience through verbalisation. Thus, it is the merge of the primary and secondary appraisal which is the determinant for whether this is considered significant for wellbeing and therefore responded to through verbalisation. In comparison, the data suggested that the males did not appraise a stressor to the same level of evaluation. Thus, as less is attributed to the stressor, this will influence not as great a stress response to the experience of a stressor. Ultimately, the implication of appraisal theory is, that this can account for the genders individual variances in their emotional reactions to the same event (Smith and Lazarus, 1990).

Coping mechanisms

This theme represents the differences between the males and females in their coping mechanisms. The focus group was found to facilitate a debate where the participating students acknowledged that their gender had a big impact on how they coped with stress.

Alex mentioned that it is inappropriate for males to display emotions.

> '*Stressed men don't cry, or at least they shouldn't'* (Focus group, Alex, 95).

Beth agreed with this, and suggested that for women it is okay.

> *'Men has a harder exterior and attitude towards stress. For women it's more okay to be stressed and have a little cry'* (Beth, focus group, 89-90).

The ability to produce psychological and physiological responses to a stressful situation depends on how this is appraised and recognised (Buchanan et al., 2004). This should be considered in relation to gender differences and coping styles, as Shaikh et al. (2004) have identified gender differences in the appraisal of perceived stressful situations amongst medical students. Tamres et al. (2002) suggest that females are more likely to engage in verbal, ruminating coping mechanisms, whereas males are more likely to

engage in distracting non-work related activities (McDonald and Korabirk, 1991). Hence, differences in coping styles can be explained by male and female differences in the recognition or appraisal of a situation as stressful.

Conclusion

In conclusion, this research can establish that medical students are a student population, which is exposed to high levels of stress as a result of their degree. However, results indicate that even though stress is attributed to the degree, this is done without any blame. Instead, balancing a social life and extracurricular activities with the challenges of a medical degree are the main sources of stress. Whereas, stress arising from the different aspects of the degree such as fear of failure and teaching style are predominantly perceived as beneficial for this particular group of students. Additionally, the male and female participants recognised that their gender might influence their attribution processes, and ultimately how they perceive, experience and cope with stress. However, in relation to theories of attribution, the evidence is somewhat conflicting, as the roles between cognitions, emotions and physiological arousal are unclear (LeDoux, 1995). This was also found in context to medical students and their experience and understanding of a stressor. As a result, the researcher did not find the theories suited to all aspects of the analysis. Nevertheless, as identified by Aswegen (2008) these were still considered a critical aspect of driving this research forward.

When looking at the limitations of this research, it is important to consider that the participating students were from the same university, and furthermore all receiving the same approach to teaching. Ultimately, this could have affected their experience of stress and attribution styles (Marszalek et al., 2011) Consequently, future research might consider using a larger sample of medical students from different universities. This can aid to clarify which aspects of the degree influence the experience of stress and eustress. Furthermore, a larger sample size can meet the concerns towards IPA as a research method (Pringle, 2011), whilst concurrent use of smaller focus groups for data collection can help to ensure, that this research method still offers simplicity, paradoxical complexity and methodological rigour to the researcher (Smith et al., 2009).

Reflexivity

According to Watt (2007) reflexivity is essential for understanding the topic being investigated and the research process itself. Willig (2006) propose two types of reflexivity: personal reflexivity and epistemological reflexivity. The first suggests how the researcher's own values and experiences have impacted the research. The latter refers to how the research question and design have had an impact on the outcome. In other words, epistemological reflexivity identifies the assumptions made during the research process.

In this study, the students' were asked to complete a personal diary. This was intended to capture qualitative data of experiences and immediate feelings of physiological and psychological stress in an unobtrusive manner. This

seemed most appropriate, as opposed to only using focus groups where the feeling of confidentiality is at risk of disappearing in discussions amongst peers (Wassenaar, 2006).

In terms of personal reflexivity, in my social network there are a few medical students. I have always been surprised by how much they have to balance and manage their time with their workload. They are continuously presented with a tremendous amount of knowledge that they need to process and retain. Additionally, they are constantly exposed to different learning styles and environments. There is little time for personal days, and there is always pressure to go to hospital or university to keep up their clinical skills and their learning. This gave me the idea for my research, and to do it in a way, which does not interfere with their already busy lives.

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