Cardiff School of Sport

DISSERTATION ASSESSMENT PROFORMA:

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Comments	Section
	Title and Abstract (5%) Title to include: A concise indication of the research question/problem. Abstract to include: A concise summary of the empirical study undertaken.
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CARDIFF SCHOOL OF SPORT

DEGREE OF BACHELOR OF SCIENCE (HONOURS)

SPORT AND EXERCISE SCIENCE

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AN EXAMINATION INTO THE RELATIONSHIP BETWEEN LEVEL OF HARDINESS AND THE USAGE OF COPING STRATEGIES.

(Dissertation submitted under the Psychology area)

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Abstract

Previous research in the area of hardiness has looked many comparisons between hardiness and other variables such as coping. Within this research there have been studies looking into elite athletes and specific sports, yet a lack of research in non-elite soccer. Also, these studies have failed to inspect whether there is a relationship between hardiness and coping. The purpose of this study was to examine the relationship between hardiness and coping in non-elite soccer, and subsequently find out if hardiness is able to predict coping. The study consisted of 57 ($n = 57$, Mean = 19.93, SD = 1.37) non-elite soccer players completing the MCOPE after an important game, and the DRS anytime outside a sporting context. The data collected was analysed using correlation, then regression analysis to find relationships. Results showed that there were 12 correlations, yet only 4 were significant ($P < 0.05$). From the regression it was found that 3 of the variables were significantly regressed from hardiness ($P < 0.05$). The implications from this study can extend to the current literature, as it identifies that hardiness is not an important predictor of coping usage and its effectiveness.

Chapter 1

INTRODUCTION

1.0 Introduction

During competitive situations, athletes are constantly faced with stressful situations which they must overcome to progress (Hanton, Evans & Neil, 2003; Hanton, Neil & Evans, 2013). The way that athletes react to these situations was initially thought of to be a trait of the individuals' personality. In 1979 Kobasa proposed that the reactions to these stressful situations were not a constant trait as first indicated, but a response based on an individuals' personality characteristic termed as 'dispositional resilience'. Hanton, Evans and Neil (2003) found dispositional resilience to be "an important personality construct in specific sporting situations" (p.167). Also known as 'hardiness', Kobasa (1979) found that individuals who were high in dispositional resilience were better able to cope with stressful situations, by perceiving them as less threatening in a business setting. Other studies in relation to hardiness looked at the relationship between hardiness and health. They found that individuals who are high in hardiness were healthier than those low in hardiness (Maddi, Kobasa & Pucetti, 1982), and that hardiness is a general measure of mental health (Maddi & Khoshaba, 1994). A more recent study found that by controlling the variables of gender and negative affectivity, there were limited evidence for the direct effects of hardiness on stress and illness (Klag & Bradley, 2004). More recently, researchers have looked into the role of hardiness in sporting contexts (Golby & Sheard, 2004; Sheard & Golby, 2010). These researchers examined whether differences existed in levels of hardiness between varying experience levels. They found that international competitors had a significantly higher hardiness profile than recreational athletes. Especially in commitment, a subscale of hardiness, where international athletes scored significantly higher than all three sub-elite levels (national, county, club) (Golby & Sheard, 2004; Sheard & Golby, 2010). In some studies researchers looked at how experience levels affected hardiness, then how their level of hardiness affected other variables such as injury and anxiety (Chung, 2012; Hanton, Neil & Evans, 2013). Chung (2012) found that the correlations found some support for hardier athletes appraising rehabilitation as less difficult than less hardy athletes. Hanton et al. (2013) found that performers high in hardiness who reported anxiety as facilitative, found the greatest use of planning, active coping and effort strategies. High hardiness who reported anxiety as facilitative, also viewed these as the most effective strategies in dealing with stressful situations. The group high in hardiness also reported less levels of worry and somatic anxiety, and higher levels of self-confidence in comparison to the group low in hardiness. There have been studies

which have looked at hardiness and its effects on coping usage (Holt & Hogg, 2002; Plaatjie & Potgeiter, 2011) and effectiveness (Nicholls et al., 2007; Reeves, Nicholls & McKenna, 2011; Reeves, Nicholls & McKenna, 2011b). These studies mainly looked at how hardiness predicts coping within elite samples (Nicholls et al., 2007). Other studies looked at how an individual sport uses different coping strategies (Goss, 1994), while few studies have examined the effect of hardiness upon coping in non-elite soccer. The named studies were all within an elite or mixed experience setting, which provides another gap in the research where only non-elite athletes could be used. The research in this area can be beneficial for any non-elite athletes throughout a sporting context, but specifically in soccer. In soccer, situations occur where hardiness may have an effect not only on the way they perceive the stressor, but the way they could react to it. If relationships are found between hardiness and coping, it can allow specific coping strategies to be employed based upon their hardiness level. Knowledge of these variables in soccer can inform players about the most effective strategies during the game, and can inform coaches which coping strategies are most frequently used. This information can have significant performance impacts, and will also have a positive impact on injury rehabilitation. Therefore, the aim of the present study was to examine the relationship hardiness has on coping usage and effectiveness, and to look at whether hardiness was able to predict the outcome of coping usage and effectiveness.

1.1 Rationale

From the previous research, a gap in the literature was identified with regards to hardiness and its effects on coping strategies and coping effectiveness in a specific sport. From identifying the relationship between hardiness and coping, hardiness was looked at to see if it can predict coping usage and coping effectiveness. There have been studies looking at specific sports in relation to hardiness (Goss, 1994) and coping (Gould, Eklund & Jackson, 1993). Although there have been no studies looking at hardiness in relation to coping and its effectiveness in the sport of soccer. Most of the previous studies looking into hardiness have looked within an elite or mixed experience population (Hanton et al., 2013; Reeves et al., 2009). From examining the literature it was found that there are gaps for a study looking at hardiness in a non-elite only population.

1.2 Aim of the study

Due to the lack of research within hardiness and coping strategies in specific sports, and the effectiveness of these strategies on performance. The aim of this study was to look into the relationship between the level of hardiness and usage of coping strategies and effectiveness within non-elite soccer. Further, there was a regression analyses performed to examine whether hardiness could predict coping usage and effectiveness.

1.3 Practical Implications

Knowledge of hardiness levels in relation to coping strategies and effectiveness can have many implications from a practical perspective. From a coach's point of view, they can find out which of their players are hardy and non-hardy. This information can enable the coach to predict how they will subsequently react in stressful situations. Also low hardy individuals can be set onto hardiness training (Maddi et al., 1998) to improve their level of hardiness. If a relationship was found between hardiness and coping strategies, it will have an effect on the strategies employed by the individual. With regards to the coping effectiveness, it will allow coaches to inform their players of the most effective strategies to employ to counteract the stressful situation.

From a players' perspective, the knowledge of both hardiness and coping strategies can have beneficial effects. The effects could not only effect performance, but if they succumb to an injury then it can improve the way they perceive the type of injury, length of time out and rehabilitation programmes (Wadey, 2009; Wadey et al., 2012). A study by Maddi et al. (2012) found that levels of hardiness directly influenced performance, and believed that hardiness assessment and training may prove valuable in enhancing performance. Other performance implications could include how effective specific coping strategies are in relation to others. For example a soccer player high in hardiness may find that 'active coping' is the most beneficial strategy to use, whereas a soccer player low in hardiness may find 'denial' as the most beneficial and effective to use in the same situation.

1.4 Theoretical Implications

The findings from this study could have beneficial theoretical implications. From the little research that has been conducted in this area, the results would provide a better understanding of how hardiness influences coping usage and effectiveness from the non-elite. Findings could also support, contrast or extend the current literature surrounding the area of hardiness in a non-elite population.

Chapter 2

LITERATURE REVIEW

2.0 Literature Review

2.1 Hardiness

According to Goss (1994), hardiness is defined as “a personality characteristic proposed to explain the differences in mood states among groups of individuals who are subject to stress” (p. 137). Originally the research on hardiness was conducted in a clinical setting and how it affected health. Kobasa(1979) was the first to identify that the way individuals reacted to stressful situations was not a constant trait, but a response based on the individuals’ personality characteristic termed as ‘dispositional resilience’ or ‘hardiness’. Kobasa (1979) found that individuals with a high hardy personality viewed stressful situations as less threatening, viewed them optimistically, and therefore reduced their risk of negatively affecting their health. Kobasa (1979) suggested that hardiness could be broken into 3 subscales of (a) c*ommitment*, (b) c*ontrol* and (c) c*hallenge* that would be a good resource for buffering stressful situations. The (a) commitment element states that the individual has a tendency to involve themselves in whatever is happening, (b) control element states that individuals can have an influential effect on the outcome, and (c) challenge element states that performers appraise situations not as a threat to performance, but as an opportunity (Kobasa, 1979). From Kobasa’s conceptualisation of hardiness, further research was then conducted in the area of hardiness and its relationship with health implications. Kobasa, Maddi and Khan (1982) tested the 3 subscales of hardiness and whether or not it decreased the effect of stressful life events and illness symptoms. Their results supported Kobasa’s(1979) theory stating that they “support the hypothesis by showing main effects on illness for both stressful life events and hardiness and an interaction effect for these independent variables”(p. 168). Kobasa, Maddi and Zola (1983) then looked at specific personality types and hardiness in relation to illness. The results found that individuals with type A personality behaviours but a low hardiness level tended towards higher illness levels scores than any other executives. Kobasa, Maddi, Puccetti and Zola (1985) next looked at how resistance resources of personality hardiness, social support and exercise taken singularly and in combination affected concurrent and prospective levels, and probability of illness. Their results showed that when there are none, one, two or three, levels of concurrent and prospective, and probability illness decrease respectively. They also found personality hardiness to be the most effective resistance resource throughout the study. Kobasa’s theory of hardiness has become widely accepted not only in clinical literature, but has also been linked to have an

effect on performance. Knowledge of hardiness having an effect on performance led researchers to examine hardiness in sporting settings. In sport, there have been many studies looking at hardiness levels between mixed experience levels. Golby and Sheard (2004) looked into mental toughness and hardiness levels at different levels of rugby league. They looked at whether players' levels of hardiness, mental toughness and respective subscales were able to distinguish between players' playing levels. Their results found that players playing at international level scored significantly higher in all subscales and overall hardiness than those playing at super league and division 1 level. Sheard and Golby (2010) then looked at how the three components of hardiness (commitment, control and challenge) levels compared between elite athletes and sub-elite athletes. Their study found similar results to Golby and Sheard's (2004) paper. They found that a high hardiness profile identifies elite-level (international) competitors in contrast to sub-elite (national, county, club) performers. Several studies have examined the effect of hardiness on performance and performance related variables. Maddi and Hess (1992) looked at how different variables including personality hardiness correlated with the performance of basketball players. They hypothesised a moderate positive correlation between the variables and performance and their results showed support for this hypothesis. Goss (1994) also looked at hardiness in the sport specific setting of swimming. Goss looked at how the level of hardiness disturbed the moods of over-trained athletes. The study found that high hardy individuals experienced less mood disturbances and less feelings of anger, tension, depression, confusion, and higher feelings of vigour.

2.2 Coping Process: Transactional Perspective vs Trait Perspective

According to Lazarus and Folkman (1984) coping can be defined as "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p.141). Throughout the literature there have been theories about coping, but widely the most accepted is the transactional perspective by Lazarus (1999; Lazarus and Folkman, 1984). The transactional perspective views stress and coping as an ongoing dynamic process in which the individual needs to adapt and 'transact' with the stressor placed upon them, appraise these stressors, and then attempt to cope with them (Hanton, Fletcher & Coughlan, 2005). This was also known as the process perspective in which there is a process being undertaken in order to react to a stressor. Nicholls and Polman (2007a)

found that 46 papers supported the process perspective in their research into other genres of coping such as age and gender. Gould and colleagues (Gould, Eklund & Jackson, 1993; Gould, Finch & Jackson, 1993) also gave backing to the transactional theory as they found that athletes used many different coping methods in response to the same stressor. In contrast, another perspective that was suggested was the trait perspective. Nicholls and Polman (2007a, p.13) found that of 64 papers reviewed within the coping literature, 11 supported the trait theory especially among elite athletes where avoidance was the most used coping strategy (Krohne & Hindel, 1988; Yoo, 2001). Crocker and Isaac (1997) found partial trait perspective coping in their study of adolescent swimmers in training, yet the methods used in competition were different and inconsistent. This study used the transactional perspective approach as there were many different stressful situations placed upon the individuals, in which they were expected to cope individually. Research in the coping process had identified there to primary and secondary appraisals as constructs in the stress appraisal relationship to coping (Lazarus & Folkman, 1984). A primary appraisal is whether what is happening is to do with goal commitments, values, beliefs about self and situational intentions (Nicholls & Polman, 2007, p.12). In particular goal commitment has been identified as a vital factor in a primary appraisal (Lazarus, 1999). If the initial evaluation places the individual in an endangered position, then there are 4 alternative appraisals. Harm/Loss consists of the damage that has already been made. Threat consists of the upcoming danger. Challenge is when the individual looks forward to what has been placed before them. Secondary appraisal is the coping options that are available to the person, especially after the initial harm/loss has been initiated. This process is not coping but the procedure in which the person decides what they are going to do to cope (Lazarus, 1999).

2.3 Coping in Sport

Coping in sport was a concept related to stress, and how an individual perceives and responds to the stressor. From this concept we could see how coping would subsequently be related to hardiness, which had been conceptualised from the research within stress and health. Also we can see how coping could be applied in sporting situations, due to the constant changes in stressors and how players could react to them. Coping is important in sport due to the implications it can have not only on performance (Lazarus, 2000), but on

participation. Studies have found (Klint & Weiss, 1986; Smith, 1986) that ineffective ways of coping can lead to withdrawal. Ebben and Gagnon's (2012) study found that the better performances came from the individuals with a better response to stressful situations and those who mentally prepared themselves before performing. A different study (Balk et al., 2013) found that if only a few coping methods were used within a sub-category of a coping strategy, but used effectively, this also improved performance of the individual. Balk et al.'s study found that the use of emotion regulation techniques during high pressure moments in golf increased the performance of the individual. This finding is different in comparison to other research where avoidance was the main coping strategy used (Krohne & Hindel, 1988; Yoo, 2001). These findings may differ due to many factors such as age, where Nicholls et al. (2007) found that middle adolescent soccer players had a wider array of coping strategies, and used more problem- and emotional-focused strategies yet used less avoidance strategy than early adolescent soccer players. Another factor may be the sport the individuals are playing. From golf to soccer, one is an individualised sport where you may face a lot of stressors that are difficult to avoid, whereas it is easier to use avoidance strategy in team sports. A study (Nicholls et al., 2007b) found that individualised sports found more stressors from their training, outcome and their opponents compared to team sports. In comparison team sports found more stressors from team-mates, performance and selection than in individualised sports. Considering Nicholls et al.'s (2007; Nicholls et al., 2007b) papers, the current studies results were expected to find more stressors from team-mates, performance and selection. Also expected were a wider range of coping strategies to be used along with less avoidance coping.

2.4 Coping Effectiveness

According to Nicholls and Polman (2007b), coping effectiveness has "the potential to make a significant impact on applied practice" (p.11). For coping to be effective it must allow the athlete to "employ a single/combination of coping strategies to optimise performance" (Nieuwenhuys et al., 2011). Little research has been conducted within coping effectiveness, and this may be due to the difficulty of measuring effectiveness. In Hanton et al.'s (2008; Hanton et al., 2013) research, a 5 point Likert scale was used in order to obtain coping effectiveness. This was placed within the MCOPE and effectiveness was based upon the individuals' perception on "the degree to which each strategy was effective

in reducing the stress you experienced" (Nicholls et al., 2009, p.288). The reason behind effective coping still lacks definition, but Nicholls et al. (2007b) suggested 3 reasons as to how individuals are able to cope most effectively. These were; the goodness-of-fit model (Folkman, 1991, 1992), coping automaticity (Gould et al, 1993), and the availability of coping strategies (Eubank & Collins, 2000).

The goodness-of-fit model proposed by Folkman (1991, 1992) suggested that problem- and emotional-based strategies were chosen in correlation with what the individual was able to control. This model has had backing from previous studies where the perceived lack of controllability showed that more emotion-focused coping methods were used, and a high level of controllability showed an increased use in problem-focused coping methods (Anshel, 1996; Anshel & Kaissidis, 1997). Cresswell and Hodge (2001) found that when athletes were confronted with an unknown environment, the athletes that coped best focused on what they could control in the situation. Partial backing to this model was given by Kim and Duda (2003) who found that when stressors were perceived as controllable, athletes were more likely to use problem-focused coping strategies to deal with the situation. Although, the study showed that it was perceived psychological difficulties rather than controllability that contributed to the coping strategy decision.

The second explanation was proposed by Gould et al. (1993) where they believed that the automaticity of coping responses was related to coping effectiveness and an increased performance. This information was justified by Dugdale, Eklund and Gordon (2002) where when asked; athletes told the researchers that the coping strategy used was autonomous and not chosen. These findings suggested that elite athletes are able to automatically perform a coping strategy without thinking about it. This could be due to the extensive training or experience in their sport. The same may be untrue for non-elite athletes, but currently there is not a lot of research conducted on coping effectiveness to disprove this.

Finally Eubank and Collins (2000) suggested that the effectiveness of the coping strategy was based on the choice of strategy chosen. Their findings found that positive self-talk and thinking ahead were effective, but negative self-talk and thinking about other things were ineffective.

Due to the lack of verification of what coping effectiveness is defined as, the current study allowed the participants to generate their own definition and how it affected their performance.

2.5 Hardiness and Coping

From the research previously presented there have been constant overlaps between hardiness and coping (Hanton, Neil & Evans, 2013; Klag & Bradley, 2004; Wadey, Evans, Hanton & Neil, 2012). The research that has looked at both of these constructs has found that individuals who are high in hardiness use more coping strategies and use them more effectively than individuals who are low in hardiness. Also athletes who compete at the highest level (international) have a higher hardiness level than sub-elite athletes. They are therefore better able to cope with more stressful situations, and again more effectively than sub-elite athletes. Although there have been a few studies that have been sport specific, they are based around mixed experienced athletes so the results are unable to be generalised throughout the population. The research that has been presented shows that there is a gap in the research where non-elite sport specific athletes can be looked at in relation to hardiness, coping usage and effectiveness of those strategies. Initially, within a sporting context, hardiness has been looked at in relation to injury and coping with injuries. Wadey, Evans, Hanton and Neil (2012) looked at how hardiness moderated and directly predicted sport injury, and the direct and indirect effects of hardiness on athletes' responses to injury. They found that hardiness does have a direct and moderating effect on the prediction of injury. Also hardiness was positively correlated with desirable, and negatively correlated with undesirable post-injury psychological responses and coping strategies throughout recovery. Hanton, Neil and Evans (2013) then looked at how levels of hardiness and anxiety interpretation affected the performers' self-confidence, competitive anxiety response, and coping usage and effectiveness. They found that high hardy individuals used more active coping, planning and effort strategies during competitive situations, and viewed these as more effective than other groups used. Another result of the study was that high hardy individuals possessed more adaptive coping behaviours. From this statement we can observe the relationship between hardiness and coping.

Chapter 3

METHODOLOGY

3.0 Methodology

3.1 Participants

Participants aged 18-26 years were asked to volunteer from the soccer teams of Cardiff Metropolitan University. This sample was chosen due to the limited research in a non-elite setting, and the current teams of Cardiff Metropolitan University are all non-elite soccer teams. 60 participants were asked to volunteer due to the study specifying within a non-elite population and due to the research being sport specific in soccer. 60 participants were requested so that the results can be generalised over a non-elite population, and specifically within non-elite soccer teams. Another reason for the increased number of participants was to give validity to the study so the results can be implemented successfully in subsequent studies in similar areas. Participants' confidentiality was considered as no names were used throughout the study, and data provided was protected by the university guidelines. Participants were able to withdraw from the study at any time if they ask.

3.2 Measures

3.2.1 Dispositional Resilience Scale (DRS)

The Dispositional Resilience Scale (Bartone, Ursano,Wright & Ingraham, 1989), a modified version of Kobasa's (1979) hardiness scale was used to collect data regarding the subcomponents (commitment, control & challenge) of hardiness and overall hardiness level of the participants. The scale comprised of 45 items about "life in general", split into the 3 subcomponents of hardiness. The 15 items per subcomponent consisted of 5 positively phrased statements and 10 negatively phrased statements. Participants based the truthfulness of these statements on a 4-point Likert scale ranging from 0 (not at all) to 3 (completely true).

3.2.2 MCOPE

The Modified COPE (Crocker & Graham, 1995) was used to collect information on coping strategies employed during stressful situations in sporting settings. Following a study by Gould, Eklund and Jackson (1993) the MCOPE was the "best quantitative instrument to

assess coping actions in sporting settings". All 12 items originally identified were used, and were based on a 5-point Likert scale ranging from 0 (used not at all) to 4 (used very much). The original 12 items had 4 subscales relating to how the item may have been used.

To measure the effectiveness of coping strategies employed, in the MCOPE there was an effectiveness rating using the same 5-point Likert scale used in Hanton et al.'s (2008) study ranging from 0 (extremely ineffective) to 4 (extremely effective).

3.3 Procedure

Participants were given the DRS at any time outside of a sporting context to avoid audience influence (Hanton et al., 2003), and the Modified COPE was given to participants within 90 minutes after an important home game outside of a sporting context. An important home game was defined as a game against a team above them in the league (Welsh League or BUCS). If the home team were top of the league, then an important game was defined as the nearest team below them (2nd place). The DRS was undertaken to gain knowledge of the initial level of hardiness of all participants. The MCOPE was undertaken to gain knowledge of all the coping strategies employed by the participants, and to discover how effective they thought the strategies were. All participants were given a standardised set of instructions to ensure understanding of the tests, and honesty and confidentiality of all answers given. I was at the filling out procedure as much as possible to ensure confidentiality of answers. If I was unable to attend I delegated to a senior member of the named team. A senior member was the manager or captain who overlooked the process.

3.4 Data Collection

3.4.1 Seeking Consent

After ethical approval was given by the ethics committee of Cardiff School of Sport, and the director of football had given consent, players were asked to volunteer to participate in the study. Players who had volunteered were given information sheets giving a brief outline of the study (aims of the study, confidentiality of data, and conditions for

participation) and what they were expected to carry out. Informed consent sheets were then completed by the players prior to beginning the data collection.

3.4.2 Collection of Data

Data was collected over a 3 week period due to the differentiating number of games between teams. This also gave the researcher the choice of which game was the most important and therefore gave the richest information from participants. After the game had been completed, participants were given an MCOPE test within 90 minutes. This was to ensure the coping strategies and effectiveness used were still fresh.

3.5 Data Analysis

The data analysis was split into four sections. Firstly reliability analyses, mean and standard deviation tests were conducted on the DRS and MCOPE to extricate any results that appeared as untrustworthy or unusable. Assumption checks were conducted. Second there was correlation analysis between hardiness and coping usage, and hardiness and coping effectiveness to establish whether a regression analysis could be performed. Finally a regression analysis was performed to see if the variable of hardiness was able to predict usage and effectiveness of coping strategies.

Chapter 4

RESULTS

4.0 Results

4.1 Description of Participants

Participants were selected in this study as they were playing for one of five teams for Cardiff Metropolitan University. The aim was to find 60 players willing to fill out both an MCOPE and a DRS. 59 players filled in an MCOPE while only 57 players filled in a DRS. All participants were from the male football teams and were aged between 18 and 26 (M = 19.93, SD = 1.36). Players' previous standard of football varied from National level down to the current level of competition, University or British Universities and Colleges Sport (BUCS), or Welsh League Division 1/Reserve Division East. The sample was chosen due to the participants needing to be playing for a Cardiff Metropolitan University team in either BUCS or Welsh League.

4.2 Assumptions for Correlation

All items included in the questionnaires were subject to reliability checks. According to Field reliability means that "a measure (or in this case questionnaire) should consistently reflect the construct that it is measuring" (2009, p.673).

Cronbach's Alpha was used and each item was expected to achieve a result of above .60. The actual results showed that there were many items that did not satisfy the Cronbach's Alpha of above .60. Due to the high number of the items that did not satisfy the .60 it would have been implausible to exclude them from data analysis.

Along with checking the central tendency and variability of the data, it was also important to look at the shape of the data from to establish if it was normally distributed. To check the shape, Skewness (a look at the symmetry) and Kurtosis (a look at the 'pointyness') (Field, 2009, p.19) were used alongside the histograms. The histograms showed that all variables were normally distributed (n = 27).

4.3 Descriptives

Means, standard deviations, and intercorrelations of all variables (n = 27) are displayed in Table 1-2. The results suggested that athletes preferred to use ‘effort’ (Mean = 12.98; SD = 2.10), ‘active coping’ (Mean = 9.56; SD = 2.10) and ‘wishful thinking’ (Mean = 9.46; SD = 3.15) to counteract the stressful situations encountered. The least preferred strategy to use was ‘behavioural displacement’ (Mean = 1.63, SD = 1.90).

In relation to coping effectiveness, the results showed that the most effective strategies were ‘effort’ (Mean = 12.69; SD = 1.99), ‘active coping’ (Mean = 10.19; SD = 1.93) and ‘planning’ (Mean = 10.17; SD = 1.73). The least effective coping strategy was ‘denial’ (Mean = 6.22, SD = 2.31).

4.4 Correlation

4.4.1 Hardiness

Correlations between the independent variables found a positive weak correlation between ‘control’ and ‘challenge’ (r = .254) but was found not to be significant (Sig. = .057). Other independent variables were found to have no correlations or significance with one another, only with the dependent variables.

4.4.2 Hardiness and Coping Usage

The results revealed that there were correlations between hardiness subscales and coping usage. Of those correlations, the data showed that there were only weak positive and weak negative correlations. All 3 subscales of hardiness (commitment, control and challenge) were found to have at least 1 correlation with coping strategies. Commitment was found to have a weak negative correlation with ‘wishful thinking’ (r = -.212, Sig. = .113). Control was found to have a weak negative correlation with ‘denial’ (r = -.213, Sig. = .111). Challenge was found to have three weak negative correlations. ‘Planning’ (r = -.266, Sig. = .045) and ‘venting of emotions’ (r = -.282, Sig. = .034) were found to be significantly correlated ($p < 0.05$) with challenge. ‘Active coping’ was not significantly correlated (r = -

.255, Sig. = .056) with challenge. Other variables correlation values (r) varied between -.159 and .155.

Results from the stepwise regression performed are shown in Table 3-4.

Table 1. Means, Standard Deviations, and Correlations between Hardiness and Coping Strategies.

Variable	***M***	***SD***	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
1.Commitment	45.24	9.16	1														
2. Control	47.26	2.72	.144	1													
3. Challenge	39.95	3.18	-.008	.254	1												
4. SSIR	8.12	3.29	-.051	-.006	-.128	1											
5. SSER	7.92	3.16	.004	-.012	-.143	.698	1										
6. BD	1.63	1.90	-.123	-.092	.102	.209	.218	1									
7. Self-Blame	9.31	2.21	-.065	-.135	-.081	.064	.174	-.194	1								
8. Planning	7.90	2.41	.131	-.089	-.266	.308	.313	.082	.126	1							
9. SOCA	8.53	2.07	-.013	.060	.001	.247	.220	-.068	.285	.221	1						
10. VOE	8.32	3.14	-.040	-.025	-.282	-.025	.034	.009	.172	.232	.244	1					
11. Humor	6.10	3.42	.038	.155	.105	.203	.435	.239	.345	.106	.199	.011	1				
12. Effort	12.98	2.06	-.149	-.027	-.159	.526	.403	.087	.035	-.014	.205	.057	.027	1			
13. WT	9.46	3.15	-.212	-.095	-.120	.304	.282	.153	.321	.176	.245	.185	.293	.222	1		
14. AC	9.56	2.10	-.154	-.035	-.255	.574	.580	.248	.119	.421	.273	.132	.184	.339	.355	1	
15. Denial	5.41	2.21	-.070	-.213	.051	-.007	.220	.304	.091	.040	.069	.001	.223	-.162	.022	.099	1

Notes. *SSIR = Social Support for Instrumental Reasons*

SSER = Social Support for Emotional Reasons

BD = Behavioural Displacement

SOCA = Suppression of Competing Activities

VOE = Venting of Emotions

WT = Wishful Thinking

AC = Active Coping

n = 57

4.4.3 Hardiness and Coping Effectiveness

The results showed that there were also correlations between hardiness and coping effectiveness. Commitment was found to have two correlations. There was a weak positive correlation with ‘self-blame’ ($r = .282$, Sig. = .033) and commitment, and the second was a weak negative correlation with ‘denial’ ($r = -.204$, Sig. = .128) and commitment. The correlation between commitment and ‘self-blame’ was significantly correlated ($p < 0.05$). Control was found to have a weak negative correlation with ‘social support for instrumental reasons’ ($r = -.227$, Sig. = .089), but the correlation was not significant. Control also had a weak negative correlation with ‘wishful thinking’ ($r = -.215$, Sig. = .108), but the correlation was not significant. Challenge was found to have three weak positive correlations. ‘Self-blame’ ($r = .234$, Sig. = .080) and ‘venting of emotions’ ($r = .250$, Sig. = .060) were not significantly correlated with challenge. The third correlation with ‘humor’ ($r = .307$, Sig. = .020) was found to be significantly correlated ($p < 0.05$) with challenge. Other variable correlation values (r) between the hardiness subscales and coping usage varied from -.163 to .172.

Table 2. Means, Standard Deviations, and Correlations between Hardiness and Coping Effectiveness.

Variable	***M***	***SD***	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
1.Commitment	45.24	9.16	1														
2.Control	47.26	2.72	.144	1													
3. Challenge	39.95	3.18	-.008	.254	1												
4. SSIR	9.98	2.43	.042	-.277	-.103	1											
5. SSER	10.12	2.17	-.072	-.163	.044	.383	1										
6. BD	7.75	3.70	-.005	-.039	.166	.114	.111	1									
7. Self-Blame	8.22	2.36	.282	.050	.234	.256	.147	-.013	1								
8. Planning	10.17	1.73	.065	-.125	.011	.316	.490	.069	-.051	1							
9. SOCA	9.39	1.83	-.008	-.031	.172	.122	.193	.234	.268	-.021	1						
10. VOE	7.59	2.29	.030	.162	.250	.098	.052	-.043	.426	-.143	.001	1					
11. Humor	8.59	2.69	-.002	-.087	.307	.065	.251	.312	.142	.148	.096	.062	1				
12. Effort	12.69	1.99	.006	-.159	.140	.241	.336	.006	-.018	.195	.066	.252	-.040	1			
13. WT	7.25	2.22	-.044	-.215	.161	.266	.213	-.110	.190	.092	-.063	.051	.090	.299	1		
14. AC	10.19	1.93	-.063	.148	.153	.239	.291	.069	.051	.304	.208	-.099	.118	.078	-.035	1	
15. Denial	6.22	2.31	-.204	.055	.053	.028	.140	.148	.007	.012	-.033	.213	.084	.011	-.288	.126	1

Notes. *SSIR = Social Support for Instrumental Reasons*

SSER = Social Support for Emotional Reasons

BD = Behavioural Displacement

SOCA = Suppression of Competing Activities

VOE = Venting of Emotions

WT = Wishful Thinking

AC = Active Coping

n = 57

4.5 Assumptions for Regression

In order to perform a regression analysis, there were many assumptions that needed to be checked.

Multicollinearity looked at the correlation between independent variables (Lewis-Beck, 1993). Multicollinearity occurs when there is "a strong correlation between two or more predictors in a regression model" (Field, 2009, p.223). This assumption exists when there is a collinearity (R^2) coefficient of perfect 1.00 between the variables. To check this assumption, the Variance Inflation Factor (VIF) and Tolerance were looked at in the SPSS diagnostics. When checking the multicollinearity among variables, it is desirable that the VIF is less than 1 (Bowerman & O'Connell, 1990), and the Tolerance to be calculated (1/VIF) above .2 (Menard, 1995). From the diagnostics the VIF showed some multicollinearity between variables, but Tolerance levels were all above the 0.2 recommended.

Another assumption check before performing a regression analysis was a Casewise diagnostics. The casewise diagnostics was changed from 3 to 2 standard deviation, and checks that the residual data points lie between -2 and +2. Therefore 5% of the residuals can be greater than 2; otherwise the mode will be a poor representation of the data (Field, 2013). Analysis showed that there were no residual data that exceeded the 5% per variable.

In order to check the residual data, there were 3 tests performed. These tests were (1) the linearity of the data; (2) the Homoscedasticity of the data; and (3) the normality of the data. Linearity (1) is the assumption that;

> "...for each independent variable X_i, the amount of change in the mean value of Y associated with a unit increase in X_i, holding all other independent variables constant, is the same regardless of the level of X_i. (Lewis-Beck, 1993, p.201).

Put simply, for each unit the X value (independent variable) increases, the change in the Y value (dependent variable) should be the same throughout providing all other independent variables are constant. Linearity was checked using a scatterplot, and visually inspecting the data points to look for linearity. The results showed that there was linearity between the independent variable(s) and all of the dependent variables.

The Homoscedasticity (2) also needed to be looked at before a regression analysis can take place. Homoscedasticity looked at the variance of the residual data in relation to the already predicted dependent variable. All residual points should have had the same variance. When variances are unequal, then “there is assumed to be heteroscedasticity” (Field, 2009, p.220). The Homoscedasticity was checked by visually inspecting the scatterplots created, and ensuring that all the variant data points were of the same variance. Analysis on the data found that all the variables showed signs of homoscedasticity.

The normality (3) of the data was the final assumption check. Normality checked whether the variables are random, and normally distributed with a mean of 0 (Field, 2009, p.221). To check the normality of the variables, a histogram was created. Expected means score were close to 0, and expected standard deviation scores were close to 1. After analysing the histograms, all variables were found to be close to 0 for mean, and close to 1 for standard deviation.

4.6 Regression

4.6.1 Hardiness – Coping Usage

1. Social Support for Instrumental Reasons(SSIR)

A multiple regression was run to predict the variable SSIR from hardiness and its subcomponents (commitment, control, challenge). Only 14% of this variables variance was caused by hardiness (R^2 = .143)(*F*(3, 53) =.369; Sig. = .776). The most significant independent variable was found as ‘challenge’ (Sig. = .330).

2. Social Support for Emotional Reasons(SSER)

A multiple regression was run to predict the variable SSER from hardiness and its subcomponents (commitment, control, challenge). Only 15% of this variables variance was caused by hardiness (R^2 = .145)(*F*(3, 53) =.378; Sig. = .769). The most significant independent variable was found as ‘challenge’ (Sig. = .294).

3. Behavioural Displacement

A multiple regression was run to predict the variable Behavioural Displacement from hardiness and its subcomponents (commitment, control, challenge). Only 19% of this variables variance was caused by hardiness (R^2 = .191)(*F*(3, 53) =.667; Sig. = .576). The most significant independent variable was found as 'challenge' (Sig. = .358).

4. **Self-Blame**

A multiple regression was run to predict the variable Self-Blame from hardiness and its subcomponents (commitment, control, challenge). Only 15% of this variables variance was caused by hardiness (R^2 = .152)(*F*(3, 53) =.416; Sig. = .742). The most significant independent variable was found as 'control' (Sig. = .421).

5. **Planning**

A multiple regression was run to predict the variable Planning from hardiness and its subcomponents (commitment, control, challenge). 30% of this variables variance was caused by hardiness (R^2 = .299)(*F*(3, 53) = 1.732; Sig. = .172). The most significant independent variable was found as 'commitment' (Sig. = .313).

6. **Suppression of Competing Activities(SOCA)**

A multiple regression was run to predict the variable SOCA from hardiness and its subcomponents (commitment, control, challenge). Only 8% of this variables variance was caused by hardiness (R^2 = .065)(*F*(3, 53) =.075; Sig. = .973). The most significant independent variable was found as 'control' (Sig. = .643).

7. **Venting of Emotions(VOE)**

A multiple regression was run to predict the variable VOE from hardiness and its subcomponents (commitment, control, challenge). 29% of this variables variance was caused by hardiness (R^2 = .290)(*F*(3, 53) =1.626; Sig. = .194). The most significant independent variable was found as 'challenge' (Sig. = .034).

8. **Humor**

A multiple regression was run to predict the variable Humor from hardiness and its subcomponents (commitment, control, challenge). Only 17% of this variables variance was caused by hardiness (R^2 = .170)(*F*(3, 53) =.527; Sig. = .665). The most significant independent variable was found as 'control' (Sig. = .348).

9. Effort

A multiple regression was run to predict the variable Effort from hardiness and its subcomponents (commitment, control, challenge). 22% of this variables variance was caused by hardiness (R^2 = .222)(*F*(3, 53) =.912; Sig. = .442). The most significant independent variable was found as 'challenge' (Sig. = .226).

10. Wishful Thinking(WT)

A multiple regression was run to predict the variable WT from hardiness and its subcomponents (commitment, control, challenge). 25% of this variables variance was caused by hardiness (R^2 = .247)(*F*(3, 53) =1.147; Sig. = .339). The most significant independent variable was found as 'commitment' (Sig. = .129).

11. Active Coping(AC)

A multiple regression was run to predict the variable AC from hardiness and its subcomponents (commitment, control, challenge). 30% of this variables variance was caused by hardiness (R^2 = .304)(*F*(3, 53) =1.799; Sig. = .159). The most significant independent variable was found as 'challenge' (Sig. = .051).

12. Denial

A multiple regression was run to predict the variable Denial from hardiness and its subcomponents (commitment, control, challenge). 24% of this variables variance was caused by hardiness (R^2 = .242)(*F*(3, 53) = 1.099; Sig. = .358). The most significant independent variable was found as 'control' (Sig. = .096).

4.6.2 Hardiness – Coping Effectiveness

1. Social Support for Instrumental Reasons(SSIR)

Multiple regression was performed to predict the variable SSIR effectiveness from hardiness and its subcomponents (commitment, control, challenge). 24% of this variables variance was caused by hardiness (R^2 = .243)(*F*(3, 53) = 1.110; Sig. = .353). The most significant independent variable was found to be 'control' (Sig. = .110).

2. Social Support for Emotional Reasons(SSER)

Multiple regression was performed to predict the variable SSER effectiveness from hardiness and its subcomponents (commitment, control, challenge). 19% of this variables variance was caused by hardiness (R^2 = .191)(*F*(3, 53) = .666; Sig. = .577). The most significant independent variable was found to be 'control' (Sig. = .211).

3. **Behavioural Displacement**

Multiple regression was performed to predict the variable Behavioural Displacement effectiveness from hardiness and its subcomponents (commitment, control, challenge). Only 14% of this variables variance was caused by hardiness (R^2 = .135)(*F*(3, 53) = .330; Sig. = .804). The most significant independent variable was found to be 'challenge' (Sig. = .334).

4. **Self-Blame**

Multiple regression was performed to predict the variable Self-Blame effectiveness from hardiness and its subcomponents (commitment, control, challenge). 37% of this variables variance was caused by hardiness (R^2 = .372)(*F*(3, 53) = 2.831; Sig. = .047). The most significant independent variable was found to be 'commitment' (Sig. = .028).

5. **Planning**

Multiple regression was performed to predict the variable Planning effectiveness from hardiness and its subcomponents (commitment, control, challenge). 16% of this variables variance was caused by hardiness (R^2 = .158)(*F*(3, 53) = .451; Sig. = .718). The most significant independent variable was found to be 'control' (Sig. = .296).

6. **Suppression of Competing Activities(SOCA)**

Multiple regression was performed to predict the variable SOCA effectiveness from hardiness and its subcomponents (commitment, control, challenge). 19% of this variables variance was caused by hardiness (R^2 = .189)(*F*(3, 53) = .655; Sig. = .584). The most significant independent variable was found to be 'challenge' (Sig. = .173).

7. **Venting of Emotions(VOE)**

Multiple regression was performed to predict the variable VOE effectiveness from hardiness and its subcomponents (commitment, control, challenge). 27% of this variables

variance was caused by hardiness (R^2 = .271)(*F*(3, 53) = 1.398; Sig. = .254). The most significant independent variable was found to be ‘challenge’ (Sig. = .107).

8. Humor

Multiple regression was performed to predict the variable Humor effectiveness from hardiness and its subcomponents (commitment, control, challenge). 35% of this variables variance was caused by hardiness (R^2 = .353)(*F*(3, 53) = 2.508; Sig. = .069). The most significant independent variable was found to be ‘challenge’ (Sig. = .010).

9. Effort

Multiple regression was performed to predict the variable Effort effectiveness from hardiness and its subcomponents (commitment, control, challenge). 25% of this variables variance was caused by hardiness (R^2 = .248)(*F*(3, 53) = 1.156; Sig. = .335). The most significant independent variable was found to be ‘control’ (Sig. = .130).

10. Wishful Thinking(WT)

Multiple regression was performed to predict the variable WT effectiveness from hardiness and its subcomponents (commitment, control, challenge). 31% of this variables variance was caused by hardiness (R^2 = .310)(*F*(3, 53) = 1.875; Sig. = .145). The most significant independent variable was found to be ‘control’ (Sig. = .051).

11. Active Coping(AC)

Multiple regression was performed to predict the variable AC effectiveness from hardiness and its subcomponents (commitment, control, challenge). 21% of this variables variance was caused by hardiness (R^2 = .206)(*F*(3, 53) = .786; Sig. = .507). The most significant independent variable was found to be ‘control’ (Sig. = .360).

12. Denial

Multiple regression was performed to predict the variable Denial effectiveness from hardiness and its subcomponents (commitment, control, challenge). 22% of this variables variance was caused by hardiness (R^2 = .223)(*F*(3, 53) = .928; Sig. = .434). The most significant independent variable was found to be ‘commitment’ (Sig. = .118).

Table 3. The stepwise regression analyses for Hardiness subscales: Effects of coping strategies.

Independent Variable	Dependent Variables	R^2	$p(F)$	b	$p(t)$
Commitment				-.056	.677
Control		.020	.776	.046	.791
Challenge	1.SSIR			-.142	.330
Commitment				-.001	.997
Control		.021	.769	.030	.856
Challenge	2.SSER			-.150	.294
Commitment				-.061	.441
Control		.036	.576	-.078	.439
Challenge	3.Behavioural Displacement			.078	.358
Commitment				-.033	.723
Control		.023	.742	-.095	.421
Challenge	4.Self-Blame			-.037	.712
Commitment				.097	.313
Control		.089	.172	-.039	.748
Challenge	5.Planning			-.192	.067
Commitment				-.014	.871
Control		.004	.973	.050	.643
Challenge	6.SOCA			.010	.912
Commitment				-.048	.704
Control		.084	.194	.067	.678
Challenge	7.Venting of Emotions			-.298	.034
Commitment				.020	.890
Control		.029	.665	.172	.348
Challenge	8.Humor			.078	.613
Commitment				-.097	.256
Control		.049	.442	.030	.783
Challenge	9.Effort			-.112	.226
Commitment				-.197	.129
Control		.061	.339	-.042	.796
Challenge	10.Wishful Thinking			-.112	.420
Commitment				-.104	.219
Control		.092	.159	.045	.674
Challenge	11.Active Coping			-.181	.051
Commitment				-.024	.793
Control		.059	.358	-.195	.096
Challenge	12.Denial			.078	.426

Notes. $n = 57$. R^2 = Stepwise change in R^2. $p(F)$ = Probability of F for R^2. b = Unstandardised regression coefficient in final equation. $p(t)$ = Probability of t for b.

Table 4. The stepwise regression analyses for Hardiness subscales: Effects of coping effectiveness.

Independent Variable	Dependent Variables	R^2	*p*(*F*)	*b*	*p*(*t*)
Commitment				.055	.584
Control		.059	.353	-.206	.110
Challenge	Effectiveness(1)			-.035	.747
Commitment				-.030	.739
Control		.036	.577	-.143	.211
Challenge	Effectiveness(2)			.061	.525
Commitment				.007	.963
Control		.018	.804	-.102	.607
Challenge	Effectiveness(3)			.158	.344
Commitment				.204	.028
Control		.138	.047	-.048	.680
Challenge	Effectiveness(4)			.184	.064
Commitment				.046	.528
Control		.025	.718	-.097	.296
Challenge	Effectiveness(5)			.028	.724
Commitment				.003	.968
Control		.036	.584	-.054	.570
Challenge	Effectiveness(6)			.111	.173
Commitment				.011	.898
Control		.073	.254	.084	.462
Challenge	Effectiveness(7)			.157	.107
Commitment				.022	.837
Control		.124	.069	-.179	.185
Challenge	Effectiveness(8)			.299	.010
Commitment				.023	.778
Control		.061	.335	-.159	.130
Challenge	Effectiveness(9)			.123	.164
Commitment				-.002	.984
Control		.096	.145	-.227	.051
Challenge	Effectiveness(10)			.163	.094
Commitment				-.047	.556
Control		.043	.507	.094	.360
Challenge	Effectiveness(11)			.086	.395
Commitment				-.146	.118
Control		.050	.434	.066	.578
Challenge	Effectiveness(12)			.022	.824

Notes. n = 57. R^2 = Stepwise change in R^2. $p(F)$ = Probability of F for R^2. b = Unstandardised regression coefficient in final equation. $p(t)$ = Probability of t for b.

Chapter 5

DISCUSSION

5.0 Discussion

The purpose of this study was to look into the relationship between hardiness and coping usage and effectiveness in non-elite soccer. The study aimed to examine whether hardiness was able to predict coping usage and effectiveness of non-elite soccer players.

The overall results showed that there were many weak positive and weak negative correlations between the subscales of hardiness (commitment, control, challenge), and coping usage and effectiveness. There was also found to be one correlation between the subscales of hardiness. Of these correlations, four correlations were found to be significant. The highest significant correlation was found to be between the hardiness subscale ‘challenge’ and the coping effectiveness scale of ‘humor’. The results showed that hardiness is more correlated with coping effectiveness than it is with coping usage. Correlations between hardiness and coping usage found that the hardiness subscale challenge was significantly correlated with two coping strategies. These significantly correlated strategies were ‘planning’ and ‘venting of emotions’. There were also significant correlations between the hardiness subscales commitment and challenge, and coping effectiveness. The significant correlation with commitment was ‘self-blame’. The significant correlation found with challenge was ‘humor’.

The regression analyses revealed only some of the dimensions the subscales predicted. Of these predictions, three predictions were found to be significant ($p < 0.05$). The predictions are significant due to the p-value being below .05. The p-value weighs up the strength of the evidence against the null hypothesis within a population. The highest predictor was found to be ’commitment’ with ‘self-blame’ effectiveness ($R^2 = .372$, Sig. = .028), yet the most significant prediction was found to be the hardiness subscale ‘challenge’ on ‘humor’ effectiveness ($R^2 = .353$, Sig. = .010). The final significant predictor was again ‘challenge’ on the coping strategy ‘venting of emotions’ ($R^2 = .290$, Sig. = .034). The predictions showed that again hardiness is more significantly regressed with coping effectiveness, than it is with coping usage.

5.1 Link with Previous Research

Support

The findings of the study found that the main coping methods used to buffer stress comply with previous research (Hanton et al., 2013) in the area of coping and hardiness. Hanton

et al. (2013) found that the main coping strategies used in relation to individuals high in hardiness were ‘active coping’, ‘planning’ and ‘increased effort’. The current research supports the previous research due to the most frequently used coping strategies being ‘effort’ (Mean = 12.98, SD = 2.10) and ‘active coping’ (Mean = 9.56, SD = 2.10). In relation to coping effectiveness; ‘effort’, ‘active coping’ and ‘planning’ were the three most effective strategies employed, respectively. These findings support evidence from Hanton et al.’s (2013) study where ‘effort’, ‘active coping’ and ‘planning’ were reported to be used most effectively by participants high in hardiness. These findings are the same, even though the current study used non-elite athletes whose hardiness levels varied from low to high.

According to the results hardiness was not found to be a significant predictor of coping strategies and effectiveness. This is due to only 4 of the 24 strategies having a significant prediction from hardiness and its subscales. This was a surprising result as previous studies such as Hanton et al. (2013) found models that suggest hardiness is predictive of coping. There are however, some predictions between the hardiness subscales commitment and challenge. These subscales are able to significantly predict ‘planning’ and ‘venting of emotions’ usage, and ‘self-blame’ and ‘humor’ effectiveness. These results would suggest that hardiness is somewhat an important factor in predicting coping and its effectiveness, and supports Hanton et al.’s (2013) research.

Research from Wadey et al. (2012) suggested that hardiness has a direct effect on coping strategies. In the study which looked at the effect of hardiness on injury prediction, they proposed that level of hardiness was correlated with positive coping strategies and psychological responses throughout. The current study can support their findings as it was found that hardiness was significantly correlated with many coping variables. The significant correlations found were between the subscale challenge, and the coping strategies ‘planning’ and ‘venting of emotions’. There were other correlations between commitment and ‘wishful thinking’, control and ‘denial, and challenge and active coping. Surprisingly neither social support variables were significantly correlated with hardiness, which would be an expected variable to use from an individual during injury recovery.

Balk et al.’s (2013) study found that few variables were used, but were used effectively. This suggests a favourable set of coping strategies that individuals prefer to employ. From the current research, support can be shown for this theory as hardiness showed that coping effectiveness was effective, but only in some variables.

Contrasts

In comparison to the previous literature, there were findings that contradicted their research. Previous literature (Kobasa et al., 1982) found that the problem-focused strategies ‘effort, ‘active coping’ and ‘planning’ would be the most frequently used. Although the findings supported the literature that ‘effort’ and ‘active coping’ were most frequently used, the third most popular coping strategy employed was the emotion-focused strategy ‘wishful thinking’. The reason for this difference may be due to the specificity of the study in soccer, where the stressors placed upon the players are individual to the sport itself.

Another contrast found between the findings was that athletes did not currently have to be elite to be high in hardiness. These findings suggest that as previously thought, not all non-elite athletes are inevitably low in hardiness. The current study found that individuals of all experiences at the non-elite level were able to be high in hardiness. In comparison to other studies between hardiness level (Golby & Sheard, 2004, Sheard & Golby, 2010), no evidence was found to support the theory that non-elite athletes are consistently lower in hardiness levels compared to elite-athletes.

Soderstrom et al., (2000) suggested that there was a relationship found between hardiness and coping. They undertook a study in health and found that in corporate situations the model was a good fit. The current studies results contradict this as there is no evidence to support a stable significant relationship between hardiness and coping usage or effectiveness. These findings may be due to the fact that this study was performed in a clinical setting, whereas the current study was undertaken in a sport setting.

The findings from Balk et al.’s (2013) study found that competitors did not use a wide array of coping strategies, but only a few effectively. The current study found that although most players used similar coping strategies throughout, there was a wide array of strategies chosen over the whole study. All 12 of the coping strategies were used by at least one individual throughout the study, showing the wide array of strategies that we actually used. The reason for this contrast may be due to the differences in type of sport and the sport itself. Other research (Nicholls et al., 2007) found that individuals cope differently in team and individualised sports. The participants selected in Balk et al.’s study were all golfers, whereas the current study used a team of soccer players. The change in sport may

provide the participants with different stressors and levels of stress, therefore causing different coping strategies to be employed.

Goss (1994) found that swimmers who were high in hardiness entailed fewer mood disturbances. The current study found that no matter what level of hardiness individuals were, there were no discrepancies between how many or few coping strategies were used. This can be confirmed by the results showing that hardiness level is not a significant predictor to the majority of coping usage or coping effectiveness variables. As previously stated, many of these contrasts in findings may be down to the specificity of the study. Swimming is an individual sport where there are going to be different stressors compared to a team sport such as soccer.

Extend

Findings from the current study can extend on the literature in hardiness and coping due to the specificity of the study. There have been studies that have looked into a specific sport such as soccer (Reeves et al., 2011; Reeves et al., 2011b), yet information from the current study can enhance the current knowledge in the area. Previous studies looking into hardiness in specific sports (Golby & Sheard, 2004; Goss, 1994) found that international athletes had an increased level of hardiness compared to sub-elite athletes. The current study found that although the participants were non-elite, there were many differing levels of hardiness ranging from high to low. This extends to the literature on hardiness as it proves that at non-elite level, players can be classed as high and low in hardiness.

5.2 Implications

Theory

The theoretical implications from the current study can add information to specific sport research in the area of soccer. The literature in hardiness can be extended by adding valuable information regarding non-elite athletes, and in some papers contradicting the beliefs that non-elite athletes are all low in hardiness. Information on hardiness and its effects on other variables can also be added to the literature. It was found that some hardiness subscales such as commitment and challenge were significant predictors of the coping variables ‘planning’ and ‘venting of emotions’, and the effectiveness of ‘self-blame’ and ‘humor’. These findings can provide future research questions for researchers into how and why hardiness only affects specific coping strategies and their effectiveness, or

whether hardiness at all affects how coping strategies are employed and how effectively they are employed.

Practical

The practical implications from the current study can allow both coaches and players to improve how they cope in situations. As there were not many significant models found, coaches can focus their attention on other aspects that may impact the performance of their players. Alternatively if they wanted to use hardiness as a predictor for coping strategies, results from this study could impact which strategies they advise to employ. From a players perspective, if they think that hardiness is insignificant in predicting coping strategies and effectiveness, then they should be advised not to undertake hardiness training as it would be worthless. On the other hand, players who think hardiness does predict coping can look at the significant predictors of ‘planning’ usage, ’venting of emotions’ usage, ‘self-blame’ effectiveness, and ‘humor’ effectiveness, and concentrate on employing these strategies throughout a game situation.

5.3 Strengths

The sampling method chosen gave strength to the study, as it allowed the research to be generated in a single sport. Participants who took part in the study were from all experience levels ranging from national to local club. This information brought a diversity to the study as not all non-elite athletes, have always been classed as non-elite. The sample chosen also gave a chance to support, contrast or extend to the current research around coping within soccer (Reeves et al., 2011; Reeves et al., 2011b). The sampling method chosen in previous studies around soccer, were between academy and adolescent players (Reeves et al., 2011b). The sampling method chosen in the current study gave a chance to research players older than adolescents, again allowing the study to extend research in coping.

5.4 Limitations

The discrepancies between previous studies and the current study may be attributed to many factors. In comparison to other studies with similar protocols (Hanton et al., 2003; Hanton et al., 2013), the sample size in the current study can be brought into question. These studies (Hanton et al., 2003; Hanton et al., 2013) used a greater sample size than the current study, and all found similar results in relation to hardiness and coping. Stevens

(1996, p.72) suggested 15 participants per predictor, due to small samples obtaining results that do not generalise. In the current study 57 participants completed all questionnaires. The predictor variables used were hardiness and its subscales (commitment, control, challenge). From this knowledge, the minimum number of participants that should have been used was 60. This was initially the target sum of participants before the study, yet time constriction and cooperation from some volunteers caused a drop in numbers during the study.

Another limitation to the study can be the data used from the participants. Cronbach's Alpha was performed on all of the variables (n = 27), and it was found that there were many variables that did not satisfy the .60 or above required. The information gained from the variables that did not satisfy the .60 or above (n = 23) must be viewed with caution due to the reliability of the data being untrustworthy. Information that was gained from the variables that were found to be above the required .60 (n = 4) can be viewed and used again due to the trustworthiness of the data inputted.

A limitation is that actual player performance was not measured in comparison to the coping effectiveness. Although a player high in hardiness may deem a coping strategy to be effective, the actual performance outcome may differ. Alternatively, a player identified as low in hardiness may think a coping strategy was ineffective, yet improved performance.

Along with actual performance not being measured, a final limitation could be the stressors placed upon the players were not measured. When answering the questionnaires, the players may have been thinking about different situations in which they performed a coping strategy. Although this may be beneficial to players as it shows diversity in stressful situations, it can be detrimental to the study due to the severity of the stressor. One player may have faced a less stressful situation, performed a coping strategy and used it effectively. Alternatively a second player may have faced a highly stressful situation, employed the same strategy yet found it extremely ineffective.

5.5 Future Research

Future research in the area of hardiness and its effects on coping should engage in its effect on performance. Although the current study looked at hardiness and how it predicted coping, there are still areas with regards to performance that are yet to be researched.

Future research should look into how perceived effectiveness of coping strategies, actually effects the performance of the individual. Knowledge in the area of effect on actual performance can have beneficial effects throughout sport, and expand the current literature within performance.

Another area that needs to be investigated is a similar study, just with more participants from a wider range of teams. Gathering more information on the same study can support or contrast the current findings. If there are enough participants in a future study, this will allow the results to be generalised throughout soccer and can have both theoretical and practical implications.

5.6 Conclusion

In conclusion, the results found that there is a relationship between hardiness level and coping. Hardiness was found to be significantly correlated with ‘planning’ usage and ‘venting of emotions’ usage. Also significantly correlated with hardiness was ‘self-blame’ effectiveness and ‘humor’ effectiveness. From the regression analyses, it was found that hardiness is able to significantly predict the variables of ‘self-blame’ effectiveness, ‘humor’ effectiveness, and the coping strategy ‘venting of emotions’.

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APPENDICES

Appendix A

Participant Information Sheet

Title of Project: An examination into the relationship between level of hardiness and usage of coping strategies in university soccer.

Participation Information Sheet

Background

The study will aim to provide insight into the area of hardiness in relation to the usage of coping strategies and effectiveness of these strategies in non-elite university soccer games. The participants will be volunteers from the Cardiff Metropolitan university football teams.

Why you have been asked

You have been asked to participate in this study because the research will be looking into non-elite athletes and specifically soccer players. The results of the research can further your own knowledge and understanding about how your personal level of hardiness can relate to your ability to cope with stressful situations.

Are there any risks?

There are no considerable risks to you by participating in this study. If you are uncomfortable anytime during the study please let me know as you are able to withdraw from the study at any time.

Your rights

By participating in this study you do not give up your legal rights. You have the right to withdraw from the study at any point, you have the right to refuse to answer any questions, and you have the right to confidentiality and anonymity.

What happens to the results of the evaluation?

The results from the study will be solely used in a student dissertation. The information provided will be stored safely and securely to ensure confidentiality and I will be the only person able to access the data.

Are there any benefits from taking part?

By participating you will gain an increased knowledge of your hardiness level, also gain more understanding about how coping strategies can affect your performance throughout a game situation.

How I protect your privacy:

I have taken several important steps to ensure that you cannot be identified from any information you provide. All the information will be securely stored and only I will be able to access it. After the study has been finished, all information gathered will be destroyed. Due to university guidelines I am required to keep the consent and assent forms for ten years.

Further information

If you have any questions about the research or how we intend to conduct the study, please contact me or my supervisor on: Nathan Facey – st20019623@outlook.cardiffmet.ac.uk

Tjerk Moll (Supervisor) – tmoll@cardiffmet.ac.uk

Appendix B

Participant Consent Form

PARTICIPANT CONSENT FORM

Participant name or Study ID Number:

Title of Project: An examination into the relationship between level of hardiness and the usage of coping strategies.

Name of Researcher: Nathan Facey

_____

Participant to complete this section: **Please tick each box.**

1. I confirm that I have read and understand the information sheet for the study described above. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason ☐
3. I understand that if this happens, my relationship with Cardiff Metropolitan University, or my legal rights will not be affected. ☐
4. I understand that the information provided may be used, but you will not be identified ☐
5. I agree to participate in the study ☐

_____ _____

Signature of Participant Date

_____ _____

Signature of person taking consent Date

Appendix C

Modified COPE

The information you are about to provide will only be used for this research project and you will not be identified individually. Therefore, your confidentiality is assured.

First, please fill out the information below regarding yourself

Name: _____

Age (in years): ____

Current level of competition: _____

Highest level of competition: _____

Current Team: _____

Position: _____

Instructions: Following the statements shown, please select one option from each column. The first column will look at how much you used the coping strategy during stressful situations. The second column will then look at how effective the strategy used in the first column was in helping you handle the stressful situation. Then you may move onto the next statement.

0 - Used Not at all	0 - Extremely Ineffective
1 - Used a Little	1 - Ineffective
2 - Used Somewhat	2 - Neither Effective or Ineffective
3 - Used Much	3 - Effective
4 - Used Very Much	4 - Extremely Effective

Please select one option from each column.

		Used Not At All	Used a Little	Used Somewhat	Used Very Much	Extremely Much	Extremely Ineffective	Ineffective	Neither Effective or Ineffective	Effective	Extremely Effective
1.	I asked my team mates what they did or would do	0	1	2	3	4	0	1	2	3	4
2.	I talked to someone about how I felt	0	1	2	3	4	0	1	2	3	4
3.	I could not deal with my performance and stopped trying	0	1	2	3	4	0	1	2	3	4
4.	I blamed myself for the situation	0	1	2	3	4	0	1	2	3	4
5.	I made a plan of action	0	1	2	3	4	0	1	2	3	4
6.	I dealt only with my performance difficulties, even if I had forgot other things a little	0	1	2	3	4	0	1	2	3	4
7.	I felt a lot of upset feelings and I showed those feelings a lot	0	1	2	3	4	0	1	2	3	4
8.	I kidded around about my performance	0	1	2	3	4	0	1	2	3	4
9.	I tried to increase the quality of my performance	0	1	2	3	4	0	1	2	3	4
10.	I day dreamed about my performance	0	1	2	3	4	0	1	2	3	4
11.	I tried real hard to do something about my performance	0	1	2	3	4	0	1	2	3	4
12.	I acted as though I was not having performance difficulties	0	1	2	3	4	0	1	2	3	4
13.	I talked to my coaches or team mates to find out more about my performance	0	1	2	3	4	0	1	2	3	4
14.	I got support and understanding from someone	0	1	2	3	4	0	1	2	3	4
15.	I decreased the amount of time and effort I put into my performance	0	1	2	3	4	0	1	2	3	4
16.	I criticised or lectured myself	0	1	2	3	4	0	1	2	3	4
17.	I thought hard about what steps to take to manage this situation	0	1	2	3	4	0	1	2	3	4
18.	I didn’t let myself think about anything except my performance	0	1	2	3	4	0	1	2	3	4
19.	I got upset and let my feelings out	0	1	2	3	4	0	1	2	3	4
20.	I made fun of my performance	0	1	2	3	4	0	1	2	3	4
21.	I put more effort into my play	0	1	2	3	4	0	1	2	3	4
22.	I had fantasies or wishes about how things might turn out	0	1	2	3	4	0	1	2	3	4
23.	I did what had to be done, one step at a time	0	1	2	3	4	0	1	2	3	4
24.	I didn’t believe I was performing like I was	0	1	2	3	4	0	1	2	3	4
25.	I tried to get help from someone about what to do	0	1	2	3	4	0	1	2	3	4
26.	I talked about my feelings with someone	0	1	2	3	4	0	1	2	3	4
27.	I gave up trying to get what I want out of my performance	0	1	2	3	4	0	1	2	3	4
28.	I decided I was at fault for my performance	0	1	2	3	4	0	1	2	3	4

29. I thought about how I could best handle my performance	0	1	2	3	4	0	1	2	3	4
30. I stopped doing other things in order to concentrate on my performance	0	1	2	3	4	0	1	2	3	4
31. I lose my cool and got upset	0	1	2	3	4	0	1	2	3	4
32. I made jokes about my performance	0	1	2	3	4	0	1	2	3	4
33. I tried to improve my effort	0	1	2	3	4	0	1	2	3	4
34. I wished the situation would go away or somehow be over	0	1	2	3	4	0	1	2	3	4
35. I took direct action to overcome the performance challenge	0	1	2	3	4	0	1	2	3	4
36. I pretended it was not happening or hadn't really happened	0	1	2	3	4	0	1	2	3	4
37. I talked to someone who could do something about my performance	0	1	2	3	4	0	1	2	3	4
38. I tried to get help from my coach or team mates to deal with my feelings	0	1	2	3	4	0	1	2	3	4
39. I stopped trying to perform my best	0	1	2	3	4	0	1	2	3	4
40. I took responsibility for what had happened	0	1	2	3	4	0	1	2	3	4
41. I tried to think about a plan about what to do	0	1	2	3	4	0	1	2	3	4
42. I tried hard not to let other things get in my way of dealing with my performance	0	1	2	3	4	0	1	2	3	4
43. I let negative feelings out	0	1	2	3	4	0	1	2	3	4
44. I laughed about my performance	0	1	2	3	4	0	1	2	3	4
45. I worked harder	0	1	2	3	4	0	1	2	3	4
46. I wished I could change what was happening or had happened	0	1	2	3	4	0	1	2	3	4
47. I tried different things to improve	0	1	2	3	4	0	1	2	3	4
48. I told myself "this performance isn't real"	0	1	2	3	4	0	1	2	3	4

Appendix D

Dispositional Resilience Scale (DRS)

The information you are about to provide will only be used for this research project and you will not be identified individually. Therefore, your confidentiality is assured.

First, please fill out the information below regarding yourself

Name: _____

Age (in years): ____

Current level of competition: _____

Highest level of competition: _____

Current Team: _____

Position: _____

Dispositional Resilience Scale

Below are statements about life that people often feel differently about. Please select a number about how you feel about each statement. Read the statements carefully and select an answer on how much you think each one is true in general. Please give your honest opinion as there are no right or wrong answers.

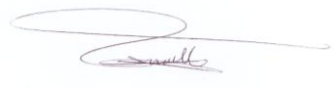
1 - Not at all True
2 - A Little True
3 - Quite True
4 - Completely True

	Not at all true	A little true	Quite true	Completely True
1. Most of my life gets spent doing things that are worthwhile	1	2	3	4
2. Planning ahead can help avoid most future problems	1	2	3	4
3. Trying hard does not pay, since things still didn't turn out right	1	2	3	4
4. No matter how hard I try, my efforts usually accomplish nothing	1	2	3	4
5. I don't like to make changes to my everyday schedule	1	2	3	4
6. The 'tried and true' ways are always the best	1	2	3	4
7. Working hard does not matter since only those in charge profit by it	1	2	3	4
8. By working hard you can always achieve your goals	1	2	3	4
9. Most athletes are simply manipulated by their coaches	1	2	3	4
10. Most of what happens in life is just meant to be	1	2	3	4
11. It's usually impossible for me to change things at training	1	2	3	4
12. New laws should never hurt a person's pay cheque	1	2	3	4
13. When I make plans, I'm certain i can make them work	1	2	3	4
14. It's very hard for me to change a friend's mind about something	1	2	3	4
15. It's exciting to learn something about myself	1	2	3	4
16. People who never change their mind usually have good judgement	1	2	3	4
17. I really look forward to training	1	2	3	4
18. Politicians / those in power run our lives	1	2	3	4
19. If I'm working on a difficult task I know when to seek help	1	2	3	4
20. I won't answer a question until I really understand it	1	2	3	4
21. I like a lot of variety in my training	1	2	3	4
22. Most of the time, people listen carefully to what I say	1	2	3	4
23. Day dreams are more exciting than reality for me	1	2	3	4
24. Thinking of yourself as a free person just leads to frustration	1	2	3	4
25. Trying your best at training really pays off in the end	1	2	3	4
26. My mistakes are usually very difficult to correct	1	2	3	4
27. It bothers me when my daily routine gets interrupted	1	2	3	4

28. It's best to handle most problems by just not thinking of them	1	2	3	4
29. Most good athletes and leaders are born, not made	1	2	3	4
30. I often wake up eager to take my life up wherever I left off	1	2	3	4
31. Lots of times, I really don't know my own mind	1	2	3	4
32. I respect rules because they guide me	1	2	3	4
33. I like it when things are uncertain or unpredictable	1	2	3	4
34. I can't do much to prevent it if someone wants to harm me	1	2	3	4
35. People who do their best should get full support from society	1	2	3	4
36. Changes in routines are interesting for me	1	2	3	4
37. People who believe in individuality are only kidding themselves	1	2	3	4
38. I have no use for theories that are not closely tied to facts	1	2	3	4
39. Most days, life is really interesting and exciting for me	1	2	3	4
40. I want to be sure someone will take care of me when I'm old	1	2	3	4
41. It's hard to imagine anyone getting excited about training	1	2	3	4
42. What happens to me tomorrow depends on what I do today	1	2	3	4
43. If someone gets angry at me, it's usually no fault of mine	1	2	3	4
44. It's hard to believe people who say their work helps society	1	2	3	4
45. Ordinary work is just too boring to be worth doing	1	2	3	4

APPENDIX E

Ethics Approval

DECLARATION: **I confirm that this project conforms with the Cardiff Met Research Governance Framework**	
Signature of the applicant: Nathan Facey	Date: 09/01/2015
FOR STUDENT PROJECTS ONLY	
Name of supervisor: Tjerk Moll	Date: 09/01/2015
Signature of supervisor: 	

Research Ethics Committee use only	
Decision reached:	Project approved x Project approved in principle ☐ Decision deferred ☐ Project not approved ☐ Project rejected ☐
Project reference number: 14/5/98U.	
Name: Tjerk Moll	Date: 20/01/2015
Signature: T. Moll	
Details of any conditions upon which approval is dependant: Click here to enter text.	