PREVALENCE OF PSYCHOLOGICAL TRAITS OF OVERTRAINING AMONGST ELITE MALE FIELD HOCKEY AND SOCCER PLAYERS IN TOP NATIONAL LEAGUES IN KENYA

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A RESEARCH THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DOCTOR OF PHILOSOPHY IN PHYSICAL EDUCATION IN THE SCHOOL OF PUBLIC HEALTH AND APPLIED HUMAN SCIENCES OF KENYATTA UNIVERSITY

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DECLARATION

I confirm that this research thesis is my original work and has not been presented for a degree in any other university. This thesis has been complemented by referenced sources duly acknowledged. Where text, data, graphics, pictures or tables have been borrowed from other works including the Internet, the sources are specifically acknowledged through referencing in accordance with anti-plagiarism regulations.

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To my dear wife Leah for being supportive throughout the period of this scholarship.

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LIST OF ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
BRUMS	Brunel Mood Scale
KPL	Kenya Premiere League
MANOVA	Multivariate Analysis of Variance
NACOSTI	National Commission for Science, Technology and Innovation
NFOR	Non-Functional Overreaching
OT	Overtraining
POMS	Profile of Mood States
PSIS	Psychometric Skills Inventory for Sport
SPSS	Statistical Package for Social Sciences
TMD	Total Mood Disturbance

OPERATIONAL DEFINITION OF TERMS

Anger – Negative mood characterized by feelings such as fury, bad tempered, rebellious and annoyance

Confusion – Negative mood characterized by feelings of confusion, inability to concentrate, bewilderment and uncertainty about things

Debilitative Effects - Negative feelings associated with increased negative mood states (anger, confusion, depression, fatigue and tension) resulting from increased training volume.

Depression – Negative mood characterized by feelings of discouragement, personal hopelessness, desperation, unhappiness and sorry for things done

Elite Player - Soccer players playing at premier level and also hockey players competing at both national and premier level in Kenya.

Facilitative Effects – Positive feelings associated with increased positive mood state (vigour) resulting from optimal training.

Fatigue – Negative mood typified by feelings of exhaustion, mental and physical tiredness

Mood States – Refers to psychological markers of anger, confusion, depression, fatigue, tension and vigour.

Non-Starter/Substitute- A player excluded in the first team for five consecutive competitive matches.

Overtraining –Maladapted response that athletes exhibit when they are exposed to excessive training without giving the body adequate time to recover leading to

psychological disturbance usually characterised by increase in anger, confusion, depression, fatigue, tension and reduced vigour.

Prevalence- Existence of psychological markers of overtraining

Profile of Mood States (POMS) – A tool that is designed to measure psychological markers associated with overtraining (anger, confusion, depression, fatigue, tension and vigour).

Psychological Traits of Overtraining –Mood states (psychological markers) that are used to diagnose overtraining in sport and exercise setting. These include mood states for anger, confusion, depression, fatigue, tension and vigour.

Starter-A player included in the first team for five consecutive competitive matches.

Tension – Negative mood characterized by feelings such as nervousness, anxiety, uneasiness and restlessness.

Top National Leagues- Hockey and soccer leagues composed of clubs that compete at the highest level of competition in Kenya. For soccer the league is at premier level while for hockey it is both at national and premier level.

Vigour – Positive mood characterized by feelings of alertness, energy and arousal.

ABSTRACT

The literature supports that overtraining is characterised by psychological disturbances. The purpose of this study was to assess the prevalence of psychological markers of overtraining amongst elite male hockey and soccer players in top national leagues in Kenya. The study was limited to selected mood states of anger, confusion, depression, fatigue, tension and vigour that are applicable when assessing the mood states of athletes in exercise settings. Association between mood states of elite male hockey and soccer players and demographic characteristics of type of sport, age category, playing experience, playing position and starting status were also examined. The study hypothesized that there is no significant difference in players' demographic characteristics of type of sport, age, level of experience, playing position and starting status on the mood states of anger, confusion, depression, fatigue, tension and vigour among elite male hockey and soccer players in the Kenyan top National leagues. The study provided information on markers of overtraining amongst elite male hockey and soccer players in Kenyan top National leagues. There is paucity of literature regarding overtraining in Kenya and thus a gap exists in establishing the prevalence of psychological markers of overtraining amongst elite male field hockey and soccer players in top national leagues. The target population for the study comprised elite male hockey and soccer players in top national leagues in Kenya. In both groups (hockey and soccer), a total of 324 participants (162 hockey players and 162 soccer players) were sampled through stratified random sampling at the beginning of the league (pre-test). A total of 232 participants (116 hockey players and 116 soccer players) were included in the study resulting into response rate of 71.6%. The research adopted quasi- experimental research design. The research adopted the standard version of the Profile of Mood State questionnaire (POMS). Data were coded and analyzed using Statistical Package for Social Sciences (SPSS version 22.0). T-test was used to determine whether there was any significant difference between the mood state profiles of hockey and soccer players and between starters and substitute players. One-Way ANOVA was used to test the data relating to age, playing experience and playing position and the subscales of overtraining at a significance level of $P \leq 0.05$. Results indicated that the two groups (elite male hockey and soccer players) differed significantly as far as mood state profiles were concerned. Also, the results indicated that in hockey, there was a significant difference in change in tension between players in 1-3 years' level of playing experience and those who were in the 7-9 years' level of experience. In addition, results revealed that there was a significant difference between defender and attacker positions with regards to change in fatigue in soccer. The results further showed that there were no significant differences in the mood state profiles among players in varying age groups, playing experience and starters and substitute players of hockey and soccer players. In conclusion, the study revealed that psychological markers of overtraining were prevalent among elite male hockey and soccer players unlike on the demographic characteristic of age, level of experience, playing position and starting status. The study therefore recommended that there is need for coaches and other stakeholders to assess their players' mood states during the season, examine players' mood states in different experience levels as well as investigate players' mood states in different playing positions. The study makes recommendations for policy, practice and further research.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

To achieve maximal sports performance, athletes must be optimally trained. Successful training should incorporate high training volumes and adequate recovery (Armstrong & VanHeest, 2002; Kreher & Schwartz, 2012). At any rate, many athletes have a tendency of incorporating high levels of physical training and limited recovery periods into their training programmes, a situation that predisposes them to overtraining. General consensus in research supports the notion that overtraining is characterised by psychological disturbances (Jeukendrup & Halson, 2004; Cockerill, 2015). Consequently, studies in exercise and sports psychology have focused on identifying the psychological markers associated with overtraining as possible indicators of overtraining (Visram, 2012; Zandi & Rad, 2013; Coker & Mickle, 2000).

A wide range of psychological variables associated with overtraining, have been extensively investigated as possible markers of overtraining (Hooper & Mackinnon, 1995). This study was limited to selected psychological markers that are used when measuring the prevailing mood states of athletes in an exercise setting. Specifically, the study assessed mood states of anger, confusion, depression, fatigue, tension and vigour. Research in sports and exercise psychology has demonstrated that the aforementioned mood states are useful in detecting mood fluctuations in exercise and sport settings (Visram, 2012; Zandi & Rad, 2013). As noted by Morgan (1985), the use of selected psychological states is clearly effective in predicting behaviour in sport settings. Furthermore, research has documented strong associations between the above psychological markers as assessed by Profile of Mood States (POMS) and

overtraining (Meeusen, Duclos, Gleeson, Rietjeus, Steinacker & Urhausen, 2006; Kreher & Schwartz, 2012). These mood states (anger, confusion, depression, fatigue, tension and vigour) adopted by the present study have been used to identify over-trained athletes (Tobar, 2005).

An athlete's anger is considerably altered by overtraining (Budgett, 1998; Beardsley, 2013). Both Beardsley (2013) and Nicoll (2014) observed that over-trained athletes have higher ratings of anger which tend to increase in relation to training load. According to Greenwood (2008), anger provides vital insight into the onset of overtraining.

The association between confusion subscale as measured by POMS and overtraining has been reported in various studies (Johnson, 1994; Budgett, 1998; Nicoll, 2014; Bali, 2015). Whereas over-trained athletes experience higher ratings of confusion (Johnson, 1994; Budgett, 1998), moderate training load is associated with reduction in confusion (Malekshahi, Abdoli, Asefirad & Muhammadi, 2011). Hence, presence of confusion among athletes as measured by POMS shows evidence of overtraining.

Research by Budgett (1998) and Armstrong and VanHeest (2002) have shown a strong association between mood subscale of depression as assessed by POMS (MacNair, Droppleman & Lorr, 1971) and overtraining. Indeed, over-trained athletes recordings of higher ratings in depressed mood (Budgett, 1998; Nicoll, 2014) provide valuable insight regarding the onset of overtraining (Greenwood, 2008).

Fatigue manifests itself as a psychological negative mood typified by feelings of mental tiredness and a reduction of self-efficacy perceptions (Lane & Slade, 2000). Researches by Budget (1998) and Nicoll (2014) have shown that when an athlete is

over-trained, fatigue is elevated. According to Greenwood (2008), fatigue is considered one of the most sensitive psychological markers of overtraining amongst all the mood states that researchers have investigated. As observed by Cunha, Ribeiro and Oliveira (2006), fatigue is considered a warning sign of the body in response to excessive training.

Overtraining is associated with higher levels of tension (Jonson, 1994; Budgett, 1998) hence, it is a psychological trait of overtraining. There is considerable research evidence showing that as training volume level increases, the athlete's tension tends to increase as well (Budgett, 1998; Nicoll, 2014). This, perhaps, explains why tension has been recognised as a useful tool in identifying athletes who are over-trained.

Vigour manifests itself as a psychological positive mood state typified by feelings of energy, arousal and alertness (Lane & Terry, 2000). According to Thatcher, Jones and Lavalee (2011), success in sports performance is associated with elevated levels of vigour. However, vigour is significantly affected by overtraining (Fry, Groove, Morton, Zeroni, Gaudieri & Keast, 1994), leading an over-trained athlete to have reduced vigour (Budgett, 1998). According to Greenwood (2008) from among the entire mood states investigated, vigour was identified as the most sensitive psychological marker for overtraining.

The incidence of overtraining in sports varies according to the sport under investigation (Raglin & Wilson, 2000). According to Bita, Sarina and Morteza (2013), the task specific nature of sport may influence mood states of athletes. However, regardless of the type of sport, there is general agreement that overtraining is associated with mood disturbances (Tobar, 2009; Visram, 2012; Beardsley, 2013).

Perhaps this explains why changes in mood states have been investigated as possible markers of overtraining among athletes in different sports (Meeusen et al., (2006).

Age has an influence on mood responses among athletes. Age differences in mood responses are self-evident and show that both young and old athletes exhibit similar mood disturbances as a result of overtraining. In a study by Tobar (2009) older athletes reported mood disturbances as well as young athletes, Kentta, Hassmen and Raglin (2001) reported that young athletes exhibited mood disturbances as a result of overtraining. Matos and Winsley (2007) confirm that both young and older athletes exhibit similar mood disturbances as a result of overtraining.

The level of experience has a significant influence on mood states. Research has demonstrated that scores on the mood states as assessed by POMS can be used to discriminate among athletes of different experience levels (Martin, Andersen & Gates, 2000; Grobbelaar, Malan, Steyn & Ellis, 2010; Yoshihara, Hiramoto, Sudo & Kubo, 2011). According to Yoshihara, Hiramoto, Sudo and Kubo (2011), the difference can be attributed to experienced participants having a better mental state which is indicated by lower scores for mental disturbance than their non-experienced counterparts.

Across types of sports, there exists sufficient evidence to suggest that there is a relationship between athletes playing position and various psychological variables. Grobbelaar et al., (2010) as well as Nel (2012) established that in rugby, playing position is a key characteristic with regard to mood states since a significant difference in the scores between the forwards and backline players was observed. Utilizing psychological Skills Inventory for Sports (PSIS), Saravanakumar and

Arjunan (2015) showed that the four positional groups (goalkeeper, defender, midfielder, and attacker) of female soccer players differed in anxiety control, team emphasis, motivation, mental preparation, confidence and concentration. According to Sunkata and Sarkar (2016), the differences found in studied psychological variables with regard to the playing position are as a result of the specific demands of each playing position.

The players starting status has a significant influence on mood states. Studies by Grobbelaar et al., (2010) and Coker and Mickle (2000) investigated mood states of starters and non-starters. The studies established that the starting status may have an influence on mood state responses among athletes. According to Bernadette (2007); Coker and Mickle (2000), bench players do not share similar psychological profile as their counterparts who start a game in a competition.

From the foregoing, it is evident that psychological markers associated with overtraining have been extensively studied by exercise and sports psychologists and form the basis for this study. This study investigated the prevalence of psychological markers of overtraining in relation to the players' demographic factors of type of sport (soccer and hockey), age categories, level of experience , playing position and players starting status (first team or substitutes). Understanding psychological markers of overtraining and their relationship to varying demographic factors is important in analyzing the association between players' demographic characteristics on mood states.

Research findings in soccer from other parts of the world have shown the prevalence of psychological markers associated with overtraining (Chtourou, Hammouda,

Souissi, Chamari, Chaouachi & Souissi, 2011; Hassmen & Blomstrand, 1995), and similar findings have also been documented among hockey players (Ismail, Jani & Amer, 2017; Visram, 2012). However, the paucity of recorded empirical evidence in this area in Kenya demands the establishment of the prevalence of psychological markers of overtraining on elite male hockey and soccer players so that coaches would be able to identify over-trained athletes or those showing tendencies towards it. There is gap in knowledge on possible ways of helping identification of athletes who may be over-trained. Hence, a greater need to establish the existence of psychological markers associated with overtraining after which there will be monitoring of athletes by coaches during training thereby offering a potential method for preventing overtraining.

1.2 Statement of the Problem

Overtraining can easily lead to inability of the body to replenish itself before the next bout of exercise, and the result can be catastrophic, both physically and psychologically (Kremer, Moran, Walker & Craig, 2012). Overtraining is also characterized by serious long-term consequences, psychological disturbances, reduction in the psychological wellbeing of an athlete, serious deterioration in performance and it would probably take the athlete months or years to recover completely from the debilitating effects (Baechle & Earle, 2000; Tobar, 2005). Unfortunately, despite the dramatic negative effects of overtraining, there is paucity in literature regarding overtraining in Kenya.

It is possible that without a proper understanding of this condition, coaches might fail to provide effective professional services and interventions that sustain sport participation, improve performance and enhance optimal training. Therefore,

understanding the psychological markers associated with overtraining in Kenya would be a matter of policy and practical importance. Gathering knowledge about these mood states, identified as markers of overtraining could inform the development of strategies by senior management for reforming soccer and hockey training in the country in ways that assure avoidance of overtraining.

Field hockey and soccer players in Kenya operate under programmes that could provide ideal grounds for overtraining. For example, soccer premier league has a total of eighteen teams which operates under the home and away programme which translates to each team playing 34 matches; 17 matches in the first leg and 17 matches in the second (Appendix I). Similarly, the hockey premier league has a total of fifteen teams playing under the same home and away system. Thus, each team plays a total of 28 matches; 14 matches in the first leg and 14 in the second (Appendix H). Furthermore, many matches are accompanied by heavy and prolonged training, a situation that may bring about overtraining (Wughalter & Gondola, 1991; Mackinnon, 2000; Lovell, Townrow & Thattcher, 2010). In addition, with pressure to register successful performances and avoid relegation, shorter breaks between competitions, and with longer playing periods, there is every possibility of overtraining exposing the players to risk of developing psychological problems. The situation is compounded by the possibility that the same players engage in national, regional, continental, Olympics and world events. Despite the situation not being unique to Kenya, there is a dire need for establishing the prevalence of psychological markers of overtraining amongst elite male field hockey and soccer players in top national leagues in order to help in identification of athletes who may be over-trained.

1.3 The Purpose of the Study

The purpose of this study was to assess the prevalence of psychological markers of overtraining amongst elite male hockey and soccer players in top national leagues in Kenya. The specific psychological markers of overtraining that were assessed included mood state of anger, confusion, depression, fatigue, tension and vigour.

1.4 Objectives of the Study

The main objective of this study was to determine the prevalence of psychological markers of overtraining amongst elite male hockey and soccer players in top national leagues in Kenya. The specific objectives were as follows:

i. To determine the prevalence of mood states among elite male hockey and soccer players in top national leagues in Kenya.
ii. To establish the prevalence of mood states in relation to age categories of elite male hockey and soccer players in top national leagues in Kenya.
iii. To find out the prevalence of mood states on the basis of playing experience of elite male hockey and soccer players in top national leagues in Kenya.
iv. To examine the prevalence of mood states of elite male hockey and soccer players in top national leagues in Kenya in relation to their playing position.
v. To investigate the occurrence of mood states in first team and substitute players among elite male hockey and soccer players in top national leagues in Kenya.

1.5 Research Questions

The study was guided by the following research questions:

i. Are there significant differences in mean mood states between Kenyan elite male field hockey and soccer players?

ii. Are there significant differences in mean mood states among Kenyan elite male hockey and soccer players due to age?

iii. Are there significant differences in mean mood states among Kenyan elite male field hockey and soccer players due to playing experience?

iv. Are there significant differences in mean mood states among Kenyan elite male field hockey and soccer players due to playing position?

v. Are there significant differences in mean mood states among Kenyan elite male field hockey and soccer players due to starting status?

1.6 Research Hypotheses

The following hypotheses were tested in the study.

Ho_1 There is no significant difference in the mood state profiles between elite male hockey and soccer players in Kenyan top national leagues.

Ho_2 There is no significant difference in the mood state profiles among the age groups of elite male hockey and soccer players in Kenyan top national leagues.

Ho_3 There is no significant difference in the mood state profiles among the playing experience levels of elite male hockey and soccer players in Kenyan top national leagues.

Ho_4 There is no significant difference in the mood state profiles among player positions of elite male hockey and soccer players in Kenyan top national leagues.

Ho_5 There is no significant difference in the mood state profiles between starters and substitute players of the elite male hockey and soccer players in Kenyan top national leagues.

1.7 Significance of the Study and Anticipated Output

Studies have investigated mood states associated with overtraining as possible markers of overtraining. In view of limited research in this area in Kenya, the study could alert players and significant others on the prevalence of psychological markers of overtraining in hockey and soccer. The findings could also increase players' self-awareness about the psychological signs and symptoms of overtraining thereby help them avoid or prevent tendencies towards overtraining. It could also alert players and coaches in all sports into assessing the prevalence in their respective sports. Researchers studying the relationship between mood states and overtraining in other sports may also benefit from the study findings as reference material. The study may also broaden the scope of knowledge in the areas of sports psychology.

1.8 Delimitations of the Study

The proposed study was delimited to the following:

i. Assessment of the prevalence of mood states that are used to identify overtrained athletes (anger confusion, depression, fatigue, tension and vigour) among elite male hockey and soccer players in Kenya's top national leagues.
ii. Demographic information that included the type of sport, age category, athletes' levels of experience, playing position and players' game play or starting status.

1.9 Limitations of the Study

Overtraining is not a function of psychological manifestation only since there are physiological, biomechanical and social factors that may affect mood states. Although there is no single universally agreed diagnostic index of overtraining, the influence of other factors was beyond the scope of this study. Profile of Mood states as a tool is

limited as a measure of overtraining since self-reported measures have limitations due to memory lapses and socially desirable responses. However, the researcher had impressed on the confidentiality and anonymity of the information that the athletes gave in order to discourage biasness and errors in self-rating among the respondents.

1.10 Assumptions of the Study

The study was guided by the assumption that the prevalence of mood states among the players was as result of overtraining and could be manifested through assessment of psychological aspects using POMS.

1.11 Conceptual Framework

This study was based on the mood states associated with overtraining proposed by Morgan (1985). The premise of this model is that mood states of anger, confusion, depression, fatigue, tension and vigour are considerably altered when an athlete is over-trained (Hollander et al, 1995; Raglin, 2001; Lox, Cathleen, Ginis & Petruzzello, 2006). The model suggests that optimal training is associated with increased vigour, coupled with reduced anger, confusion, depression, tension and fatigue. The basis of this model is that when an athlete is over-trained, there is an increase in the level of the negative mood states of anger, confusion, depression, fatigue, and tension, while the positive mood state of vigour, is reduced (Lox et al., 2006). The model suggests that mood states change in relation to increases in training load. That is, as training volume increases, the Profile of Mood States changes with vigour scores decreasing and the negative mood sub-scales increasing (Halson & Jeukendrup, 2004; Meeusen et al., 2006; Lox et al., 2006; Kentta, Hassmen, Raglin, 2006; Nagle, 2011; Thatcher et al., 2011; Beardsley, 2013).

It is implicit in the model that increase in the levels of the five negative mood states of anger, confusion, depression, fatigue and tension as a result of overtraining have debilitative effects on a player, while vigour, which is a positive mood marker, has reduced facilitative effects. The model further proposes that under optimal training, anger, confusion, depression, fatigue and tension have debilitative effects, while vigour whose level is increased has facilitative effects.

The model is limited to psychological markers associated with predicting behaviour in a sport setting: anger, confusion, depression, fatigue, tension and vigour. Therefore, this model aims at assessing the prevalence of psychological traits of overtraining amongst elite male hockey and soccer players in top leagues in Kenya. The conceptual framework (Figure 1) illustrates the association of mood states and overtraining in this study.

Conceptual Framework

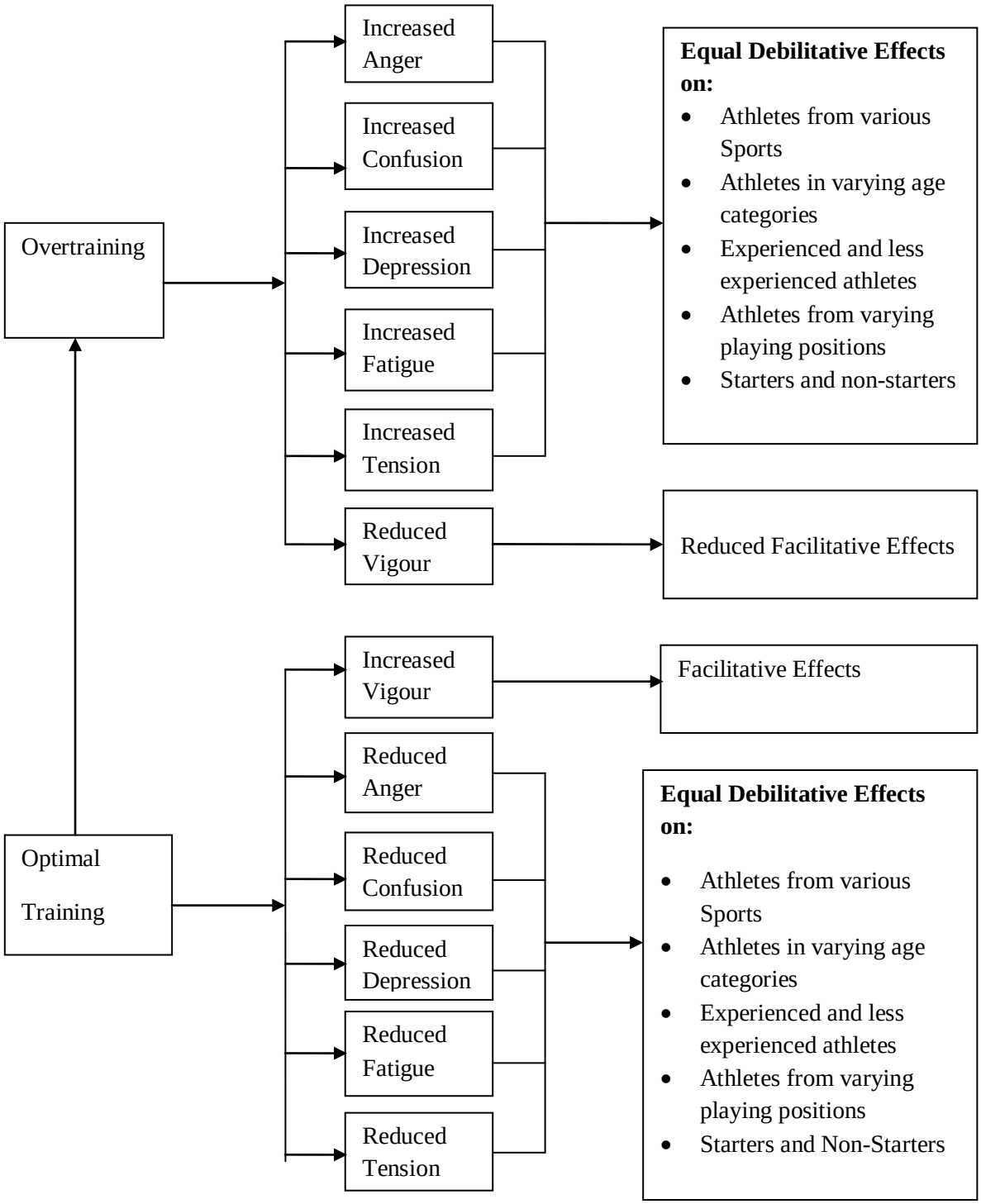

Figure 1.1: Modified Conceptual Model of Mood States and Overtraining *(Adapted from Lane & Terry, 2000. Journal of Applied Sport Psychology. 12(1): 26)*

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section provides a brief overview of the concept of overtraining and related issues in sports. These include: definition of overtraining, signs and symptoms of overtraining, prevalence of overtraining, monitoring and prevention of overtraining, psychological markers of overtraining, psychological measurement of overtraining, models to study overtraining, research on psychological markers of overtraining, mood responses to overtraining in relation to players' demographic variables and related studies.

2.2 An Understanding of Overtraining in Sports

There is lack of consensus regarding the definition of overtraining (Hooper & Mackinnon, 1995; Halson, 2003; Williams, 2010; Visram, 2012); and standardised definition has not been established in existing research on overtraining (Williams, 2010). MacKinnon (2000) defines overtraining as a process of excessive training in high performance athletes that may lead to overtraining syndrome. Williams (2010) defines overtraining as a syndrome that results when excessive, usually physical, overload on an athlete occurs without adequate rest. Bull (1991) defines overtraining as involvement in an activity which is excessive relative to the individual's ability to adapt to, and to recover from the demands. Many alternative terms have also been suggested and used inconsistently for overtraining including overtraining syndrome, overreaching, overload training, burnout, chronic overwork, unexplained under performance, staleness and over fatigue (Budgett, 1998; Baechle & Earle, 2000; Halson, 2003; Williams, 2010; Nick & Titley, 2015). The lack of standardised

definition and use of common terminology has contributed to the confusion in the literature which complicates comparisons of results across studies (Halson, 2003; Nagle, 2011). Basing on the suggested definitions (Bull, 1991; MacKinnon, 2000; Williams, 2010), this study will define overtraining as a maladapted response that athletes exhibit when they are exposed to training without giving the body adequate time to recover.

2.3 Signs and Symptoms of Overtraining

The signs and symptoms of overtraining have been documented depending on whether they are based on physiological, psychological, biomechanical or immune variables (Mackinnon, 2000; Budgett, 1998). Hence, no single sign or symptom can be used to identify the disorder. The lack of clear identification regarding signs and symptoms of overtraining is further compounded by the fact that the signs and symptoms vary from one individual to another (Weinberg & Gould, 1995; MacKinnon, 2000; Visram, 2012), necessitating greater awareness of the wide scope of the parametres (Fry, Morton & Keast, 1991). Some common signs and symptoms consistently documented to be reliable and valid indicators include mood disturbances, performance decrements, hormonal disturbances, increased rate of developing infections, increased susceptibility to injuries, higher ratings of fatigue, decreased maximal heart rate, changes in blood lactate variables and compromised concentration (Weinberg & Gould, 1995; Budgett, 1998; MacKinnon, 2000; Meeusen et al., 2006; Visram, 2012; Nicoll, 2014). However, the current study investigated mood disturbances among elite male field hockey and soccer players in top national leagues in Kenya.

2.4 Prevalence of Overtraining

The prevalence of overtraining is hard to approximate because it varies between individuals (Weinberg & Gould, 1995; Budgett, 1998; MacKinnon, 2000), kind of sport (Alves, Costa & Samulski, 2006), duration and intensity of overtraining (MacKinnon, 2000), athlete level of participation (Hooper & MacKinnon, 1995; Budgett et al., 2000; Alves et al., 2006) and age of the athlete (Matos, Winsley & Williams, 2011). According to MacKinnon (2000), the exact incidence of overtraining is also hard to approximate because this will involve surveying large groups of athletes from various sports over a period of time, and those in charge of athletes are also unwilling to identify over-trained athletes. It has been estimated that between 7% and 20% of athletes across all sports during their training career may exhibit signs and symptoms of overtraining (MacKinnon, 2000; Visram, 2012). It has been reported that the prevalence rate of overtraining of elite male and female runners is 64% and 66% respectively (Hollander, Meyers, LeUnes, 1995).

It has also been reported that overtraining affects 10-20% of elite endurance trained athletes (Budgett et al., 2000; Halson, 2012). In addition, the prevalence rate of soccer players competing at higher levels is 50% (Lehmann, Schnee, Scheu, Stockhausen & Bach, 1992; Naessens, Chandler, Kibler & Driessens, 2000). Moreover, the prevalence rate of overtraining among field hockey players has also been documented (Visram, 2012: Ismail, Jani & Amer, 2017). However, there is paucity of documentation on the prevalence rate of overtraining of elite male field hockey and soccer players in top national leagues in Kenya. Therefore, the current study sought to investigate overtraining among elite hockey and soccer players in top male leagues in Kenya.

2.5 Monitoring and Prevention of Overtraining

Given that overtraining has serious long-term consequences and the athlete may take weeks, months or years to recover (Meeusen et al., 2006; Kremer, Moran, Walker & Craig, 2012), monitoring of athletes during training offers a potential method for preventing the progress of the condition (Budgett, 1998). According to Tobar (2005), psychological disturbance has been a reliable response to overtraining. Hence, mood states have been monitored as possible markers of overtraining. As observed by Visram (2012), helping athletes to avoid reaching the state of being over-trained is important because it prevents athletes from disrupting their training schedules, competition programmes and psychological wellbeing.

The major cause of overtraining is failure to observe the balance between training and recovery. Therefore, it is important that athletes include rest sessions in their daily training programmes. The most effective treatment recommended is for an athlete to take complete rest from training (Budgett, 1990; Baechle, 2000; Cunha et al., 2006; Meeusen et al., 2006; Visram, 2012). According to Budgett (1990) an improvement in performance has been observed after three to five weeks of rest. The other alternative suggested is to have carefully planned training programmes that includes an evaluation of the emotional and psychological state of the athlete through the use of psychological questionnaires (Meeusen et al., 2006; Alves et al., 2006). In several studies in which participants were identified as over-trained, clear signs of psychological disturbances were observed through the use of various psychometrical questionnaires (Terry & Slade, 1995; Coker & Mickle, 2000; Yoshihara et al., 2011). Meeusen et al., (2006) argue that while there is no single marker that can be used as an indicator of overtraining, the regular monitoring of psychological variables seem to

be the best strategy to identify over-trained athletes. This study therefore, sought to examine the psychological markers of overtraining among elite male field hockey and soccer players in order to identify athletes who may be over-trained.

2.6 Psychological Markers of Overtraining

Strong association between overtraining and mood disturbances has been documented (Meeusen et al., 2006; Halson, 2003; Beardsley, 2013), and thus psychological variables associated with overtraining have been investigated as possible markers of overtraining (Hooper & MacKinnon, 1995). Furthermore, given that physiological measures of monitoring overtraining have not proved efficient and have demonstrated unclear relationships (Kentta & Hassmen, 1998;Visram, 2012), there is general consensus in the research that psychological markers are more consistent and reliable indicators of overtraining (Kentta & Hassmen, 1998; McKenzie, 1999; Halson, 2003; Alves et al., 2006; Visram, 2012). According to Mackenzie (2001), the first noticeable change in athletes who become over-trained are the psychological markers. As noted by Kentta and Hassmen (1998), psychological markers of anger, confusion, depression, fatigue, tension and vigour are more consistent and reliable in revealing early warning signs of overtraining than the numerous physiological or immunological markers.

The reason why mood states associated with overtraining have been used as markers of overtraining is perhaps due to their ability to change in relation to the training load (Hollander et al., 1995; Alves et al., 2006; Raglin, 2001). That is, as overtraining progresses to a greater level, the deterioration of positive mood (vigour) and the increase of negative moods (anger, confusion, depression, fatigue and tension) are clearly shown by the Profile of Mood States (POMS). Thus, the mood state responses

of athletes exhibit a dose-response relationship with the training volume in all subscales of the POMS (Hollander et al, 1995; Raglin, 2001). This characteristic of mood states to change in relation to the training volume has made it possible to successfully identify over-trained athletes (Alves et al., 2006; Raglin, 2006). The current study therefore, sought to determine the changes of mood states between the beginning of the league (low training volume), and peak of the league (high training volume). The comparison of the athletes' mood changes between these two periods will help establish whether psychological markers of overtraining are prevalent among elite male hockey and soccer in top national leagues in Kenya. According to MacKinnon (2000), the advantage of this model where psychological responses are compared between periods of high and low intensity is that athletes are studied in their natural environment without manipulating their normal training regimen.

2.7 Psychological Measurement of Overtraining

Several instruments have been used to measure psychological markers of overtraining in physical activities and key among these include Brunel Mood Scale (Terry & Lane, 2010) which has 24 items classified under six subscales of anger, confusion, depression, fatigue, tension and vigour; The Subjective Exercise Experiences Scale (Rudolph & Kim, 1996) and Questionnaire of Stress and Recovery for the Athlete (Alves et al., 2006). This study used the Profile of Mood States (POMS) developed by McNair, Lorr, and Droppleman (1971, 1981, and 1992). The Profile of Mood States (POMS) contains a total of 65 adjectives and statements that yield measures of anger, confusion, depression, fatigue, tension, vigour, as well as a global measure of mood. Research that has assessed athletes' mood states during periods of overtraining has commonly used the POMS questionnaire (Leunes & Burger, 2000). As noted by

Kellman (2010), POMS is useful in assessing mood sub-scales which are responsive to diverse characteristics of exercise settings. Furthermore, POMS has been confirmed to be the most widely used instrument for the assessment of mood fluctuations within the sport and exercise context. Therefore, the Profile of Mood States (POMS) was utilized based on its ability to assess key psychological markers (anger, confusion, depression, fatigue, tension and vigour), that are used to show over-trained athletes.

The POMS consists of three versions. The first, POMS standard version has 65 items and provides the most detailed information with scores for all scales. The second POMS brief version is shorter than the original POMS standard and measures the same scales but with fewer items. Thus, it is only ideal for situations where there is limited time and more detailed information is not necessary. The third POMS is a bipolar version that measures moods and feelings primarily in clinical rather than non-clinical settings; and is thus used to compare mood profiles associated with various personality disorders (Leunes & Burger, 2000). The current study adopted POMS standard version as it provides the most detailed scoring procedure, information and application, making it the best qualified.

2.8 Models to Study Overtraining in Athletes

Research studies have used two general models to study responses to overtraining in athletes. In one model, physical training is intentionally increased for up to a maximum of 4 weeks. The four weeks have been set for ethical reasons since this is the maximum time athletes can withstand intensification of already high training loads (MacKinnon, 2000). Four weeks have been considered too short time to induce overtraining and hence this model may only be used to study over-reaching in athletes (MacKinnon, 2000). Data either on psychological or physiological variables is

compared from before and after the intensified training, or alternatively between athletes exhibiting signs of over-reaching and those without the symptoms. This model has the advantage being able to control for possible confounding variables. However, this model has a disadvantage in that it cannot be used to study responses of overtraining in athletes.

In the second model, athletes are assessed at various periods during a competitive season that usually lasts between 3 and 8 months. Psychological and physiological responses are compared for each participant between periods of low and high intensity, or between athletes who show symptoms of overtraining and those without the symptoms. The main advantage associated with this model is that athletes are studied in their natural environment without manipulating the normal training programme (Mackinnon, 2000). Hence, the current study adopted this model of determining over- training by collecting data in the beginning and during the mid-season for both, hockey and soccer players. The model was also found appropriate since the time between pre-test and mid-test was considered sufficient to induce overtraining. According to Mackinnon (2000), this model has a limitation in that it is not possible to control for possible confounding variables such as seasonal variability or competition stress.

2.9 Research on Psychological Markers Associated with Overtraining

The study of psychological markers of overtraining has been a key area of interest to sports and exercise psychologists since 1970s and1980s. The origin of these studies comes from the research work of William P. Morgan who monitored mood states of competitive swimmers over 10 years from period 1975- 1986. Prior to Morgan's work, much of investigation on overtraining focused specifically on physiological

variables (Tobar, 2005). Morgan's systematic work provided evidence of a dose-response relationship between the training load and psychological variables (mood states), and that psychological monitoring of athletes during training may be useful in preventing overtraining (Tobar, 2005). The influence of Morgan's research has been profound and is evident in other studies which investigate the relationship between psychological markers (mood states) and overtraining.

Studies investigating psychological markers of overtraining have utilized diverse demographic information of participants (Coker & Mickle, 2000; Globbelaar et al., 2010; Yoshihara et al., 2011; Kentta, Hassmen & Raglin, 2006; Najah & Rejeb, 2015). These vary from type of sport, age, gender, experience, playing position, starting status and performance among others. On the other hand, dependent variables have been psychological markers of overtraining that constitute mood disturbances in six mood levels of anger, confusion, depression, fatigue, tension and vigour. These studies have utilized different psychometric instruments that measure the mood states of athletes in sports and exercise settings. In most of these studies, the underlying factor has been to establish the relationship between overtraining and the athletes' emotional situations. Significant disturbances in mood have been shown in over-trained athletes in the aforementioned studies. This study sought to establish the relationship between demographic characteristics of type of sport, age, experience, playing position, starting status and psychological markers of overtraining (anger, confusion, depression, fatigue, tension and vigour) amongst elite male field hockey and soccer players in top national leagues in Kenya.

2.10 Overtraining in Relation to Players Demographic Characteristics

The general consensus in literature is that the type of sport can have an influence on the mood states of athletes. Strong connection between altered mood states for tension, confusion, depression, anger, fatigue and vigour and overtraining among athletes from different sports have been documented in the literature (Lowther & Lane, 2002; Tracy & Suzanne, 2004; Visram, 2012; Bita et al., 2013). Psychological disturbance has been found to be consistent response to overtraining (Baechle & Earle, 2000; Tobar, 2009; Winsley & Matos, 2007), and this is prevalent among athletes from different sports. At any rate, disparities on mood disturbances of athletes from different sports have been found (Rudolph & Kim, 1996; Bita et al., 2013). In addition, differences in sub-scales of mood of athletes from different sports have also been documented (Bita et al., 2013). According to Bita et al., (2013), the differences in sub-scales of mood across athletes from different groups can be attributed to the task specific nature of the sport being investigated. Therefore, this study assessed the prevalence of psychological markers of overtraining amongst elite male field hockey and soccer players in top national leagues in Kenya. This could help determine the significance difference between the mood state profiles among the two groups.

Differences concerning the relationship between age categories and various psychological variables have been investigated in various sports (Boldizsa'r, Soo's, Whyte & Hamar, 2016; Annesi, 2004; Costa, Hausenblas, Oliva, Cuzzocrea & Larcan 2013). There is general consensus in literature that overtraining is prevalent in athletes from various age categories. There is lack of consensus on the available literature on whether age has an influence on players' mood states. According to Armstrong and McManus (2011), mood disturbances in over-trained adult athletes are similar to those

observed in young athletes. This viewpoint is supported by Matos, Winsley and Williams' (2011) assertion that young athletes report similar mood disturbances as those observed by over-trained older athletes. In contrast, Annesi (2014) states that there is no relationship between age and mood states of athletes. The demographic variable of age categories (under 18 years, 19-24 years, 25-29 years, and 30 years and above) has not been addressed in the area of field hockey and soccer.

Studies investigating the relationship between athletes' level of experience and years of participation and mood disturbances across different sports have not been conclusive. Some studies have suggested that more experienced athletes' exhibit better mood profiles than less experienced ones (Kane, 2008; Globbelaar et al., 2010; Yoshihara et al., 2011). This has been attributed to experienced athletes having a better mental state and lower stress-related biomechanical indices compared to less experienced participants (Yoshihara et al., 2011). According to Yoshihara et al., (2011) more experienced athletes tend to have a lower score on total mood disturbance and some mood sub-scales and higher vigour score than the less experienced but the two groups do not exhibit any significant difference particularly in the POMS scores for depression and confusion. Further, Yoshihara et al., (2011) posit that the difference can be attributed to experienced participants having a better mental state which is indicated by lower scores for mental disturbance than their non-experienced counterparts. In view of this contradicting information, the demographic variable of playing experience (1-3 years, 4-6 years, 7-9 years and over 9 years' experience) among elite male hockey and soccer players has not been investigated adequately.

Differences regarding the relationship between various psychological variables and playing positions of soccer, rugby, netball, American football, volleyball, tennis and field hockey players in different playing positions have been reported. These differences are attributed to the specific demands of each playing position (Asamoah & Globbelaar, 2016; Sukanta & Sarkar, 2016). According to Cox and Yoo (1995) and Sukanta & Sarkar (2016), the differences established in studied variables with regard to playing position are related to players' needs regarding the action they perform. The contention of this study is that there is paucity of information on this topic in field hockey and soccer in Kenya. Therefore, this study examined possible positional differences (goalkeepers, defenders, midfielders or forwards) in relation to mood states among elite male field hockey and soccer players.

The psychological difference between starters and non-starters of soccer, basketball, women's softball and rugby players has been investigated in various studies. The difference between the two groups on psychological characteristics can be attributed to the fact that non-starters may not share similar psychological profile as their peers who start a game in a competition (Coker & Mickle, 2000). The difference has also been attributed to the fact that non-starters unlike starters are vulnerable to organisational stressors prior to involvement in the activity (for instance not being active) and abrupt competitive stressors once substituted (Bernadette & Thatcher, 2009). However, there is no consensus in the available studies on psychological differences between starters and non-starters. For example, some studies have established a difference between the two groups (Newland, Newton, Finch, Harbke & Podlog, 2013; Beck, 2012) while others have reported no difference (Globbelaaar et al., 2010; Coker & Mickle, 2000). The differences for such discrepancies can be

attributed to the fact that studies investigating the psychological characteristics of starters and non-starters have investigated different psychological variables (such as mental toughness, mood states, competitive state anxiety, and self-presentation concerns among others) which complicates comparison of results across studies. The mood states of elite male hockey and soccer players have not been considered in Kenya. It is in light of this that the current study aimed at fulfilling this gap.

2.11 Related Studies on Mood States and Players Demographic Characteristics

This section reviews related studies on mood states in relation to the demographic characteristic of type of sport, age, level of experience, playing position and the starting status.

2.11.1 Mood States and Type of Sport

Research across different types of sports has shown distinct mood states for participants. A study by Moghadam, Touba, Moghadam and Bakhshalipour (2016) investigated mood states in male and female high school chess players. In this study, the sample comprised 102 chess players (female = 61, male = 41). Results of the study showed that there was a significant difference between female and male high school chess players in anger, confusion, depression, fatigue and tension sub-scales. The results of this study further showed that there was no significant difference between male and high school players in happiness, relaxation and vigour sub-scales.

A study by Martin, Andersen and Gates (2000) used POMS to investigate stress in cycling athletes. Results of the study indicated that neither the Total Mood Disturbance (TMD) nor the specific mood states was significant in cycling athletes following six weeks of high intensity training. Schultes (1995) revealed that there

were no significant mood state changes of female volleyball players. Kentta et al., (2006) found a correlation between mood states and overtraining in elite kayakers. Malekshahi, Abdoli, Asefirad and Mohammadi (2011) compared the effects of high and moderate intensities of aerobic training on non-athlete's girls' mood states. Their study revealed that after a moderate aerobic session, there were reductions in confusion, depression and vigour, while anger and fatigue were elevated. The study further indicated that there was an increase in anger and fatigue, and a reduction in vigour following a session of high intensity exercise.

Yoshihara et al., (2011) revealed that there was a significant difference on mood state profiles between experienced yoga practitioners and non-experienced ones. Winning tennis players were found by Tracey and Suzanne (2004) to have lower mood state scores than losing players, while male and female competitors in gymnastics (Boldizsa'r, et al., (2016) were found to differ significantly in as far as mood state of anger is concerned. A study on mood states of hockey and soccer players would be necessary for comparison across different sports.

With regard to hockey, the Ismail et al., (2016) study investigated mood differences between winning and losing hockey teams. Results of the study revealed that there was a significant difference in anger, confusion, depression, fatigue, tension and TMD between the winning and losing team. The study concluded that mood state differs in hockey between losing and winning teams. A study by Mushtaq and Vallimurugan (2014) revealed that the mood state of confusion, depression, and vigour in the hockey players were also significant following mental imagery training. The studies did not address the demographic characteristics of age categories, playing experience, playing position and starting status. This prompted the basis of the current study.

On soccer, Lovell et al., (2010) study investigated the mood states of soccer players. Results of the study indicated that POMS scores to differ in respect to the teams' standard of competition. The results showed that this pattern to be significant for the dependent variables of confusion, depression and tension. The study concluded that the English soccer was predisposing players to negative mood state profiles. Other demographic factors of playing position, playing experience and staring status were not addressed.

Regarding hockey and soccer, Visram's (2012) study involving participants from two different sports (field hockey and soccer) sought to investigate the effects of mental toughness on psychological and physical variables associated with increased risk of injury. The sample comprised female students who were members of Division 3 university teams (Field Hockey nineteen students and soccer twenty-eight students). In relation to Athletes' mood states, there was a significant relationship between mental toughness and total mood disturbance for participants from both, hockey and soccer teams (N=47). The mood states were not studied in relation to overtraining.

2.11.2 Mood States and Age Categories

Differences concerning the relationship between age categories and various psychological variables have been investigated in various sports. Boldizsa'r, et al., (2016) investigated the relationship between age in artistic gymnastics and pre-competitive mood states. The gymnasts were categorised as junior (15-20 years old), senior (21-31 years old) and children (10-14 years old). Results of the study indicated that age has a significant effect on pre-competition mood states of gymnasts. Results of the study showed that senior and junior gymnasts had elevated anger than children.

Also, children were significantly calmer than junior gymnasts while juniors had higher levels of fatigue than children. Findings of Boldizsa'r et al., (2016) contrast with the results of Annesi's (2004) study which revealed that there is no relationship between age and mood states. The study results found that there was no significant difference in amount of improvement of mood states between sedentary younger and older women. A study by Lane and Jarrett (2005) reported that elderly golfers experienced mood profiles following a recreational golf that is comparable to that of younger athletes following a sports competition. The mood states were not studied in relation to overtraining.

Another study investigating mood states by taking into consideration varying age categories was by Costa et al., (2013). The study sample comprised 409 Italian gymnasts (n=209 men and n=200 women) who were grouped into 3 different age groups: 18-24 years (young adults), 25-44 years (adults), and 45-64 years (middle aged adults). Results of the study indicated that there was a strong relationship between age, gender, and mood state and exercise dependence. Findings of Costa et al., (2013) are in agreement with the results by Wughalter and Gondola (1991) whose study on mood states of professional female tennis players investigated whether a possible effect of age on mood states existed. The study sample comprised 16 participants who were categorised into three age groups: Older female athletes, college age women and younger athletes. The study utilized the profile of mood states (POMS) to assess six mood states of anger, confusion, depression, fatigue, tension and vigour. The study results found a significant effect of age for the vigour sub-scale. The results indicated that older professional female tennis players scored higher on the vigour mood state and lower on the negative mood states (anger, confusion,

depression, fatigue and tension) than other age groups of college age women and young athletes. Although these studies have established a relationship between age and mood states, this relationship remains unclear among elite players, hence the current study targeting elite male hockey and soccer players.

A study by Aoki, Arruda and Freitas (2017) on monitoring training loads, mood states, and jump performance over two periodized training mesocyles in elite young volleyball players revealed that age category can have an influence on players' mood states. The participants in the study were categorized into under 16 and under 19 years. Results of their study indicated a significant difference between the under 16 years group and under 19 years group with a higher POMS scores for anger ($F = 4.71$, $= p = 0.04$), depression ($F = 4.93$, $p = 0.04$), fatigue ($F = 4.39$, $p = 0.05$), tension ($F = 4.23$, $p = 0.01$) and TMD ($F = 4.24$, $p = 0.05$) in the under 16 group as compared to under 19 group. Additionally, the study revealed that there was no significant difference between mesocycles for mood states (TMD and sub-scales scores). However, they stated one major limitation in their study where only two teams of the same club were investigated. This guided the basis for the current study that sought to assess the prevalence of psychological markers of overtraining (mood states) of elite male hockey and soccer players.

A study by Rostami, Nazemzadegan and Mohammadi (2016) on comparing the age related mood profile of veteran basketball players showed that anger, depression and fatigue in the basketball players in the four age groups (30-34, 35-39, 40-44, and 45 and above) were significantly different. Post hoc test (LSD) conducted on mood states in their study further revealed that 35-39 age group scored higher in anger, confusion and fatigue (negative mood subscales) when compared to other age groups. The study

further revealed that mood states become less negative with age. However, the mood states were not studied in relation to overtraining, prompting the current study.

2.11.3 Mood States and Athletes' Level of Experience

Yoshihara et al., (2011) investigated whether there was significant difference on mood state profiles of experienced yoga practitioners and non-experienced participants. The study results indicated that there was significant difference between the two groups on some POMS scores. The experienced yoga practitioners showed a lower total mood disturbance, tension, anger and fatigue scores in the profile of mood states. In that case, experienced yoga group scored higher in vigour than the less experienced ones. With regard to the sub-scales of depression and confusion, the study results indicated there was no significant difference between the two groups under study. The study only confined itself to two experience levels; experienced and less experienced.

Grobbelaar et al., (2010) in their study on factors that affect recovery-stress, burnout and mood scores of elite rugby players investigated possible differences between the mood states profiles of experienced and less experienced and novice rugby players. The study sample comprised 41 rugby players. The Stellenbosch Mood Scale was used to assess the mood states of participants. The results of the study indicated that the group of less experienced players had significantly less negative mood scores than the experienced and novice participants. The study concluded that the level of playing experience should be put into consideration in player management strategies in order to help reduce the onset and development of overtraining and burnout. The study target population was rugby players whose characteristics might differ from that of elite male field hockey and soccer players.

Another study investigating mood states by taking into consideration playing experience levels was by Thelwell, Weston, Lane and Greenlees (2006). Based on the level of performance at which they played, the participants were categorized into less experienced and experienced groups. The experienced group constituted soccer players who represented the first team while less experienced group was made up of lower levels. The study revealed that the mood state of calmness, happiness, tension and vigour were significantly greater in less experienced soccer players than that of experienced players. A study by McGowan, Miller and Henschen (1990) showed that fatigue was significant in black belts (highly experienced) when compared with other lower belt ranks; brown belts (experienced) coloured belts (moderately experienced) and white belts (novice) among karate participants during the regional competition. Results of their study further revealed that there was no significant difference in the mood states of anger, confusion, depression, tension and vigour in the black belts, brown belts, coloured belts and white belts. The current study on elite male hockey and soccer players would be relevant for comparative purpose with McGowan et al., (1990) study on martial arts.

In their study on mood and psychological skills of elite and sub-elite equestrian athletes, Meyers, Bourgeois, LeUnes and Murray (1999) investigated whether there was any relationship between mood states and athletes' level of experience (elite or sub-elite).The study results indicated no significant differences in mood states between these two ranks. The study involved fifty-four equestrian men and women (mean age 33.6 [+ or -] 11.9 years; age range 15-64 years) who completed two sets of psychometric questionnaires consisting of the profile of mood states (POMS; McNair, Lorr & Droppleman, 1971), and the Psychometric Skills Inventory for Sport (PSIS).

For analyses, data were grouped by rank (elite, sub-elite), event (show jumping, dressage), and by gender. Regarding mood states, the study noted a trend where top equestrians scored higher in negative mood states; tension, fatigue, anger, confusion and the total mood disturbance, and lower in the positive mood state (vigour). However, no significant differences were shown between groups. In conclusion, the study observes that there are minimal differences that exist between equestrian athletes across rank, gender and event. Corrado, Agostini, Bonifazi and Perciavalle (2014) indicated that anger, fatigue and tension increased significantly in the sub-group of experienced elite female water polo players. There is very little information known regarding mood states in relation to age categories of elite male hockey and soccer players prompting the current study.

2.11.4 Mood States and Playing Position

The relationship between mood states and playing position has been studied in team sports. In the context of rugby, Petru's (2016) study sought to investigate the effect of anxiety, motivation and mood state in rugby players by taking into account gender and position on the field. The participants were divided into two different playing positions; forward and backline. With regard to the mood states and playing position, results of the study showed no significant differences between gender and position on the field. The results differ with the Grobbelaar et al., (2010) study that investigated the relationship between playing position and mood states among 41 male student rugby players. The study established that the group of forward players had better mood states results than the backline players. The study's results showed that in rugby, playing position is a key characteristic with regard to mood states since a significant difference in the scores between the forwards and backline players was

observed between these two groups. However, Petru's (2016) and Grobbelaar et al,. (2010) targeted rugby players whose characteristics might differ from that of elite male field hockey and soccer players.

Nel's (2012) study about monitoring stress and recovery among U/20 rugby union players showed that the scores for anger, confusion and depression were significantly higher for backline players than that of forwards. In addition, the Total Mood Disturbance scores for backline players were also significantly higher than that of forwards. Findings by Grobbelaar et al., (2010) and Nel (2012) matched the results of Mashiko, Umeda, Nakaji and Sugawara (2004. Other variables of age, experience, starting status covered by this study were not considered.

The relationship between playing position and various psychological variables has been studied in other sports. Cox and Yoo (1995) found that there are differences in psychological skills (anxiety control, concentration and confidence) between linesmen and backfield players in American football. Results of the study indicated that the backfield players have a tendency of scoring higher than linesmen on measured psychological skills. Grobbelaar and Eloff (2011) utilized Athletic Coping Skills Inventory to ascertain psychological skills of netball players divided into seven playing positions; goal shooter, goal attack, wing attack, centre, wing defence, goal defence and goal keeper. The results of the study revealed that goal attack and wing defence players always outperformed players in other positions, while the goal shooters exhibited the lowest psychological skill levels.

A study by Kirkcaldy (1982) explored the personality differences between players who choose different playing positions in a team. The participants were grouped into

three different playing positions; defenders, midfielders and offensive players. The study utilized the Eysenck Personality Questionnaire. The results of the study showed that males playing in offensive positions tend to be more extroverted, dominant, tough-minded and aggressive than midfielders. The results of the study further revealed that the defensive players tend to exhibit more emotional stability patterns than players in offensive positions.

The results of these three studies provide support for the hypothesis that a relationship exists between playing position and various psychological variables (psychological skills and personality traits). Two of the reviewed studies dealt with psychological skills (Cox & Yoo, 1995; Grobbelaar & Eloff) while Kirkcaldy (1982) dealt with personality traits. The relationship between playing position and mood states however, remains unclear.

In field hockey, the relationship between playing position and various psychological variables has been investigated by various studies. Eloff, Monyeki and Grobbelaar (2011) studied the positional differences in mental skill levels among male field hockey players. The participants were categorised into four positional groups; goalkeepers (n= 12), backs (n= 30), midfielders (n= 25) and forwards (n=24). The results of the study revealed significant differences with regard to mental skill levels among the four positional groups. The goalkeepers, when compared with other positional groups exhibited the lowest mental skills scores, while the midfielders outperformed other positional groups.

A study by Night (2015) investigated the relationship between playing position and emotional intelligence of hockey players at intercollegiate level. The participants were

grouped into three playing positions of defender, midfielders and forwards. Results of the investigation indicated that the level of emotional intelligence in field hockey players is dependent on relation to their positional play. However, none of the reviewed studies addressed the relationship between mood states and playing positions.

Extensive research on mood states among hockey players by Ismail et al., (2016) deemed characteristics such as playing experience levels and position of play worthy of further investigation in order to obtain an accurate opinion with regard to factors that influences the mood states of players in field hockey. Therefore, the current study investigated mood states among field hockey and soccer players with respect to their positional play in relation to demographic characteristics such as level of experience, starting status and age.

In soccer, the relationship between playing position and various psychological variables has also been studied. Najah and Rejeb (2015) reported that forward players in soccer performed better than midfield and forward players in psychological skills such as motivation, confidence and activation. Defenders on the other hand outperformed other groups in relaxation, while midfield players had the lowest psychological skills level. The study results showed that a possible positional difference with regard to psychological skills exists in youth soccer. Sunkata and Sarkar (2016) studied psychological characteristics among soccer players in relation to the player position. The participants were divided into three groups based on their position of play (defenders, midfielders or forwards). The results of the study supported other research findings that have revealed the existence of a difference between playing positions in soccer and various psychological variables.

Saravanakumar and Arjunan (2015) utilized Psychological Skills Inventory for Sports (PSIS) to ascertain the psychological characteristics of goalkeeper, defenders, midfielders, and forwards in Indian University female soccer players. The results of the investigation showed that the four positional groups differed in anxiety control, team emphasis, motivation, mental preparation, confidence and concentration. Findings by Najah and Rejeb (2015), Sunkata and Sarkar (2016) and Saravanakumar and Arjunan (2015) disagree with results of other studies (Jooste, Steyn, Van Den Berg, 2014; Stewart, Craig, Meyers, Michael, 2004; Moghadan, Noredini, Kazemi, Bakhsharipour and Hojaji (2015) which did not discover any difference in this relationship.

A study by Moghadan et al., (2015) examined mood states in relation to different playing positions among soccer players (14-18 year olds). The profile of mood states (POMS) that has 65 items was used for data collection. Results of the study revealed that there was no significant difference between all mood sub-scales of anger, confusion, depression, fatigue, tension and vigour in the goalkeeper, defender, midfielder, and forward positions. Similarly, studies by Asamoah and Grobbelaar (2016) and Joostle et al., (2014) did not find positional differences with regard to various psychological skills. Thus, these studies could not confirm the research assumption that a relationship exists between playing position and various psychological variables in soccer.

The findings of these studies, apart from Morgadan et al., (2015), did not investigate the relationship between playing positions and mood states. It is noteworthy that the Morgadan et al., (2015) study focused on adolescent and young soccer players (14-18 year olds) whose mood states in relation to playing position might differ from that of

elite players at top national level. Thus, there seems to be limited information on this topic in soccer and particularly the relationship between playing position and mood states.

Sewell and Edmondson (1996) studied the relationship between playing position and pre-match competitive state anxiety in field hockey and soccer. The results of the study revealed that goalkeepers in field hockey and soccer tend to have elevated levels of cognitive anxiety compared to defenders, midfielders and forwards. The goalkeepers were also more somatically anxious and less self- confident than defenders. The study also revealed that midfielders and forwards in soccer and hockey tend to be more somatically anxious than defenders. The results further revealed that defenders are more self -confident than midfielders. However, the relationship between mood states and playing position among hockey and soccer players was not addressed.

2.11.5 Mood States and Starting Status

Coker and Mickle (2000) utilized the POMS to investigate the mood of starters and non-starters in women's softball. They reported that non-starters exhibited more anger, confusion, depression and tension when compared to starters. Conversely, non-starters exhibited higher fatigue prior to playing an opponent they deemed difficult to defeat. This was in contrast to starters who did not display such higher fatigue when faced with a team perceived to be easy or difficult to defeat. The results of the investigation indicate that the mood state profiles of non-starters are vulnerable to situational factors such as the strength or weakness of the opponent.

Grobbelaar et al., (2010) investigated the relationship between starting status in rugby players and mood states. The results of the investigation revealed that non-starters exhibited better mood states than the regular starters. The results of Coker and Mickle (2000) and Grobbelaar et al., (2010) offer tentative support for the hypothesis that a relationship exists between mood states of players and player' starting status. However, this relationship remains unclear in field hockey and soccer players.

Newland, Newton, Finch, Harbke and Padlog (2013) investigated starting status as a possible moderating variable in the relationship between mental toughness and performance among women and men basketball teams. The results of the investigation revealed that starting status can partially be used to predict basketball performance. The results of the study further revealed that starters and non-starters exhibited similar mental toughness. Based on the study results, they made a clear statement that labelling a player as a starter or non-starter is insignificant in psychological processes. Findings of Newland et al., (2013) matched with the results of Beck (2012) who found no significant difference in the mental toughness between starters and non-starters collegiate athletes in 12 different sports. In contrast, a recent study by Cardinale (2015) reported that the knowledge of starting status (starters or non-starters) has influence on an athlete endocrine response. However, the relationship between starting status and mood states has not been conclusively addressed.

The relationship between starting status and various psychological variables has been investigated in soccer. In a pooled sample of 18 elite soccer players (11 starters and 7 non-starters), Alix-sy, Scanff, Filaire (2008) reported that non-starters experience severe unpleasant transactional emotions compared to starters particularly in the pre-

competition period. They further revealed that the starters and non-starters did not differ in pre-competition affective states. Bernadette and Thatcher (2009) investigated the multiple psychological variables of mood, competitive state anxiety and self-presentation concerns in starters and non-starters in soccer. Results of the study revealed that non-starters as non-starting players tend to be angrier, depressed and concerned about physical appearance than starters. The results of the investigation also revealed that non-starters regarded self-confidence as being facilitative than starter players. The results of the study indicate that in soccer the starting status has an influence on the players' mood state and self- confidence profiles.

However, there seems to be limited information on this topic in soccer especially in regard to the relationship between starting status and mood states. This means that the issue of overtraining in starters and non-starters has not been adequately addressed since the mood states have been investigated as possible markers of overtraining.

2.12 Other Related Studies

In an attempt to compare the mood profiles of successful and unsuccessful athletes, Zandi and Rad (2013) sought to assess whether there was any significant difference between mood state profiles of winning and losing female athletes. The study used two sets of questionnaires to collect data: POMS and a demographic questionnaire. The sample comprised sixty-nine university students who participated in the different sports of karate, tennis, chess, badminton, basketball, shooting, volleyball and swimming. Results revealed that there was a significant difference between mood state profiles of winning and losing teams. However, mood states were studied in relation to the demographic variable of level of performance. The demographic

characteristic of starting status, playing position, age category and playing experience were not addressed.

Terry and Slade (1995) sought to assess the capacity of psychological state measures to discriminate performance in a karate competition. The participants of the study were male Shotokan karate players (N=208). The authors found that psychological state measures can correctly be used to classify 91.96% of karate players as winners or losers in a competition. The study results showed that the psychological state measures have the capacity to discriminate performance, indicating that performance in a karate competition is mood dependent. However, study did not explain whether the mood states were as result of overtraining nor did it provide any information regarding differences in the mood states between the two groups.

Pieter and Pieter (2008) in their study on mood and performance in aikido athletes investigated possible differences in the mood profiles of successful and less successful athletes(winning and losing). The study comprising forty-five men and seventeen women used the Brunel Mood Scale to assess the mood states of the athletes. To determine the difference on mood between male and female winning and losing aikido, a 2-way analysis of variance (ANOVA) was used. Results of the study demonstrated that there was no difference in mood between successful and less successful competitors by gender. Comparisons between mood sub-scales indicated that while the women scored higher on tension, the men were more depressed, fatigued and scored higher on anger. However, the study investigated male and female aikido athletes whose characteristics might differ from that of the current elite male field hockey and soccer players.

The Esfahani, Soflu and Assadi (2011) study comparing mood states of basket players in relation to team cohesion and performance showed significant differences in all mood subscales of anger, confusion, depression, fatigue, tension and vigour between the winner and losers. Based on the final game ranking in the Iranian male basketball league 2, the sample of 74 was grouped such that v31 players represented winners and 43 players represented the losers. The Brunel mood Scale questionnaire was used to evaluate mood subscales of anger, confusion, depression, fatigue, tension and vigour. The findings showed a significant difference in all mood subscales between the winners and the losers. However, none of the mood subscales were examined in relation to overtraining.

When examining the relationship between self-confidence, mood state, and anxiety among collegiate tennis players, Tracy and Suzanne (2004) found that winning tennis players exhibited significantly higher self- confidence, lower cognitive and somatic anxiety levels, and lower total mood disturbance scores than the losing team. Further, winning tennis players displayed the iceberg profile on the POMS, a finding consistent with other research outcomes conducted with successful athletes in other sports. That is, winning players had lower scores on tension (36.65), depression (40.17), anger (44.83), fatigue (35.67), confusion (34.0), and a higher vigour score (60.25) as compared to the losing players. In addition, total mood scores were statistically significantly lower for the winning tennis players (M= 92.3337, SD = 10.6) when compared to losing players (M = 139.7, SD = 9.6, t = 12.59, p = .000). The target population for this study were collegiate tennis players whose mood state profiles might differ from those of elite male field hockey and soccer players competing at top national levels.

Wong, Thung and Pieter (2006) investigated mood differences between winning and losing male and female athletes among 72 young male and 37 young female Malaysian Karatekas participating in 2004 Malaysian games. The participants were grouped into medallists (winners) and losers. To assess mood states of participants, the Brunel Mood Scale questionnaire was administered prior to the start of the competition. With regard to moods and performance relationship, study results indicated no differences between the mood states of winning and losing male karateka. The research findings indicated that winning female karateka had elevated anger. However, unlike the current study that aims to establish the prevalence of psychological traits of overtraining, the purpose of Wong et al., (2006) study was to test the conceptual model by Lane and Terry (1999) that proposes that depression is the most important mood dimension influencing other mood states (anger, confusion, fatigue, tension and vigour).

2.13 Summary of Reviewed Literature

It is evident from the literature reviewed that there is definitely a dearth in investigations relating to the mood states among Kenyan elite male field hockey and soccer players. Thus, a vacuum exists for establishing the prevalence of psychological markers of overtraining among elite male field hockey and soccer players in top national leagues in Kenya. Several studies investigated pre-competition mood states. Most studies involved participants of university, collegiate and high school students and none of these studies involved elite athletes or high performing teams. Studies involving participants of team sports have used lower division athletes. Therefore, there is a knowledge gap concerning elite athletes, particularly male field hockey and soccer players.

Demographic information that has been investigated has not been conclusive and in no way mirrors the current study that sought to investigate prevalence of the mood states among five different demographic characteristics of the participants. The use of demographic information concerning type sport (hockey and soccer), varying age categories, varying playing experience, playing position and starting status (starters and substitutes) in the current study made it more focused than reviewed studies.

There is disparity with regard to the dependent variables investigated between the current study and studies reviewed. Some studies investigated the psychological skills, mental toughness, self- confidence and anxiety in relation to various demographic variables. Some studies examined mood states in relation to mental imagery training. Unlike the reviewed studies, this study involved elite male field hockey and soccer players in top national leagues in Kenya.

CHAPTER THREE

METHODOLOGY

3.1 Research Design

The present study adopted quasi-experimental research design in which there was a pre-test and mid-test to evaluate the prevalence of psychological markers of overtraining amongst elite male field hockey and soccer players in top national leagues in Kenya. During data collection, the players completed the questionnaire at the beginning (pre-test) of the league in the month of February and at mid-season (mid-test) in the month of August. The research design was appropriate for this study because the researcher did not control the nature of the treatment or the time that the treatment was introduced (Evans & Rooney, 2011). In addition, the study evaluated changes in mood states between pre-test and mid-test resulting from treatment/intervention, in this case, training which the researcher did not experimentally apply (Bickman & Rog, 2009; Evans & Rooney, 2011).

The Profile of Mood States (POMS) was administered to respondents at the beginning of the league (pre-test) and at mid-season (mid-test) to determine participants' mood state changes that may have arisen from the training provided during the period under study. The quasi-experimental research design was appropriate because it allowed the researcher to assess the participants' mood state changes that may have occurred between pre-test and mid-test, and to determine whether the changes were significant.

3.2 Variables of the Study

The dependent variables of the study were the psychological markers of overtraining, namely: anger, confusion, depression, fatigue, tension and vigour. The independent

variables were the players' demographic factors of type of sport (hockey or soccer), age categories of players, years of play/experience, playing position and starting status.

3.3 Location of the Study

The study was conducted in all counties of Kenya that have male field hockey and soccer teams participating in national leagues. These included the counties of Nairobi, Kiambu, Kericho, Kisumu, Kakamega, Nakuru and Bungoma. This gave the study a country-wide outlook.

3.4 Target Population

The study targeted all elite male field hockey players participating in men's hockey premier league in Kenya and all elite male soccer teams participating in Kenya premier league (KPL). The two sport disciplines were selected for this study because besides being team sports, they are also similar in terms of players composition (11players in each team), positional designation (defenders, mid-fielders, attackers and goalkeepers) and starting status (starters and non-starters/substitutes).

Additionally, both leagues have athletes playing at elite levels. Beck (2012) suggests that research studies evaluating psychological differences should use elite athletes as there is a possibility that athletes at this level have similar physical attributes. These similarities made comparisons possible between these two sports based on the objectives of the study. There were 18 elite male soccer teams (Appendix J) and 15 elite male hockey teams (Appendix I) in Kenya's premier leagues during the period of data collection. From each team, a total of 18 players (11 first team players and 7

substitute players) were targeted. This gave a total target population of 594 players (270 hockey players and 324 soccer players).

3.4.1 Inclusion Criteria

The participants should have been training consistently as per the coach's training schedule prior to data collection. This is in cognisance that overtraining takes time to develop. For starting status, any participant who had been included in the team for a minimum of five competitive matches prior to data collection was deemed a starter. Any player who had not been included for a minimum of five competitive matches prior to data collection was considered a non-starter/ substitute. This information was sought from the coaches.

3.4.2 Exclusion Criteria

Using the guidance of the coach, players who had not trained for five weeks prior to data collection for whatever reason were excluded from the study. This was based on the fact that the athlete's body is able to replenish itself from the detrimental effects of overtraining after three to five weeks of rest (Budgett, 1990).

3.5 Sampling Procedures and Sample Size

Stratified sampling technique was used to arrive at the sample size for this study. The teams were stratified into two strata: elite male field hockey players and elite male soccer players. Sampling was done at the beginning of the league (pre-test) in the month of February. A total of 18 teams (nine hockey teams and nine soccer teams) were randomly selected using simple random sampling procedure. Therefore, the sample for the study constituted 9 (60%) field hockey teams and 9 (50%) soccer

teams. The nine teams for each sport were considered adequate for the purpose of generalisation of results to the target population.

During pre-test, purposive sampling was used to select 11 first team and 7 substitute players for each team making a total of 18 participants per team for both hockey and soccer. This information was also sought from the coaches. In both categories (hockey and soccer), a total of 324 (100%) participants (162 (50%) hockey players and 162 (50%) soccer players) were sampled at the beginning of the league (pre-test). However, out of these, 232 participants were included in the study making a return rate of 71.6%. Therefore, the sample that provided data for the study comprised 232 (100%) participants; 116 (50%) elite male hockey players and 116 (50%) of elite male soccer players.

3.6 Research Instruments

The study used a questionnaire for all data collection (Appendix B). The questionnaire had two sections. The first part of the questionnaire designed by the researcher sought the demographic variables of type of sport (hockey and soccer), age categories, playing experience, playing position and starting status of hockey and soccer players. The second part of the questionnaire used the Profile of Mood States (65 items) questionnaire in which responses are rated on a four-Likert scale. The POMS questionnaire provides measures of total mood disturbance (TMD) and the six mood states (anger, confusion, depression, fatigue, tension and vigour) that are used to assess overtraining in sports and exercise setting. The participants were asked to respond to the POMS questionnaire according to how they felt on the day when they completed the questionnaire and during previous one week. The POMS questionnaire

was administered at the beginning of the league (pre-test) in the month of February and at midseason (mid-test) during the month of August.

The Profile of Mood States (POMS) questionnaire is a standard validated psychological test that has been tested for its suitability in various studies investigating psychological markers associated with overtraining. It has been found to be an appropriate measure for mood states of athletes (Martim et al., 2000; Visram, 2012). Therefore, POMS was utilized based on its ability to assess specific psychological markers (anger, confusion, depression, fatigue, tension and vigour), that are used to identify over-trained athletes. Also, being a psychometric tool and self-report measure, there is quick and accurate availability of information; hence, its qualification for use in the current study.

3.7 Recruitment and Training of Research Assistants

Two games instructors in the Directorate of Sports and Games of Kenyatta University, Kenya, were recruited as research assistants for the study. Prior to data collection, the research assistants were trained by the researcher for two days on the recommended way of administering and interpreting the questionnaire (where necessary). The training also involved explanation of various words and adjectives in the POMS questionnaire. To ensure effective administration of the questionnaire, the research assistants were involved in the pre-testing of the questionnaire using one hockey team and one soccer team that were not included in the participating sample. This was done in order to ensure the correct procedures for data collection were observed.

3.8 Pre-testing of the Study Instrument

Pre-testing of the study instrument was conducted prior to the main study. Both elite male field hockey and soccer players were represented. Two teams (one for hockey and one for soccer) were involved in pre-testing of the study instrument but they were not included in the main research. In both soccer and field hockey, 20 players were selected giving a pre-test sample of 20, 6% of the total participants in both sports. Normally, the pre-test sample should be between 1% and 10% depending on the study's sample size (Mugenda & Mugenda, 2003).

After the pre-testing, the researcher held a debriefing session in which respondents gave their views about each item, the instructions given in the instrument and procedures that were to be applied in data collection. Information obtained during pre-testing was used to revise the instrument. For example, the pre-testing helped to establish that some adjectives in Profile of Mood States (POMS) were difficult to understand and therefore a separate word list to accompany the questionnaire was prepared that gave explanations of those words (Appendix F). Additionally, the POMS questionnaire was translated into Kiswahili language the national language of majority of the players (Appendix C). The supervisors and other faculty members from the Department of Physical Education, Exercise and Sport Science of Kenyatta University made a critique of the adaptations to ensure clarity and ease of the instrument. Pre-testing of the study instrument gave the research assistants an additional opportunity to test their skills in administering the questionnaire.

3.8.1 Validity and Reliability

The internal consistency technique was used to assess reliability in the data. The internal consistency technique provides a unique, quantitative estimate of the internal

consistency of a scale (Mugenda & Mugenda, 2012; Gratton & Jones, 2009; Mugenda, 2008; Gratton & Jones, 2009; Suter, 2006). The internal consistency of data is determined from scores obtained from a single test administered to a sample of subjects and in this approach, score obtained in one item is correlated with scores obtained from other items in the instrument (Tavakol & Dennick, 2011; Mugenda & Mugenda, 2003). A high coefficient indicates that items correlate highly among themselves, that is, there is consistency among items in measuring the concept of interest.

Reliability analysis (Cronbach alpha) for all the study variables was computed. According to Tavakol and Dennick (2011), if a test is measuring more than one construct or concept, alpha should be calculated for each of the concepts rather than for the entire test or scale. The current study therefore adopted Cronbach alpha approach to establishing reliability because POMS questionnaire provides a measure of six mood states (anger, confusion, depression, fatigue, tension and vigour) where the scores for the subscales are calculated by adding the numerical ratings for items that contribute to each sub-scale. Alpha was calculated for each subscale at pre-test and mid-test. According to Tavakol and Dennick (2011), alpha should be measured each time the test is administered. Table 3.1 shows results of Cronbach,s coefficient alpha for determining reliability for each sub-scale at pre-test and mid-test.

Table 3.1: ***Results of Cronbach's Coefficient Alpha for Determining Reliability for each Sub-scale at Pre-test and mid-test***

Variable	Reliability Statistics (Pre-test)		Reliability Statistics (mid-test)	
	Cronbach's Alpha	**N of Items**	**Cronbach's Alpha**	**N of Items**
Anger	.770	12	.788	12
Confusion	.577	7	.607	7
Depression	.820	15	.859	15
Fatigue	.817	7	.832	7
Tension	.747	9	.695	9
Vigour	.653	8	.725	8

Table 3.1 shows reliability analysis (Cronbach alpha) for anger, confusion, depression, fatigue, tension and vigour. According to the statistically acceptable criterion values 0.70 to 0.95 (Tavakol & Dennick, 2011), the reliability analysis Cronbach Alpha scores at pre-test established high reliability for the subscale of anger ($\alpha = .77$), depression ($\alpha = .82$), fatigue ($\alpha = .82$) and tension ($\alpha = .75$). Confusion ($\alpha = .58$) and vigour ($\alpha = .65$) subscales indicated moderate reliability. The reliability analysis Cronbach Alpha scores at mid-test established high reliability for the subscale of anger ($\alpha = .79$), depression ($\alpha = .86$), fatigue ($\alpha = .83$), tension ($\alpha = .70$) and vigour ($\alpha = .73$). Only the subscale of confusion ($\alpha = .61$) indicated moderate reliability. The overall measures of internal consistency have been reported to be between 0.85 and 0.95 depending upon the mood sub-scale (Tracy & Suzanne, 2004). However, according to Tavakol and Dennick (2011), researchers should measure alpha each time a test is administered rather than relying on published alpha estimates.

The Profile of Mood States (POMS) is a standard validated psychological test that has been used in over 238 published articles featuring athletic or exercise samples (LeUnes & Burger, 2000). It has been reported that POMS questionnaire contains factorial, construct, content, discriminant, predictive, and concurrent validity (Schultes, 1995; LeUnes & Burger, 2000).

3.9 Data Collection Techniques

Data was collected at the beginning (pre-test) of the league in the month of February and at mid-season (mid-test) in the month of August. The researcher coordinated with the two research assistants in the delivery and collection of questionnaires from respondents. The researcher and research assistants planned with respective respondents and team management on date and time for completing the questionnaires. The research assistants were required to clarify any issues in the questionnaires. To ensure that completed questionnaires were received, the researcher and research assistants delivered questionnaires at the training venues. The researcher and research assistants then collected the questionnaires immediately they were completed.

3.10 Data Analysis and Presentation

The Statistical Package for Social Sciences (SPSS) version 22.0 software was used to code and organise the data for analysis. Based on a frame of analysis that captures key concerns, coded data were summarized using descriptive and inferential statistics. Data were presented in tables. T-test was used to determine whether there was any significant difference between the mood state profiles of hockey and soccer players and between starters and substitute players. The One Way ANOVA was used for analysing data relating to various psychological markers of overtraining in relation to

other demographic factors. To determine the strength of resulting differences from ANOVA, Scheffe post-hoc test was computed. The acceptance or rejection of hypotheses was set at a significance level of $P \leq 0.05$. Appendix (G) shows how the POMS questionnaire was scored during the analysis.

Appendix (G) shows the correspondence between items and sub-scales. The scores for the six subscales in the Profile of Mood States (POMS) are calculated by adding the numerical ratings for items that contribute to each sub-scale. Appendix (G) shows that each adjective in the POMS questionnaire is awarded the following scores: 0 (not at all), 1 (a little), 2 (moderately), 3 (quite a lot), and 4 (extremely) except 'Efficient' in the confusion subscale and 'Relaxed' in the tension sub-scale in which, the scores are reverse prior to being summed with the other items: 4 (not at all), 3 (a little), 2 (moderately), 1 (quite a lot), and 0 (extremely). The total score for 'anger' is determined by adding the scores for angry, peeved, grouchy, spiteful, annoyed, resentful, bitter, ready to fight, rebellious, deceived, furious, and bad tempered.

The total score for 'confusion' is determined by adding the scores of the numerical ratings of the adjectives that constitute the feelings for confusion; unable to concentrate, muddled, bewildered, efficient, forgetful, and uncertain about things. For 'depression', the total score is determined by adding the scores for unhappy, sorry for things done, sad, blue, hopeless, unworthy, discouraged, lonely, miserable, gloomy, desperate, helpless, worthless, terrified, and guilty. For 'fatigue', the total score is determined by adding the scores for worn out, listless, fatigued, exhausted, sluggish, weary, and bushed. For 'tension', the total score is determined by adding the scores for tense, shaky, on edge, panicky, relaxed, uneasy, restless, nervous, and anxious.

For ‘vigour’, the total score is determined by adding the scores for lively, active, energetic, cheerful, alert, full of pep, carefree, and vigorous. Finally for ‘TMD’, the total score is calculated by adding the scores for anger, confusion, depression, fatigue, and tension and then subtracting the scores for vigour. The following adjectives in the POMS questionnaire were used as dummy items and were not used for scoring; friendly, clear-headed, considerate, sympathetic, helpful, good natured, and trusting. The table further shows that a constant (such as 100) can be added to TMD formula in order to eliminate negative scores. However, in this study, this was not done as the analysis focused on the changes of mood states between pre-test and post -test.

3.11 Logistical and Ethical Considerations

Approval to conduct the research was given by Graduate School, Kenyatta University (Appendix J). Ethical clearance was sought and obtained from Kenyatta University Ethics and Review Committee (Appendix J). The researcher also secured research authorization (Appendix J), and research permit (Appendix K) from the National Commission for Science, Technology and Innovation (NACOSTI). The researcher further sought and obtained permission from the Kenya Hockey Union, Kenya Premier League and Kenya Football Federation to use the players (Appendix J). Additionally, verbal permission was sought and obtained from team managers and coaches prior to data collection. The players who accepted voluntarily to participate in the study were asked to sign the Kiswahili (Appendix D) or English (Appendix A) consent forms. Prior to data collection, participants were informed of the importance of the research and the nature of the study. Clarification of various concepts in the research instrument was done prior to data collection. The participants were assured of confidentiality of the information gathered.

CHAPTER FOUR

FINDINGS OF THE STUDY

4.1 Introduction

The current study assessed the psychological markers of overtraining amongst elite male hockey and soccer players in top national leagues in Kenya. The study used the Profile of Mood States (POMS) questionnaire for data collection. During data collection, the players completed the questionnaire at the beginning (pre-test) of the league in the month of February and at mid-season (mid-test) in the month of August. The t-test and One-Way ANOVA were used to test the hypotheses as appropriate at the significance level of 0.05. In addition, if the F value was found to be significant, the Scheffe post-hoc test was conducted to identify the groups responsible for the difference. Results of the data analysis and subsequent interpretation of the study findings are presented in this chapter.

The study, with pre-test and mid- test POMS scores, was conducted in the two leagues of Kenya Hockey Union for hockey and Kenya Premier league for soccer. The main reason why data were collected at the beginning and at the peak of the leagues was to test whether there was any significant change in participants' mood states between these two periods. Duration of 3 to 8 months is sufficient to yield significant changes in mood states (Mackinnon, 2000). In both groups, a total of 324 participants (162 hockey players, 162 soccer players) were involved at the beginning (pre-test) of the two leagues. However, out of these, 232 participants (116 hockey players and 116 soccer players) were included in the study resulting into response rate of 71.6%. In the analysis, this was taken to represent 100% that was used in the final study as shown in Table 4.1.

4.2 Respondents' Characteristics

4.2.1 Distribution of Participants by Type of Sport and Teams/Clubs of Affiliation

The distribution of the participants in relation to their clubs of affiliation is shown in Table 4.1.

Table 4.1: ***Distribution of the Participants by Type of Sport and Teams of Affiliation***

Type of Sport					
Hockey			**Soccer**		
Name of Club	Frequency	Percent	Name of club	Frequency	Percent
Chase Bank	13	5.6	Posta Rangers FC	12	5.2
Wazalendo Club	13	15.6	Western Stima FC	10	4.3
Greensharks Club	12	5.2	Chemelil FC	12	5.2
Strathmore University	14	6	Nzoia Sugar FC	14	6
Kenya Police club	16	6.9	Zoo FC	14	6
TUK University	9	3.9	Nakumatt FC	12	5.2
Nakuru Club	12	5.2	Kariobangi Sharks	16	6.9
K.C.A University	12	5.2	Thika United	14	6
USIU University	15	6.5	Kakamega Homeboyz	12	5.2
Total	**116**	**50**	**Total**	**116**	**50**

Table 4.1 shows that a total of 18 teams/clubs were involved in the study; 9 (50%) hockey teams and 9 (50%) soccer teams. This shows that the proportions of hockey

and soccer teams/clubs involved in the study were equal hence, making comparisons possible between the two groups.

4.2.2 Distribution of Participants by Age Categories

The distribution of participants according to age categories is shown in Table 4.2.

Table 4.2: ***Distribution of Participants by Age***

Age categories	Frequency	Percent
Under 18 years	3	1.3
19-24 years	114	49.1
25-29 years	65	28
30 years and above	50	21.6
Total	**232**	**100**

Table 4.2 shows that participants were divided into four groups on the basis of their age categories during data collection: under 18 years, 19-24 years, 25-29 years and 30 years and above. The distribution of respondents by their age categories shows that participants of age between 19-24 years had the highest number of respondents (114, 49.1%) followed by 25-29 years (65, 28%), 30 years and above (50, 21.6%) and under 18 years (3, 1.3%). This indicates that 19-24 years is the modal age for participating in elite hockey and soccer. This could have been because of the high number of university teams involved in hockey (4, 44%) of the hockey teams.

However, in the analysis, the 3 participants (3, 1.3%) in under 18 years age category (Table 4.2) were considered too few to generate any meaningful comparisons and therefore were incorporated in the next age category (19- 24 years). According to

Field (2006), it is better to incorporate outliers in the next higher category rather than exclude them from analysis altogether. Thus, participants in under 18 years were merged with those in 19-24 years to form under 24 years age category that was used in the analysis as shown in Table 4.3.

Table 4.3: ***Distribution of Participants by Age as Used in the Analysis***

Age categories	**Frequency pre/post**	**Percent**
Under 24 years	117	50.4
25-29 years	65	28
30 years and above	50	21.6
Total	**232**	**100**

Table 4.3 shows that participants were divided into three groups on the basis of their age categories (under 24 years, 25-29 years and 30 years and above). The distribution of respondents by their age categories shows that participants in under 24 years age bracket had the highest number of respondents (117, 50.4%) followed by 25-29 years (65, 28%) and 30 years and above (50, 21.6%). This indicates that players in under 24 years age category are more engaged in elite male hockey and soccer than players in the other age categories.

4.2.3 Distribution of Participants by Playing Experience

The distribution of participants on the basis of playing experience is shown in Table 4.4.

Table 4.4: ***Distribution of Participants by Playing Experience***

Playing experience	Frequency Pre/Post	Percent
1-3 years	101	43.3
4-6 years	47	20.3
7-9 years	51	22
Over 9 years	33	14.2
Total	**232**	**100**

Participants were divided into four groups on the basis of their years of playing experience: 1-3 years, 4-6 years, 7-9 years and over 9 years. It is evident from Table 4.4 that participants with 1-3 years of experience had the highest number of respondents (101, 43.3%) followed by 7-9 years (51, 22%), 4-6 years (47, 20.3%) and over 9 years (33, 14.2%). This indicates that respondents with 1-3 years' experience are more engaged in elite male hockey and soccer than players with other levels of playing experience.

4.2.4 Distribution of Participants by Playing Position

The distribution of participants in relation to their playing position is shown in Table 4.5.

Table 4.5: ***Distribution of Participants by Playing Position***

Playing Position	Frequency Pre/Post	Percent
Defender	80	34.5
Midfielder	61	26.3
Attacker/Forward	63	27.2
Goalkeeper	28	12.1
Total	**232**	**100**

The participants were divided into four groups on the basis of their position of play: defenders, midfielders, forwards and goalkeepers. The results indicate that defender position had the highest number of respondents (80, 34.5%), followed by attackers/forwards (63, 27.2%), midfielders (61, 26.3%), and goalkeepers (28, 12.1%). The high number of players in the defense positions can be attributed to the fact that defender and midfielder positions have more players than other positions in most systems of play in both sports.

4.2.5 Distribution of Participants by Starting Status during Matches

Table 4.6: ***Distribution of Participants by Starting Status***

Starting status	Frequency Pre/Post	Percent
Substitute	99	42.7
First team	133	57.3
Total	**232**	**100**

The participants were divided into two groups on the basis of starting status: substitutes and first team and the results shown in Table 4.6. These results indicate

that the first team group had the highest number of respondents (133, 57.3%) followed by substitutes (99, 42.7%). The difference is explained by the fact that the study sampled 11 first team players and 7 substitutes in the pre-test (initial data collection) for each team involved in the study.

4.3 Mood States Among Elite Male Hockey and Soccer Players

The focus under this section was on determining the prevalence of mood states among elite male hockey and soccer players in top national leagues in Kenya. To determine whether the changes in mood states were significant, paired samples t-test was used to test the means. In addition, independent samples t-test was used to determine whether there was any significant difference in the mood state profiles between elite male hockey and soccer players.

4.3.1 Mood States of Elite Male Hockey Players

The results of the analysis of the changes in the six mood states as well as Total Mood Disturbance (TMD) between pre-test and mid- test of elite male hockey players are shown in Table 4.7.

Table 4.7: ***Paired Samples t-test for Pre-test and Mid- test POMS Scores***

Variable		Paired Differences				t	df	Sig. (2-tailed)
		Mean	Std. Deviation	95% Confidence Interval of the Difference				
				Lower	Upper			
Hockey	Anger post-anger pre	.09711	.67498	-.02703	-.02703	1.550	115	.124
	Confusion post-confusion pre	.11915	.62050	.00503	.23327	2.068	115	.041*
	Depression post-depression pre	.13276	.63320	.01631	.24921	2.258	115	.026*
	Fatigue post-fatigue pre	-.07586	.83879	-.23013	.07840	-.974	115	.332
	Tension post-tension pre	.08273	.62987	-.03311	.19858	1.415	115	.160
	Vigour post-vigour pre	-.18966	.67335	-.31349	-.06582	-.0658	115	.003*
	TMD post-TMD Pre	54555	3.0555	-.01639	1.1075	1.1075	115	.057

*Significant at $p<0.05$, n = 116, df = 115

As shown in table 4.7, the level of anger increased but the change was not significant ($\bar{x}$ = .09711, SD = .6750, t (115) =1.550, p = .124). The level of confusion increased and the change was significant ($\bar{x}$ = .11915, SD = .62050, t (115) = 2.068, p = 0.041). The level of depression increased and the change was significant ($\bar{x}$ = .13276, SD = .63320, t (115) = 1.550, p = 0.026). The level of fatigue decreased but the change was not significant ($\bar{x}$ = -.07586, SD = .83879, t (115) = -.974, p = .332). The level of tension increased but the change was not significant ($\bar{x}$ = .08273, SD = .62987, t (115) = 1.415, p = .160). The level of vigour decreased and the change was significant ($\bar{x}$ = -.18966, SD = .67335, t (115) =-.0658, p = 0.003).

The Total Mood Disturbance (TMD) level increased but the change was not significant ($\bar{x}$ = .54555, SD = 3.05549, t (115) = 1.1075, p = 0.57). These results suggest that there was significant increase in the level of confusion and depression

while the level of vigour had a significant decrease. Changes in the other components of mood states (anger, fatigue and tension) as well as TMD were not significant.

4.3.2 Change in Mood States of Elite Male Soccer Players

The results of the analysis of the changes in the six mood states as well as TMD between pre-test and mid- test of elite male soccer players are shown in Table 4.8.

Table 4.8: ***Paired Samples t-test for Pre-test and Mid- test POMS Scores***

Variable		Paired Differences				t	df	Sig. (2-tailed)
		Mean	Std. Deviation	95% Confidence Interval of the Difference				
				Lower	Upper			
Soccer	Anger post-anger pre	.1601	.78996	-.12928	.16129	.218	115	.828
	Confusion post-confusion post	-.12956	.70582	-.25937	.00025	-1.977	115	.050*
	Depression post-depression pre	-.00702	.71136	-.13785	.12381	-.106	115	.916
	Fatigue post-fatigue pre	-.28559	.96798	-.46362	-.10757	-3.178	115	.002*
	Tension post-tension pre	-.05164	.67418	-.17563	.07235	-.825	115	.411
	Vigour post-vigour pre	.04773	.87451	-.11357	.20809	.582	115	.562
	TMD post-TMD Pre	-.05051	3.3207	-1.1158	.10566	-1.638	115	.104

*Significant at $p<0.05$, n = 116

From the results, the level of anger increased but the change was not significant ($\bar{x}$ = .1601, SD = .78996, t (115) = .218, p = .828). The level of confusion decreased and the change was significant ($\bar{x}$ = -.12956, SD = .70582, t (115) = -.1.977, p = 0.050).

The level of depression decreased but the change was not significant ($\bar{x}$ = -.00702, SD = .71136, t (115) = -.106, p = 9.16). Fatigue level decreased and the change was significant ($\bar{x}$ = -.28559, SD = .96798, t (115) = -3.178, p = 0.002). The level of tension decreased but the change was not significant ($\bar{x}$ = -.05164, SD = .67418, t (115) = -.825, p = .411). The level of vigour increased but the change was not significant ($\bar{x}$ = .04773, SD = .87451, t (115) = .582, p = .562). The level of Total Mood Disturbance (TMD) decreased but the change was not significant ($\bar{x}$ = -.05051, SD = 3.3207, t (115) = -.1.638, p = .104). These results suggest that the level of confusion and fatigue decreased and the decrease was significant. It is worth noting that this finding was as a surprise because negative mood states are expected to increase in relation to the training load. Changes in the other components of mood states (anger, depression, tension and vigour) as well as TMD were not significant.

4.3.3 Mood States of Elite Male Hockey and Soccer Players

To determine whether there was any significant difference in the mood state profiles between hockey and soccer players, an independent samples t-test was used and the results are presented in Table 4.9.

Table 4.9: ***Independent Samples t-test for Pre-test and Mid-test POMS Scores***

Variable	Hockey/ Soccer	Mean	Std. Deviation	95% Confidence Interval of the Difference		t-test for Equality of Means		
				Lower	Upper	t	df	Sig. (2-tailed
Anger-change	Hockey	.0971	.67498	-.10898	.27119	.841	230	.401
	Soccer	.0160	.78996					
Confusion-change	Hockey	.1192	.62050	.07678	.42063	2.850	230	.005*
	Soccer	-.1296	.70582					
Depression–change	Hockey	.1328	.63320	-.03444	.31400	1.581	230	.115
	Soccer	-.0070	.71136					
Fatigue-change	Hockey	-.0759	.83879	-.02459	.44405	1.764	230	.079
	Soccer	-.2856	.96798					
Tension-change	Hockey	.0827	.62987	-.03441	.30316	1.569	230	.118
	Soccer	-.0516	.67418					
Vigour-change	Hockey	-.1897	.67335	-.43883	-.03500	-2.312	230	.022*
	Soccer	.0473	.87451					
TMD-change	Hockey	.5456	3.0555	.22508	1.87614	2.508	230	.013*
	Soccer	-.5051	3.3207					

*Significant at $p<0.05$, n = 232

From the results, there was no significant difference in anger change index between elite male hockey ($\bar{x}$ = .0971, SD = .6750) and soccer players ($\bar{x}$ = .0160, SD = .78996; t (230) =.841, p = .401). There was a significant difference in confusion change index between elite male hockey ($\bar{x}$ = .1192, SD = .62050) and soccer players ($\bar{x}$ = -.1296, SD = .70582; t (230) = 2.850, p = 0.005). There was no significant

difference in depression change index between elite male hockey ($\bar{x}$ = .1328, SD = .63320) and soccer players ($\bar{x}$ = -.0070, SD = .71136; t (230) = 1.581, p = .115). There was no significant difference in fatigue change index between elite male hockey ($\bar{x}$ = -.0759, SD = .83879) and soccer players ($\bar{x}$ = -.2856, SD = .96798; t (230) = 1.764, p = .079). There was no significant difference in tension change index between elite male hockey ($\bar{x}$ = .0827, SD = .62987) and soccer players ($\bar{x}$ = -.0516, SD = .67418; t (230) = 1.569, p = .118). There was a significant difference in vigour change index between elite male hockey ($\bar{x}$ = -.1897, SD = .67335) and soccer players ($\bar{x}$ = .0473, SD = .87451; t (230) = -2.312, p = .022). There was a significant difference in TMD change index between elite male hockey ($\bar{x}$ = .5456, SD = 3.05549) and soccer players ($\bar{x}$ = -.5051, SD = 3.32072; t (230) = 3.32072, p = .013).

Although the p- value of most of the sub-scales of anger, depression, fatigue and tension was not significant at $p \leq 0.05$, except for confusion and vigour, the p-value of Total Mood Disturbance (TMD) was significant. Therefore, the null hypothesis that there is no significant difference in the mood state profiles between elite male hockey and soccer players in Kenya's top leagues was rejected. These results suggest that the two groups (elite male hockey and soccer players) differed significantly in exhibited mood state profiles and the difference was in confusion and vigour markers as well as TMD. For example, from the descriptive analysis, the level of Total Mood Disturbance (TMD) increased for elite hockey players ($\bar{x}$ = .5456, SD = 3.0555) but decreased for elite soccer players ($\bar{x}$ = -.05051, SD = 3.3207). This status was the same for vigour in which the scores showed the level decreased for elite male hockey players ($\bar{x}$ = -.1897, SD = .67335) but increased for elite soccer players ($\bar{x}$ = .04773, SD = .87451). From the results, it is also observed that in all the six measures, the

mean scores for hockey were higher though in some it was not significantly different from soccer.

4.4 Mood States of Elite Male Hockey and Soccer Players by Age Category

The objective was to establish the prevalence of mood states in relation to age categories of elite male hockey and soccer players in top national leagues in Kenya. To analyze the data, descriptive statistics and One-Way analysis of variance were used.

4.4.1 Mood States of Elite Male Hockey Players by Age Category

The prevalence of mood states in relation to age categories of elite male hockey players is shown in Table 4.10.

Table 4.10: ***Descriptive Analysis of Mood States of Hockey Players by Age***

Variable	**Age Categories**					
	Under 24 years (N = 51)		**25-29 years (N = 31)**		**30 years and above (N = 34)**	
	M	**SD**	**M**	**SD**	**M**	**SD**
Anger_change	.1303	.76179	.1303	.63695	.0172	.57471
Confusion_change	.1165	.64521	.1260	.71477	.1169	.49648
Depression_change	.1281	.61523	.2120	.81928	.0675	.45077
Fatigue_change	-.1067	.89754	.0276	.74998	-.1239	.84026
Tension_change	.0923	.64840	.1075	.76952	.0458	.45288
Vigour_change	-.2728	.65141	-.2615	.76975	.0005	.58792
TMD_change	.6332	3.35189	.8649	3.41485	.1229	2.14913

Table 4.10 shows the means and standard deviations of anger, confusion, depression, fatigue, tension, vigour and the overall TMD of hockey players by age category. The

players' age were categorized into under 24 years, 25 – 29 years and 30 years and above. From the results, the level of anger increased in all age categories; under 24 years ($\bar{x}$ = .1303, SD = .76179), 25-29 years ($\bar{x}$ = .1303, SD = .63695) and 30 years and above ($\bar{x}$ = .0172, SD = .57471). The level of confusion increased across all age categories; under 24 years ($\bar{x}$ = .1165, SD = .64521), 25-29 years ($\bar{x}$ = .1260, SD = .1260) and 30 years and above ($\bar{x}$ =.1169, SD = .49648). Depression level increased in all age categories; under 24 years ($\bar{x}$ = .1281, SD = .61523), 25-29 years ($\bar{x}$ = .2120, SD = .81928) and 30 years and above ($\bar{x}$ = .0675, SD = .45077). Fatigue decreased among players in under 24 years ($\bar{x}$ = -.1067, SD = .89754) and in 30 years and above ($\bar{x}$ = -.1239, SD = .84026) age categories but increased for those who were in the 25-29 years age bracket ($\bar{x}$ = .0276, SD = .74998). Tension increased across all age categories; under 24 years ($\bar{x}$ = .0923, SD = .64840), 25-29 years ($\bar{x}$ = .1075, SD = .76952) and 30 years and above ($\bar{x}$ = .0458, SD = .45288). Vigour decreased among players in the under 24 years ($\bar{x}$ = -.2728, SD = .65141) and 25-29 years ($\bar{x}$ = -.2728, SD = .76975) but increased for those who were in the 30 years and above age bracket ($\bar{x}$ = .0005, SD = .58792).

The level of Total Mood Disturbance (TMD) increased across all age categories; under 24 years ($\bar{x}$ = .6332, SD = 3.35189), 25-29 years ($\bar{x}$ = .8649, SD = 3.41485) and 30 years and above ($\bar{x}$ = .1229, SD = 2.14913). Generally, the results of descriptive analysis indicate that the level of the six mood states in those under 24 years, 25-29 years, and 30 years and above age categories of hockey players either increased or decreased.

To test if the changes were significant, One Way ANOVA was used and the results are summarized in Table 4.11.

Table 4.11: ***One Way ANOVA for Mood States by Age Category***

			Sum of Squares	df	Mean Square	F	Sig.
Hockey	Anger - change	Between Groups	.307	2	.154	.334	.717
		Within Groups	52.087	113	.461		
		Total	**.461**	**115**			
	Confusion - change	Between Groups	.002	2	.001	.003	.997
		Within Groups	44.276	113	.392		
		Total	**44.278**	**115**			
	Depression change	Between Groups	.340	2	.170	.420	.658
		Within Groups	45.767	113	.405		
		Total	**46.108**	**115**			
	Fatigue – change	Between Groups	.459	2	.230	.323	.725
		Within Groups	80.452	113	.712		
		Total	**80.911**	**115**			
	Tension - Change	Between Groups	.070	2	.035	.087	.917
		Within Groups	45.555	113	.403		
		Total	**45.625**	**115**			
	Vigour - change	Between Groups	1.742	2	.871	1.953	.147
		Within Groups	50.399	113	.446		
		Total	**52.141**	**115**			
	TMD - change	Between Groups	9.627	2	4.814	.511	.601
		Within Groups	1064.013	113	9.416		
		Total	**1073.640**	**115**			

Table 4.11 shows the results of One Way ANOVA used to determine if the changes in mood states by age were significant. The results indicate that change in anger of the hockey players in the three age categories (under 24 years, 25-29 years and 30 years and above) was not significant (F (2, 113) = .334, p = .717). Change in confusion level of the hockey players in the three age categories (under 24 years, 25-29 years and 30 years and above) was not significant (F (2, 113) = .003, p = .997). Likewise, change in depression level among the hockey players in the three age categories (under 24 years, 25-29 years, and 30 years and above) was not significant (F (2, 113 = .420, p = .658). Similarly, change in fatigue level of the hockey players in the three age categories (under 24 years, 25-29 years, and 30 years and above) was not significant (F (2, 113 = .323, p = .725). Also, change in tension level among hockey players in the three age

categories (under 24 years, 25-29 years, and 30 years and above) was not significant (F (2, 113) = .087, p = .917). Similarly, change in vigour of the hockey players in the three age categories (under 24 years, 25-29 years, and 30 years and above) was not significant F (2,113) = 1.953, p = .147).

Moreover, change in Total Mood Disturbance (TMD) among the hockey players in the three age categories (under 24 years, 25-29 years, and 30 years and above) was not significant (F (2, 113) = .511, p = .601). These results suggest that the training between pre and mid-tests did not bring significant changes in the mood states of anger, confusion, depression, fatigue, tension, vigour as well as TMD of the hockey players in relation to their age categories; under 24 years, 25-29 years, and 30 years and above. Specifically, these results suggest that the psychological markers of overtraining did not increase to a level indicative of overtraining in hockey players across the different age categories.

4.4.2 Mood States of Elite Male Soccer Players by Age Categories

The prevalence of mood states in relation to age categories of elite male soccer players is shown in Table 4.12.

Table 4.12: ***Descriptive Analysis of Mood States of Soccer Players by Age***

Variable	Age Categories					
	Under 24 years (N = 66)		25-29 years (N = 34)		30 years and above (N =16)	
	M	SD	M	SD	M	SD
Anger_change	-.0185	.83567	.0754	.69807	.0321	.82009
Confusion_change	-.1706	.71871	-.0064	.62924	-.2217	.81189
Depression_change	-.0416	.73305	.0606	.75585	-.0083	.52768
Fatigue_change	-.3323	1.08148	-.2874	.86424	-.0893	.64918
Tension_change	-.0389	.63338	-.1517	.72722	.1085	.72938
Vigour_change	.0841	.87514	-.0572	.95674	.1172	.70337
TMD_change	-.6860	3.50143	-.2523	3.09237	-.2959	3.16885

Table 4.12 shows the means and standard deviations of the six mood states against the varying age categories of soccer players. The players' age were categorized into under 24 years, 25 – 29 years, and 30 years and above. The results shows that the level of anger decreased among players in the under 24 years group ($\bar{x}$ = -.0185, SD = .83567) but increased for those who were in the 25-29 years ($\bar{x}$ = .0754, SD = .69807) and 30 years and above ($\bar{x}$ = .0321, SD = .82009). The level of confusion decreased across all the age categories; under 24 years ($\bar{x}$ = -.1706, SD = .71871), 25-29 years ($\bar{x}$ = -.0064, SD = .62924) and 30 years and above ($\bar{x}$ = -.2217, SD = .81189). The level of depression decreased among players in under 24 years ($\bar{x}$ = -.0416, SD = .73305) and 30 years and above groups ($\bar{x}$ = -.0083, SD = .52768) but increased for those who were in the 25-29 years age bracket ($\bar{x}$ = .0606, SD = .75585). Fatigue decreased in all the age categories; under 24 years ($\bar{x}$ = -.3323, SD = 1.08148), 25-29 years ($\bar{x}$ = -.2874, SD = .86424) and 30 years and above ($\bar{x}$ = -.0893, SD = .64918). The level of

tension decreased among players in under 24 years ($\bar{x}$ = -.0389, SD = .63338) and 24-29 years groups ($\bar{x}$ = -.1517, SD = .72722) but increased for those who were in the 30 years and above age bracket ($\bar{x}$ = .1085, SD = .72938). The level of vigour increased among players in under 24 years ($\bar{x}$ = .0841, SD = .87514) and 30 years and above ($\bar{x}$ = .1172, SD = .70337) but decreased for those who were in the 25-29 years age bracket ($\bar{x}$ = -.0572, SD = .95674).

The change in scores for TMD showed that Total Mood Disturbance decreased across all the age categories; under 24 years ($\bar{x}$ = -.6860, SD = 3.50143), 25-29 years ($\bar{x}$ = -.2523, SD = 3.09237) and 30 years and above ($\bar{x}$ = -.2959, SD = 3.16885). Generally, the results of descriptive analysis indicate that the level of the six mood states as well as TMD in those under 24 years, 25-29 years and 30 years and above age categories of soccer players either increased or decreased.

To determine if the changes in the mood state markers by age category were significant, One Way ANOVA was computed and the results presented in Table 4.13.

Table 4.13: ***One Way ANOVA for Mood States of Soccer Players Mood States by Age Category***

			Sum of Squares	df	Mean Square	F	Sig.
Soccer	Anger - change	Between Groups	.202	2	.101	.160	.852
		Within Groups	71.562	113	.633		
		Total	**71.764**	**115**			
	Confusion - change	Between Groups	.763	2	.381	.762	.469
		Within Groups	56.529	113	.500		
		Total	**57.292**	**115**			
	Depression change	Between Groups	.234	2	.117	.229	.796
		Within Groups	57.959	113	.513		
		Total	**58.193**	**115**			
	Fatigue – change	Between Groups	.760	2	.380	.402	.670
		Within Groups	106.994	113	.947		
		Total	**107.754**	**115**			
	Tension - Change	Between Groups	.761	2	.381	.835	.437
		Within Groups	51.508	113	.456		
		Total	**52.269**	**115**			
	Vigour - change	Between Groups	.539	2	.270	.349	.706
		Within Groups	87.408	113	.774		
		Total	**87.948**	**115**			
	TMD - change	Between Groups	5.034	2	2.517	.225	.799
		Within Groups	1263.093	113	11.178		
		Total	**1268.13**	**115**			

Table 4.13 shows the results of One Way ANOVA used to determine if the changes in mood states by age were significant. The results indicate that change in anger level of the soccer players in the three age categories (24 years, 25-29 years, and 30 years and above) was not significant (F (2, 113) =.160, p = .852). Change in confusion level of the soccer players in the three age categories (under 24 years, 25-29 years, and 30 years and above) was not significant (F (2, 113) = .762, p = .469). The table also indicates that change in depression level of soccer players in the three age categories (under 24 years, 25-29 years, and 30 years and above) was not significant (F (2, 113) = .229, p = .796). Similarly, change in fatigue level of the soccer players in the three age categories (under 24 years, 25-29 years, and 30 years and above) was not significant (F (2, 113) = .402, p = .670). Likewise, change in tension level of the

soccer players in the three age categories (under 24 years, 25-29 years, and 30 years and above) was not significant (F (2, 113) = .835, p = .437). Also, change in vigour of the soccer players in the three age categories (under 24 years, 25-29 years and 30 years and above) was not significant (F (2, 113) = .349, p = .706).

Moreover, change in Total Mood Disturbance (TMD) among the soccer players in the three age categories (under 24 years, 25-29 years, and 30 years and above) was not significant (F (2, 113) = .225, p = .799). These results suggest that the training between pre and mid-tests did not bring significant changes in the mood states of anger, confusion, depression, fatigue, tension, vigour as well as TMD of the soccer players in relation to their age categories; under 24 years, 25-29 years, and 30 years and above. Specifically, these results suggest that the psychological markers of overtraining did not increase to a level indicative of overtraining in soccer players in the different age categories.

4.4.3 Mood States among Elite Male Hockey and Soccer Players by Age Category

To determine whether there was any significant difference in the mood state profiles among age categories of elite male hockey and soccer players, it was hypothesized that there is no significant difference in the mood state profiles among age groups of elite male hockey and soccer players in Kenya's top leagues. However, the hypothesis was not tested because changes in all components of mood states were not significant even when tested for individual sports (hockey and soccer) across all age categories. Results in tables 4.12 and 4.13 respectively indicated that in both sports, the training between pre and mid-tests did not bring significant changes in the mood states of anger, confusion, depression, fatigue, tension, vigour as well as TMD in relation to their age categories; under 24 years, 25-29 years, and 30 years and above.

4.5 Mood States of Male Hockey and Soccer Players by Playing Experience.

The objective was to establish the prevalence of mood states on the basis of varying playing experience levels of elite male hockey and soccer players in top national leagues in Kenya. To analyze the data, both descriptive statistics and One Way Analysis of variance were used. To determine the strength of resulting differences from ANOVA, Scheffe post-hoc test was used.

4.5.1 Mood States of Male Hockey and Soccer Players by Playing Experience.

The prevalence of mood states based on playing experience of elite male hockey players is shown in Table 4.14.

Table 4.14: ***Descriptive Analysis of Mood States of Hockey Players by Playing Experience***

Variable	Playing Experience							
	1-3 years (N=41)		4 – 6 years (N =20)		7 – 9 Years (N = 30)		Over 9 years (N= 25)	
	M	SD	M	SD	M	SD	M	SD
Anger - change	.0238	.67595	.0483	.51920	.2667	.64193	.0529	.81309
Confusion - change	.0703	.66069	.0238	.46259	.2667	.77499	.0986	.42774
Depression - change	.0878	.62687	.0350	.45053	.3071	.81466	.0754	.50074
Fatigue - change	-.2085	.85092	-.0776	.90219	.0905	.74419	-.0566	.88654
Tension-change	-.1101	.58145	.1733	.61662	.3481	.75004	.0080	.43880
Vigour - change	-.1716	.70784	-.3402	.74714	-.2833	.64739	.0136	.56187
TMD - change	.0349	3.2685	.5430	2.77985	1.5624	3.31103	.1647	2.38258

Table 4.14 shows the means and standard deviations of anger, confusion, depression, fatigue, tension, vigour and TMD of hockey players by playing experience. The players' experiences were categorized into 1-3 years', 4-6 years', 7-9 years', and over

9 years'. The results indicate that the level of anger increased across all levels of experience; 1-3 years ($\bar{x}$ = .0238, SD = .6760), 4-6 years ($\bar{x}$ = .483, SD = .51920), 7-9 years ($\bar{x}$ =.2667, SD = .6419) and over 9 years ($\bar{x}$ = .0529, SD = .8131).

The level of confusion increased in all levels of experience; 1-3 years ($\bar{x}$ = .0703, SD = .6607), 4-6 years ($\bar{x}$ = .0238, SD = .4626), 7-9 years ($\bar{x}$ = .2667, SD = .7750) and over 9 years ($\bar{x}$ = .0986, SD = .4277). Depression increased across all levels of experience; 1-3 years ($\bar{x}$ = .0878 SD = .6269), 4-6 years ($\bar{x}$ = .0350, SD = .4505), 7-9 years ($\bar{x}$ = .3071, SD = .8147) and over 9 years ($\bar{x}$ = .0754, SD = .5007).

Fatigue decreased among players in 1-3 years' level of experience ($\bar{x}$ = -.2085, SD = .8509), 4-6 years' experience ($\bar{x}$ = -.0776, SD = .9022) and over 9 years' experience ($\bar{x}$ = -.0556, SD = .8865) but increased for those who were in the 7-9 years' level of experience ($\bar{x}$ = .0905, SD = .7442). Tension decreased among players in 1-3 years' level of experience ($\bar{x}$ = -.1101, SD = .5815) but increased for those were in the 4-6 years' experience ($\bar{x}$ = .1733, SD = .6166), 7- 9 years' experience ($\bar{x}$ = .3481, SD = .75004) and over 9 years' experience ($\bar{x}$ = .008, SD = .43880).

Vigour decreased among players in 1-3 years' level of experience ($\bar{x}$ = -.1716, SD = .7078), 4-6 years' experience ($\bar{x}$ = -.3402, SD = .7471) and 7-9 years' experience ($\bar{x}$ = -.2833, SD = 6474) but increased for those who were in the over the 9 years' level of experience ($\bar{x}$ = .0136, SD = .5619).

Total Mood Disturbance (TMD) increased across all levels of experience; 1-3 years ($\bar{x}$ = .0349, SD = 3.2685), 4-6 years ($\bar{x}$ = .5430, SD = 2.7799), 7-9 years ($\bar{x}$ = 1.5624, SD = 3.3110) and over 9 years ($\bar{x}$ = .1647, SD = 2.3826). Generally, the results of

descriptive analysis indicate that the level of the six mood states and TMD in those in 1-3 years, 4-6 years, 7-9 years and over 9 years' experience levels of hockey players either increased or decreased.

To test if the changes in mood state scores by playing experience were significant, One Way ANOVA was conducted and the results summarized in Table 4.15.

Table 4.15: ***One Way ANOVA for Mood States of Hockey Players by Playing Experience***

			Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Hockey	Anger - change	Between Groups	1.179	3	.393	.860	.464
		Within Groups	51.215	112	.457		
		Total	**52.394**	**115**			
	Confusion - change	Between Groups	.943	3	.314	.813	.490
		Within Groups	43.335	112	.387		
		Total	**44.278**	**115**			
	Depression change	Between Groups	1.268	3	.423	1.056	.371
		Within Groups	44.839	112	.400		
		Total	**46.108**	**115**			
	Fatigue – change	Between Groups	1.560	3	.520	.734	.534
		Within Groups	79.351	112	.708		
		Total	**80.911**	**115**			
	Tension - Change	Between Groups	3.942	3	1.314	3.530	.017*
		Within Groups	41.683	112	.372		
		Total	**45.625**	**115**			
	Vigour - change	Between Groups	1.762	3	.587	1.306	.276
		Within Groups	50.378	112	.450		
		Total	**52.141**	**115**			
	TMD - change	Between Groups	45.337	3	15.112	1.646	.183
		Within Groups	1028.303	112	9.181		
		Total	**1073.640**	**115**			

*Significant at $p<0.05$, n = 116

Table 4.15 shows the results of One Way ANOVA used to determine if the changes in mood states of hockey players by playing experience were significant. Results indicate that change in anger of the hockey players in the four playing experience

levels (1-3 years, 4-6 years, 7-9 years, and above 9 years) was not significant (F (3, 112) = .860, p = .464). Change in confusion level of the hockey players in the four playing experience levels (1-3 years, 4-6 years, 7-9 years, and above 9 years) was not significant (F (3, 112) = .813, p = .490). Similarly, change in depression level among the hockey players in the four playing experience levels (1-3 years, 4-6 years, 7-9 years and above 9 years) was not significant F (3, 112) = 1.056, p = .371).

Likewise, change in fatigue level among hockey players in the four playing experience levels (1-3 years, 4-6 years, 7-9 years, and above 9 years) was not significant (F (3, 112) = .734, p = .534). Also, change in vigour of the hockey players in the four playing experience levels (1-3 years, 4-6 years, 7-9 years and above 9 years) was not significant (F (3, 112) = 1.306, p = .276).

Moreover, change in Total Mood Disturbance (TMD) among the hockey players in the four playing experience levels (1-3 years, 4-6 years, 7-9 years, and above 9 years) was not significant F (3, 112), 1.646, p = 1.83). These results suggest that the training between pre-test and mid-test did not bring significant changes in the mood states of anger, confusion, depression, fatigue, vigour as well as TMD of hockey players as a result of playing experience.

However, the results of One way ANOVA shows that change in tension of the hockey players in the four playing experience levels (1-3 years, 4-6 years, 7-9 years and above 9 years) was significant (F (3, 112) = 3.530, p = .017) as the probability value was greater than the significance level (0.05). These results suggest that out of all components of mood states (anger, confusion, depression, fatigue, tension and vigour) as well as TMD, the only significant change was in tension subscale.

As the obtained F value was significant on change in tension, Post-hoc test (Scheffe) was computed to find out how the varying playing experience levels (1-3 years, 4-6 years, 7-9 years and over 9 years) of hockey players differed with regard to tension subscale and the results presented in Table 4.16.

Table 4.16: ***Scheffes Post- hoc test for Tension Marker by Playing Experience***

Variable	Positions (I)	Positions (J)	Mean Difference (I-J)	Sig.	95% Interval	Confidence
					Lower Bound	Upper Bound
Tension-change	1-3years	4- 6 years	-.28343	.411	-.7557	.1889
		7-9 years	-.45824	.024*	-.8743	-.0422*
		Over 9 years	-.11809	.900	-.5575	.3213
	4-6 years	1-3 years	.28343	.411	-.1889	.7557
		7-9 years	-.17481	.805	-.6747	.3251
		Over 9 years	.16533	.845	-.3542	.6848
	7-9 years	1-3 years	.45824	.024*	.0422	.8743*
		4-6 years	.17481	.805	-.3251	.6747
		Over 9 years	.34015	.243	-.1288	.8091
	Over 9 years	1-3 years	.11809	.900	-.3213	.5575
		4-6 years	-.16533	.845	-.6848	.3542
		7-9 years	-.34015	.243	-.8091	.1288

*. The mean difference is significant at the 0.05 level.

Table 4.16 shows the results of post-hoc test (Scheffe) for determining how soccer players differed with regards to change in tension in the four levels of experience. Results shows that there was a significant difference in change in tension between players in 1-3 years' level of experience and those who were in the 7-9 years' level of experience (Mean change = -.4582, p = .024). However, the results showed no

significant difference between 4-6 years' level of experience and over 9 years' level of experience. From descriptive analysis (Table 4.14), the change in mean change scores for tension showed that the 7-9 years' level of experience ($\bar{x}$ = .2667, SD = .7750) recorded higher than the 1-3 years' level of experience ($\bar{x}$ = .0703, SD = .6607). These results suggest that hockey players in 1-3 years and 7-9 years levels of playing experience differed significantly in tension marker.

4.5.2 Mood States of Elite Male Soccer Players by Playing Experience

The prevalence of mood states based on playing experience of elite male soccer players is shown in Table 4.17.

Table 4.17: ***Descriptive Analysis of Mood States of Soccer Players by Playing Experience***

Variable	Playing Experience							
	1-3 years (N=60)		4 – 6 years (N =27)		7 – 9 Years (N = 21)		Over 9 years (N= 8)	
	M	SD	M	SD	M	SD	M	SD
Anger - change	.0229	.77239	-.0379	.81840	.0679	.79650	.0104	.95060
Confusion-change	-.1226	.64374	-.1164	.82016	-.0456	.66580	-.4464	.88866
Depression - change	.0091	.73987	.0372	.64424	-.1317	.76132	.0500	.66452
Fatigue-change	-.2544	1.0029	-.3369	1.03203	-.2068	.88488	-.5536	.77662
Tension-change	-.0183	.62891	-.1451	.65026	-.0677	.77329	.0556	.89285
Vigour - change	.0479	.79813	.2037	.85749	-.2330	1.13568	.2500	.63387
TMD - change	-.4112	3.04962	-.8027	3.62471	-.1509	3.54446	-1.1340	4.10280

Table 4.17 shows the means and standard deviations of mood states of anger, confusion, depression, fatigue, tension, vigour and TMD against playing experience of soccer players. The players' experiences were categorized into 1-3 years, 4-6 years,

7-9 years and over 9 years. The results indicate that the level of anger increased among players in 1-3 years' experience ($\bar{x}$ = .229, SD = .7724), 7-9 years' experience ($\bar{x}$ = .0679, SD = .7965) and over 9 years' experience ($\bar{x}$ = .0104, SD = .9506) but decreased for those who were in the 4-6 years' level of experience ($\bar{x}$ = -.0679, SD = .81840). Confusion decreased across all levels of experience; 1-3 years ($\bar{x}$ = -.1226, SD = .6437), 4-6 years ($\bar{x}$ = -.1164, SD = .8202), 7-9 years ($\bar{x}$ = -.0456, SD = .6658) and over 9 years ($\bar{x}$ = -.4464, SD = .8887).

Depression increased among players in 1-3 years' level of experience ($\bar{x}$ = .0091, SD = .7399), 4-6 years' experience ($\bar{x}$ = .0372, SD = .6442) and over 9 years' experience ($\bar{x}$ = .0500, SD = .6645) but decreased for those who were in the 7-9 years' level of experience ($\bar{x}$ = -.1317, SD = .7613). Fatigue decreased in all levels of playing experience; 1-3 years ($\bar{x}$ = -.2544, SD = 1.0029), 4-6 years ($\bar{x}$ = -.3369, SD = 1.032), 7-9 years ($\bar{x}$ = -.2068, SD = .8849) and over 9 years ($\bar{x}$ = -.5536, SD = .7766). Tension decreased among players in 1-3 years' level of experience ($\bar{x}$ = -.0183, SD = .6289), 4-6 years' experience ($\bar{x}$ = -.1451, SD = .6503), 7-9 years' experience ($\bar{x}$ = -.0677, SD = -.7733) but increased for those who were in the over 9 years' level of experience ($\bar{x}$ = .0556, SD = .8929). Vigour increased among players in 1-3 years' experience ($\bar{x}$ = .0479, SD = .7981), 4-6 years' experience ($\bar{x}$ = .2037, SD = .8575) and over 9 years' experience ($\bar{x}$ = .2500, SD = .63339) but decreased for those who were in the 7-9 years' level of experience ($\bar{x}$ = -.2330, SD = .6339).

Total Mood Disturbance (TMD) decreased across all levels of experience; 1-3 years ($\bar{x}$ = -.4112, SD = 3.0496), 4-6 years ($\bar{x}$ = -.8027, SD = 3.6247), 7-9 years ($\bar{x}$ = -.1509, SD = 3.5445) and over 9 years ($\bar{x}$ = -.1.1340, SD = 4.1028). Results from descriptive

analysis indicate that the level of anger, confusion, depression, fatigue, tension, vigour as well as TMD across all levels of experience; 1-3 years, 4-6 years, 7-9 years and over 9 years either increased or decreased.

To test if the changes in mood state scores by playing experience were significant, One Way ANOVA was conducted and the results summarized in Table 4.18.

Table 4.18: ***One Way ANOVA for Mood States of Soccer Players' by Playing Experience***

			Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Soccer	Anger-change	Between Groups	.138	3	.046	.072	.975
		Within Groups	71.627	112	.640		
		Total	**71.764**	**115**			
	Confusion - change	Between Groups	.959	3	.320	.636	.594
		Within Groups	56.333	112	.503		
		Total	**57.292**	**115**			
	Depression change	Between Groups	.421	3	.140	.272	.845
		Within Groups	57.772	112	.516		
		Total	**58.193**	**115**			
	Fatigue-change	Between Groups	.834	3	.278	.291	.832
		Within Groups	106.920	112	.955		
		Total	**107.754**	**115**			
	Tension - Change	Between Groups	.400	3	.133	.288	.834
		Within Groups	51.870	112	.463		
		Total	**52.269**	**115**			
	Vigour - change	Between Groups	2.639	3	.880	1.155	.330
		Within Groups	85.309	112	.762		
		Total	**87.948**	**115**			
	TMD-change	Between Groups	8.718	3	2.906	.258	.855
		Within Groups	1259.409	112	11.245		
		Total	**1268.127**	**115**			

Table 4.18 shows the results of One Way ANOVA used to determine if the changes in mood states of soccer players by playing experience were significant. The results indicate that change in anger of the soccer players in the four playing experience levels (1-3 years, 4-6 years, 7-9 years and above 9 years) was not significant (F (3,

112) = .072, p = .975). Change in confusion level of the soccer players in the four playing experience levels (1-3 years, 4-6 years, 7-9 years, and above 9 years) was not significant (F (3, 112) = .636, p = .594). Also, change in depression level among the soccer players in the four playing experience levels (1-3 years, 4-6 years, 7-9 years, and above 9 years) was not significant (F (3, 112) = .272, p = .845). Likewise, change in fatigue level of the soccer players in the four playing experience levels (1-3 years, 4-6 years, 7-9 years, and above 9 years) was not significant (F (3, 112) = .291, p = .832).

Similarly, change in tension level of the soccer players in the four playing experience levels (1-3 years, 4-6 years, 7-9 years, and above 9 years) was not significant (F (3, 112) = .288, p = .834). Also, change in vigour of the soccer players in the four playing experience levels (1-3 years, 4-6 years, 7-9 years, and above 9 years) was not significant (F (3, 112) = 1.155, p = .330).

Moreover, change in TMD among the soccer players in the four playing experience levels (1-3 years, 4-6 years, 7-9 years, and above 9 years) was not significant (F (3, 112) = .258, p = .855). This implies that the training between pre-test and mid-test did not bring about significant changes in the mood states of anger, confusion, depression, fatigue, vigour as well as TMD among soccer players as a result of playing experience. Specifically, these results suggest that the psychological markers of overtraining did not increase to a level indicative of overtraining in soccer players across different playing experience levels.

4.5.3 Mood States of Hockey and Soccer Players by Playing Experience

The prevalence of mood states in relation to playing experience among elite male hockey and soccer players is shown in Table 4.19.

Table 4.19: ***Descriptive Analysis of Mood States of Hockey and Soccer Players by Playing Experience***

Variable	Playing Experience levels of hockey and soccer players							
	1-3 years (N=101)		4 – 6 years (N =47)		7 – 9 Years (N = 51)		Over 9 years (N= 33)	
	M	SD	M	SD	M	SD	M	SD
Anger-change	.0233	.73127	-.0012	.70126	.1848	.70889	.0426	.83298
Confusion-change	-.0443	.65434	-.0567	.68811	.1381	.74145	-.0335	.60517
Depression-change	.0411	.69402	.0363	.56430	.1264	.81508	.0693	.53364
Fatigue – change	-.2357	.93999	-.2265	.97724	-.0319	.81009	-.1771	.87646
Tension-change	-.0556	.60881	-.0096	.64913	.1769	.77987	.0195	.56500
Vigour - change	-.0412	.76680	-.0277	.84856	-.2626	.87156	.0195	.57901
TMD - change	-.2301	3.13189	-.2300	3.3272	.8569	3.47981	-.1501	2.8739

Table 4.19 shows the means and standard deviations of the six mood states and TMD among hockey and soccer players by playing experience. The players' experiences were categorized into 1-3 years, 4-6 years, 7-9 years and over 9 years. The results indicate that the level of anger increased among players in 1-3 years' experience ($\bar{x}$ = .0233, SD = .73127), 7- 9 years' experience ($\bar{x}$ = .1848, SD = .70889) and over 9 years' experience ($\bar{x}$ = .0426, SD = .83298) but decreased for those who were in the 4-6 years' level of experience ($\bar{x}$ = -.0012, SD = .70126). The level of confusion decreased among players in 1-3 years' experience ($\bar{x}$ = -.0443, SD = .65434), 4-6 years' experience ($\bar{x}$ = -.0567, SD = .68811) and over 9 years' experience ($\bar{x}$ = -.0335,

SD = .60517) but increased for those who were in the 7-9 years' level of experience ($\bar{x}$ = .1381, SD = .74145).

Depression increased across all levels of experience; 1-3 years ($\bar{x}$ = .0411, SD = .69402), 4-6 years ($\bar{x}$ = .0363, SD = .56430), 7-9 years ($\bar{x}$ = .1264, SD = .81508) and over 9 years ($\bar{x}$ = .0693, SD = .53364). Fatigue decreased across all levels of experience; 1-3 years ($\bar{x}$ = -.2357, SD = .93999), 4-6 years ($\bar{x}$ = -.2265, SD = .97724), 7-9 years ($\bar{x}$ = -.0319, SD = .81009) and over 9 years ($\bar{x}$ = -.1771, SD = .87646). The level of tension decreased among players in 1-3 years' experience ($\bar{x}$ = -.0556, SD = .60881) and 4-6 years' experience ($\bar{x}$ = -.0096, SD = .64913) but increased for those who were in the 7-9 years' level of experience ($\bar{x}$ = .1769, SD = .77987) and over 9 years' level of experience ($\bar{x}$ = .0195, SD = .565). Vigour decreased among players in 1-3 years' experience ($\bar{x}$ = -.0412, SD = .7668), 4-6 years' experience ($\bar{x}$ = -.0277, SD = .84856) and 7-9 years' experience ($\bar{x}$ = -.2626, SD = .87156) but increased for those who were in the over 9 years' level of experience ($\bar{x}$ = .0195, SD = .57901).

The Total Mood Disturbance (TMD) decreased among players in 1-3 years' experience ($\bar{x}$ = -.2301, SD = 3.13189), 4-6 years' experience ($\bar{x}$ = -.2300, SD = 3.3272) and over 9 years' experience ($\bar{x}$ = -.1501, SD = 2.8739) but increased for those who were in the 7-9 years' level of experience ($\bar{x}$ = .8569, SD = 3.47981). Generally, the results of descriptive analysis indicate that the level of the six mood states across all levels of experience among hockey and soccer players either increased or decreased.

To test whether there was any significant difference in the mood state profiles among levels of playing experience of elite male hockey and soccer players, it was

hypothesized that there would be no significant difference in the mood state profiles among varying levels of playing experience of elite male hockey and soccer players in Kenya's top national leagues. One- Way ANOVA was conducted and summarized in Table 4.20.

Table 4.20: ***One Way ANOVA for Mood States of Hockey and Soccer Players by Playing Experience***

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Anger – change	Between Groups	1.114	3	.371	.686	.561
	Within Groups	123.426	228	.541		
	Total	**124.540**	**231**			
Confusion – change	Between Groups	1.353	3	.451	.991	.398
	Within Groups	103.804	228	103.804		
	Total	**105.157**	**231**			
Depression – change	Between Groups	.289	3	.096	.209	.890
	Within Groups	105.146	228	.461		
	Total	**105.434**	**231**			
Fatigue – change	Between Groups	1.534	3	.511	.615	.606
	Within Groups	189.683	228	.832		
	Total	**191.217**	**231**			
Tension – change	Between Groups	1.869	3	.623	1.463	.225
	Within Groups	97.072	228	426		
	Total	**98.941**	**231**			
Vigour – change	Between Groups	2.714	3	.905	1.467	.224
	Within Groups	140.630	228	.617		
	Total	**143.344**	**231**			
TMD - change	Between Groups	45.934	3	15.311	1.479	.221
	Within Groups	2359.853	228	10.350		
	Total	**2405.787**	**231**			

Table 4.20 shows the results of ANOVA for determining if there was any significant difference in mood state profiles in different levels of experience. As shown in the table, there was no significant difference in anger change index among the levels of playing experience of elite male hockey and soccer players ($F(3, 228) = .686$, $p = .561$). Also, there was no significant difference in confusion change index among levels of playing experience of elite male hockey and soccer players ($F(3, 228) =$

.991, p = .398). Likewise, there was no significant difference in depression change index among levels of playing experience of elite male hockey and soccer players (F (3, 228) = .209, p = .890). Similarly, there was no significant difference in fatigue change index among levels of playing experience of elite male hockey and soccer players (F (3, 228) = .615, p = .606). Also, there was no significant difference in tension change index among levels of playing experience of elite male hockey and soccer players (F (3, 228) = 1.463, p = .225).

By the same token, there was no significant difference in vigour change index among levels of playing experience of elite male hockey and soccer players (F (3, 228) = 1.467, p = .224). Moreover, there was no significant difference in Total Mood Disturbance (TMD) change index among levels of playing experience of elite male hockey and soccer players (F (3, 228) = 1.479, p = .221). As the obtained F values for all the mood state profiles was greater than the 0.05 alpha, the null hypothesis that there is no significant difference in the mood state profiles among varying levels of playing experience of elite male hockey and soccer players was accepted. These results suggest there are no significant differences in mood state profiles across the varying levels of playing experience (1-3 years, 4-6 years, 7-9 years, and over 9 years) of elite male hockey and soccer players.

4.6 Mood State Profiles of Hockey and Soccer Players by Playing Position

The focus under this section was on establishing the prevalence of mood states in relation to playing positions of elite male hockey and soccer players in top national leagues in Kenya. To analyze the data, descriptive statistics and One-Way Analysis of variance were used. To determine the strength of resulting differences from ANOVA, Scheffe post-hoc test was applied.

4.6.1 Mood States of Hockey Players by Playing Position

The results on the prevalence of mood states according to playing position of hockey players is shown in Table 4.21.

Table 4.21: ***Descriptive Analysis of Mood States of Hockey Players by Playing Positions***

Mood states	Playing position							
	Defender (N=41)		Midfielder (N =33)		Attacker (N = 32)		Goalkeeper (N= 10)	
	M	SD	M	SD	M	SD	M	SD
Anger - change	.1054	.63973	.0213	.68056	.0882	.59722	.3417	1.01945
Confusion-change	.0380	.49075	.0599	.62350	.2232	.76281	.3143	.58243
Depression - change	.0518	.41786	.2452	.60313	.2986	.78063	.2986	.91468
Fatigue-change	-.1832	.60268	-.0649	.91897	-.0158	.98186	.1357	.96800
Tension-change	.0699	.53926	.1279	.70772	.0888	.60859	-.0333	.83485
Vigour - change	-.1180	.56983	-.1699	.75299	-.2243	.72192	-.4375	.66471
TMD - change	.2000	2.1949	.3882	2.97342	.8540	3.56823	1.4944	4.54063

Table 4.21 shows the means and standard deviations of the six mood states and TMD against the varying playing positions of hockey players. The players' playing positions were categorized into defender, midfielder, attacker and goalkeeper. From the results, the level of anger increased across all positions of play; defender ($\bar{x}$ = .1054, SD = .6397), midfielder ($\bar{x}$ = .0213, SD = .6806), attacker ($\bar{x}$ = .0882, SD = .5972) and goalkeeper ($\bar{x}$ = .3417, SD = 1.0195). The level of confusion increased in all positions of play; defender ($\bar{x}$ = .0380, SD = .4908), midfielder ($\bar{x}$ = .0599, SD = .6235), attacker ($\bar{x}$ = .2232, SD = .7628) and goalkeeper ($\bar{x}$ = .3143, SD = .5824). Depression increased across all positions of play; defender ($\bar{x}$ = .0518, SD = .4179), midfielder ($\bar{x}$ = .0740, SD = .6031), attacker ($\bar{x}$ = .2452, SD = .7806) and goalkeeper

($\bar{x}$ = .2986, SD = .9147). Fatigue decreased among players in defender ($\bar{x}$ = -.6027, SD = .6027), midfielder ($\bar{x}$ = -.0649, SD = .9190) and attacker ($\bar{x}$ = -.0158, SD =.9819) positions but increased for those who were in the goalkeeper position ($\bar{x}$ = .1357, SD = .9680). Tension increased among players in defender ($\bar{x}$ = .0699, SD = .5393), midfielder ($\bar{x}$ = .1279, SD = .7077) and attacker ($\bar{x}$ = .0888, SD = .6086) positions but decreased for those who were in the goalkeeper position ($\bar{x}$ = -.0333, SD = .8349).

Vigour decreased across all positions of play; defender ($\bar{x}$ = -.1880, SD = .5698), midfielder ($\bar{x}$ = -.1699, SD =.7530), attacker ($\bar{x}$ = -.2243, SD = .7219) and goalkeeper ($\bar{x}$ = -.4375, SD = .6647). The Total Mood Disturbance (TMD) increased in all positions of play; defender ($\bar{x}$ = .2000, SD = 2.1949), midfielder ($\bar{x}$ = .3882, SD = 2.9734), attacker ($\bar{x}$ = .8540, SD = 3.5682) and goalkeeper ($\bar{x}$ = 1.4944, SD = 4.5406). In general, the descriptive analysis indicates that the level of mood states in the defenders, midfielders, attackers and goalkeepers in hockey either increased or decreased.

To test if the changes in mood states by playing position of the players were significant, One Way ANOVA was conducted and the results presented in Table 4.22.

Table 4.22: ***One Way ANOVA for Mood Sates of hockey players by playing position***

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Anger – change	Between Groups	.793	3	.264	.574	.634
	Within Groups	51.601	112	.461		
	Total	**52.394**	**115**			
Confusion – change	Between Groups	1.113	3	.371	.963	.413
	Within Groups	43.165	112	.385		
	Total	**44.278**	**115**			
Depression-change	Between Groups	1.062	3	.354	.880	.454
	Within Groups	45.046	112	.402		
	Total	**46.108**	**115**			
Fatigue – change	Between Groups	1.039	3	.346	.486	.693
	Within Groups	79.872	112	.713		
	Total	**80.911**	**115**			
Tension – change	Between Groups	.210	3	.070	.173	.915
	Within Groups	45.415	112	.405		
	Total	**45.625**	**115**			
Vigour – change	Between Groups	.876	3	.292	.638	.592
	Within Groups	51.265	112	.458		
	Total	**52.141**	**115**			
TMD - change	Between Groups	17.760	3	5.920	.628	.598
	Within Groups	1055.880	112	9.427		
	Total	**1073.640**	**115**			

Table 4.22 shows the results of ANOVA for determining if the changes in mood states by playing positions were significant. From the results, the change in anger level of the hockey players in the four playing positions (goalkeeper, defender, midfielder and attacker) was not significant ($F (3, 112) = .574$, $p = .634$). Change in confusion level of the hockey players in the four playing positions (goalkeeper, defender, midfielder and attacker) was not significant ($F (3, 112) = .963$, $p = .413$). Also, change in depression level among the hockey players in the four playing positions (goalkeeper, defender, midfielder and attacker) was not significant ($F (3, 112) = .880$, $p = .454$). Likewise, change in fatigue level of the hockey players in the four playing positions (goalkeeper, defender, midfielder and attacker) was not significant ($F (3, 112) = .486$, $p = .693$). Similarly, change in tension level of the

hockey players in the four playing positions (goalkeeper, defender, midfielder and attacker) was not significant (F (3, 112) = .173, p = .915).

Also, change in vigour of the hockey players in the four playing positions (goalkeeper, defender, midfielder and attacker) was not significant (F (3, 112) = .638, p = .592). Moreover, Change in Total Mood Disturbance (TMD) among the hockey players in the four playing positions (goalkeeper, defender, midfielder and attacker) was not significant (F (3, 112) = .628, p = .598). These results suggest that the training between pre-test and mid-test did not bring about significant changes in all components of mood states in the goalkeepers, defenders, midfielders and attackers in the game of hockey. Specifically, these results suggest the psychological markers of overtraining did not increase to a level indicative of overtraining in hockey players across different playing positions.

4.6.2 Mood States of Elite Male Soccer Players by Playing Position

The results on the prevalence of mood states according to playing position of soccer players is shown in Table 4.23.

Table 4.23: ***Descriptive Analysis of Mood States of Soccer Players by Playing Position***

Mood states	Playing position							
	Defender (N=38)		Midfielder (N =28)		Attacker (N = 31)		Goalkeeper (N= 18)	
	M	SD	M	SD	M	SD	M	SD
Anger - change	-.1068	.85119	.0974	.66440	.1170	.88742	-.0185	.66762
Confusion – change	-.2333	.72919	-.0714	.58644	-.1098	.80293	-.0291	.67524
Depression - change	-.1595	.70562	.0298	.67314	.2077	.86440	-.2976	.34996
Fatigue – change	-.6132	1.0034	-.2015	.85958	.0576	1.04660	-.2976	.71318
Tension-change	-.1906	.69216	.0551	.68103	.0596	.71608	-.1080	.52273
Vigour - change	.0197	1.1344	-.0733	.74840	.1112	.78564	.1845	.51471
TMD - change	-1.3231	3.5374	-.0174	2.77504	.2209	3.84489	-.7415	2.31489

Table 4.23 shows the means and standard deviations of the six mood states against the playing positions of soccer players. The playing positions were categorized into defender, midfielder, attacker and goalkeeper. As shown in the results, the level of anger decreased among players in defender ($\bar{x}$ = -.1068, SD = .8512) and goalkeeper ($\bar{x}$ = -.0185, SD = .6676) positions but increased for those who were in the midfielder ($\bar{x}$ = .0974, SD = .6644) and attacker ($\bar{x}$ = .1170, SD = .6676) positions. Confusion decreased among players in all positions; defender ($\bar{x}$ = -.2333, SD = .7292), midfielder ($\bar{x}$ = -.0714, SD = .5864), attacker ($\bar{x}$ = -.1098, SD = .8029) and goalkeeper ($\bar{x}$ = -.0291, SD = .6752). Depression decreased among players in defender ($\bar{x}$ = -.1595, SD = .7056) and goalkeeper ($\bar{x}$ = -.1037, SD = .3500) positions but increased

for those who were in the midfielder ($\bar{x}$ = .0298, SD = .6731) and attacker ($\bar{x}$ = .2077, SD = .8644) positions. Fatigue decreased among players in defender ($\bar{x}$ = -.6132, SD = 1.0034), midfielder ($\bar{x}$ = -.2015, SD = .8596) and goalkeeper ($\bar{x}$ = -.2976, SD = .7132) positions but increased for those who were in the attacker position ($\bar{x}$ = .0576, SD = .7132).

Tension decreased among players in defender ($\bar{x}$ = -.1906, SD = .6922) and goalkeeper ($\bar{x}$ = -.1080, SD = .5227) positions but increased for those who were in the midfielder ($\bar{x}$ = .0551, SD = .6810) and attacker ($\bar{x}$ = .0596, SD = .7161) positions. Vigour increased among players in defender ($\bar{x}$ = .0197, SD = 1.1344), attacker ($\bar{x}$ = .1112, SD = .7856) and goalkeeper ($\bar{x}$ = .1845 SD = .5147) positions but decreased for those who were in the midfielder position ($\bar{x}$ = -.0733, SD = .7484).

The Total Mood Disturbance (TMD) decreased among players in defender ($\bar{x}$ = -1.3231, SD = 3.5374), midfielder ($\bar{x}$ = -.0174, SD = 2.7750) and goalkeeper ($\bar{x}$ = -.7415, SD = 2.3149) positions but increased for those who were in the attacker position ($\bar{x}$ = .2209, SD = 3.8449). Generally, the results of descriptive analysis indicate that the level of anger, confusion, depression, fatigue, tension, vigour and TMD increased or decreased in defender, midfielder, attacker and goalkeeper positions.

To test if the changes in mood states by playing position of the players were significant, One Way ANOVA was conducted and the results presented in Table 4.24.

Table 4.24: ***One Way ANOVA for Mood Sates of Soccer players by playing positions***

		Sum of Squares	df	Mean Square	F	Sig.
Anger – change	Between Groups	1.111	3	.370	.587	.625
	Within Groups	70.653	112	.631		
	Total	**71.764**	**115**			
Confusion – change	Between Groups	.708	3	.236	.467	.706
	Within Groups	56.583	112	.505		
	Total	**57.292**	**115**			
Depression-change	Between Groups	2.541	3	.847	1.705	.170
	Within Groups	55.652	112	.497		
	Total	**58.193**	**115**			
Fatigue – change	Between Groups	8.037	3	2.679	3.009	.033*
	Within Groups	99.717	112	.890		
	Total	**107.754**	**115**			
Tension – change	Between Groups	1.513	3	.504	1.113	.347
	Within Groups	50.756	112	.453		
	Total	**52.269**	**115**			
Vigour – change	Between Groups	.903	3	.301	.387	.762
	Within Groups	87.045	112	.777		
	Total	**87.948**	**115**			
TMD - change	Between Groups	50.099	3	16.700	1.536	.209
	Within Groups	1218.028	112	10.875		
	Total	**1268.127**	**115**			

*Significant at $p<0.05$, n = 116

Table 4.24 shows the results of One Way ANOVA for determining if the changes in mood states by playing positions were significant. From the results, change in anger level among the soccer players in the four playing positions (goalkeeper, defender, midfielder and attacker) was not significant ($F (3, 112) = .587$, $p = .625$). Also, change in confusion level among the soccer players in the four playing positions (goalkeeper, defender, midfielder and attacker) was not significant ($F (3, 112) = .467$, $p = .706$). Similarly, change in depression level among the soccer players in the four playing positions (goalkeeper, defender, midfielder and attacker) was not significant ($F (3, 112) = 1.705$, $p = .170$). Likewise, change in tension level of the soccer players

in the four playing positions (goalkeeper, defender, midfielder and attacker) was not significant (F (3, 112) = 1.113, p = .347). Similarly, change in vigour of the soccer players in the four playing positions (goalkeeper, defender, midfielder and attacker) was not significant (F (3, 112) = .387, p = .762). Furthermore, Change in Total Mood Disturbance (TMD) among soccer players in the four playing positions (goalkeeper, defender, midfielder and attacker) was not significant (F (3, 112) = 1.536, p = .209).

The results of One Way ANOVA show that change in fatigue level of the soccer players in the four playing positions (goalkeeper, defender, midfielder and attacker) was significant (F (3, 112) = 3.009, p = 0.033) as the probability value was greater than the significance level (0.05). These results suggest that out of all components of mood states (anger, confusion, depression, fatigue, tension and vigour) as well as TMD, the only significant change was on fatigue.

Since the F value was significant on change in fatigue, post-hoc test (Scheffe) was computed to find out how the playing positions (defender, midfielder, attacker and goalkeeper) differed in this regard. The results are shown in Table 4.25.

Table 4.25: ***Scheffe Post-hoc test (Scheffe) for Mood States of Soccer Players and Playing Positions***

Variable	Positions (I)	Positions (J)	Mean Difference (I-J)	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Fatigue-change	Defender	Midfielder	-.41166	.380	-1.0751	.2518
		Attacker	-.67079	.038*	-1.3153	-.0263*
		Goalkeeper	-.31557	.711	-1.0788	.4476
	Midfielder	Defender	.41166	.380	-.2518	1.0751
		Attacker	-.25913	.775	-.9574	.4391
		Goalkeeper	.09609	.990	-.7131	.9052
	Attacker	Defender	.67079	.038*	.0263	1.3153*
		Midfielder	.25913	.775	-.4391	.9574
		Goalkeeper	.35522	.657	-.4384	1.1489
	Goalkeeper	Defender	.31557	.711	-.4476	1.0788
		Midfielder	-.09609	.990	-.9052	.7131
		Attacker	-.35522	.657	-1.1489	.4384

*. The mean difference is significant at the 0.05 level.

Table 4.25 shows results of post-hoc test (Scheffe) for determining how soccer players' differed with regards to change in fatigue in the four playing positions. From the results, there was a significant difference between defender and attacker positions (Mean difference = -.6708, p = 0.038) on fatigue of the soccer players. However, the results showed no significant difference between midfielder and goalkeeper positions.

4.6.3 Mood States of Hockey and Soccer Players by Playing Positions

Table 4.26 shows the means and standard deviation of the six mood states as well as TMD in relation to varying playing positions of hockey and soccer players.

Table 4.26: ***Descriptive Analysis of Mood States of Hockey and Soccer Players by Playing Positions***

Variable	Playing Experience levels of hockey and soccer players							
	Defender (N=80)		Midfielder (N =61)		Attacker (N = 63)		Goalkeeper (N= 28)	
	M	SD	M	SD	M	SD	M	SD
Anger -change	.0020	.75307	.0563	.66867	.1024	.74807	.1101	.81114
Confusion -change	-.0943	.62956	-.0004	.60535	.0593	.79439	.0935	.65439
Depression-change	-.0512	.58241	.0537	.63120	.2268	.81645	.0400	.62811
Fatigue-change	-.3928	.84557	-.1276	.88747	.0203	1.00669	-.1429	.82298
Tension-change	-.0571	.62838	.0945	.69078	.0744	.65843	-.0813	.63695
Vigour -change	-.0509	.88782	-.1256	.74618	-.0592	.76670	-.0376	.63735
TMD -change	-.5425	3.0076	.2020	2.8674	.5425	3.69068	.0570	.63735

Table 4.26 shows the means and standard deviations of the six mood states against the playing positions among hockey and soccer players. The playing positions were categorized into defender, midfielder, attacker and goalkeeper. From the results, the level of anger increased across all positions; defender ($\bar{x}$ = .0020, SD = .75307), midfielder ($\bar{x}$ = .0563, SD = .66867), attacker ($\bar{x}$ = .1024, SD = .74807) and goalkeeper ($\bar{x}$ = .1101, SD = .81114). The level of confusion decreased among players in defender ($\bar{x}$ = -.0943, SD = .62956) and midfielder ($\bar{x}$ = -.0004, SD =.60535) positions but increased for those who were in the attacker ($\bar{x}$ = .0593, SD = .79439) and goalkeeper ($\bar{x}$ = .0935, SD = .65439) positions. Depression decreased among players in defender position ($\bar{x}$ = -.0512, SD = .58241) but increased for those who were in the midfielder ($\bar{x}$ = .0537, SD = .63120), attacker ($\bar{x}$ = .2268, SD = .81645) and goalkeeper ($\bar{x}$ = .0400, SD = .62811) positions. Fatigue decreased among players in defender ($\bar{x}$ = -.3928, SD = .84557), midfielder ($\bar{x}$ = -.1276, SD = .88747)

and goalkeeper ($\bar{x}$ = -.1429, SD = .82298) positions but increased for those who were in the attacker position ($\bar{x}$ = .0203, SD = 1.00669).

Vigour decreased in all the playing positions; defender ($\bar{x}$ = -.0509, SD = .88782), midfielder ($\bar{x}$ = -.1256, SD = -.1256), attacker ($\bar{x}$ = -.0592, SD = .76670) and goalkeeper ($\bar{x}$ = -.0376, SD = .63735). The Total Mood Disturbance (TMD) decreased among players in defender position ($\bar{x}$ = -.5425, SD = 3.00755) but increased for those who were in the midfielder ($\bar{x}$ = .2020, SD = 2.86744), attacker ($\bar{x}$ = .5425, SD = 3.69068) and goalkeeper ($\bar{x}$ = .0570, SD = .63735) positions. Generally, the results of descriptive analysis indicate that the mood state profiles either increased or decreased in the defender, midfielder, attacker and goalkeeper playing positions of hockey and soccer players.

To test if there was any significant difference in the mood state profiles among playing positions of elite male hockey and soccer players, it was hypothesized that there is no significant difference in the mood state profiles among the varying playing positions of elite male hockey and soccer players in Kenya's top national leagues. One- Way ANOVA test was used to examine the results. The results are summarized in Table 4.27.

Table 4.27: ***One Way ANOVA for Mood State Profiles of Hockey and Soccer Players by Playing Positions***

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Anger – change	Between Groups	.451	3	.150	.276	.843
	Within Groups	124.089	228	.544		
	Total	**124.540**	**231**			
Confusion – change	Between Groups	1.171	3	.390	.856	.465
	Within Groups	103.986	228	.456		
	Total	**105.157**	**231**			
Depression – change	Between Groups	2.753	3	.918	2.037	.109
	Within Groups	102.681	228	.450		
	Total	**105.434**	**231**			
Fatigue – change	Between Groups	6.357	3	2.119	2.613	.052
	Within Groups	184.860	228	.811		
	Total	**191.217**	**231**			
Tension – change	Between Groups	1.284	3	.428	.999	.394
	Within Groups	97.658	228	.428		
	Total	**98.941**	**231**			
Vigour – change	Between Groups	.254	3	.085	.135	.939
	Within Groups	143.090	228	.628		
	Total	**143.344**	**231**			
TMD - change	Between Groups	44.569	3	14.856	1.435	.233
	Within Groups	2361.218	228	10.356		
	Total	**2405.787**	**231**			

Table 4.27 shows the results of ANOVA for determining if there was any significant difference in mood state profiles of players in different playing positions. As shown in the table, there was no significant difference in change in anger in the four playing positions of the hockey and soccer players ($F (3, 228) = .276$, $p = .843$). There was no significant difference in change in confusion in the four playing positions of the hockey and soccer players ($F (3, 228) = .856$, $p = .465$). Also, there was no significant difference in change in depression in the four playing positions of the hockey and soccer players ($F (3, 228) = 2.037$, $p = .109$).

Likewise, there was no significant difference in change in fatigue in the four playing positions of the hockey and soccer players ($F (3, 228) = 2.613$, $p = .052$). Similarly,

there was no significant difference in change in tension in the four playing positions of the hockey and soccer players. (F (3, 228) = .999, p = .394). Similarly, there was no significant difference in vigour change in the four positions of play of the hockey and soccer players. (F (2, 228) = .135, p = .939).

Moreover, there was no significant difference in change in Total Mood Disturbance (TMD) in the four playing positions of the hockey and soccer players. (F (3, 228), = 1.435, p = .233). Since the probability value is greater than the significance level (0.05) for all the mood sub-scales, the null hypothesis that there is no significant difference in the mood state profiles among varying playing positions of elite male hockey and soccer players in Kenya's top national leagues was accepted. These results suggest there are no differences in mood state profiles across the playing positions (defender, midfielder, attacker and goalkeeper) among hockey and soccer players.

4.7 Mood States in First Team/Starters and Substitute Players of Elite Male Hockey and Soccer Players

The focus under this section was on determining the prevalence of mood states in first team and substitute players among elite male hockey and soccer players in top national leagues in Kenya. To analyze the data, descriptive statistics and an Independent Samples t-test were used.

4.7.1 Mood States in First Team and Substitute Players of Elite Male Field Hockey Players

The results of the analysis of the changes in the six mood states as well as TMD between pre-test and mid- test of first team and substitute players of elite male field hockey players are shown in Table 4.28.

Table 4.28: ***Independent Samples t-test for POMS Scores of Hockey Players***

Substitute/first team	Variable	Substitute/ First team	Mean	Std. Deviation	t-test for Equality of Means		t-test for Equality of Means		
					95% Confidence Interval of the Difference				
					Lower	Upper	t	df	Sig. (2-tailed)
Hockey	Anger-change	Substitute	.0646	.66889	-.30848	.19598	-.442	114	.659
		First team	.1209	.68345					
	Confusion-change	Substitute	.0500	.73438	-.350`64	.11137	-1.026	114	.307
		First team	.1697	.52203					
	Depression-change	Substitute	.0803	.78809	-.32709	.14534	-.762	114	.448
		First team	.1711	.49332					
	Fatigue-change	Substitute	-.0685	.85681	-.30098	.32642	.080	114	.936
		First team	-.0812	.83184					
	Tension-change	Substitute	.0975	.66807	-.20995	.26110	.215	114	.830
		First team	.0719	.60532					
	Vigour-change	Substitute	-.1079	.66767	-.10886	.39205	1.120	114	.265
		First team	-.2495	.67617					
	TMD-change	Substitute	.3318	3.4431	-1.5108	.77063	-.643	114	.522
		First team	.7019	2.7545					

Table 4.28 shows the results of Independent Samples t-test for determining if the changes in mood states by starting status of the hockey players were significant. The players' starting status was categorized into substitute and first team. From the results, the level of anger increased for substitutes ($\bar{x}$ = .0646, SD = .6689) and also for first team ($\bar{x}$ = .1209, SD = .6835) but the change was not significant (t (114) = -.442, p = .659). The level of confusion increased for substitutes ($\bar{x}$ = .0500, SD = .7344) and also first team ($\bar{x}$ = .1697, SD = .5220) but the increase was not significant (t (114) = -

1.026, p = .307). Depression increased for substitutes ($\bar{x}$ = .0803, SD = .7881) and also for first team ($\bar{x}$ = .1711, SD = .4933) but the change was not significant (t (114) = -.762, p = .448). The level of fatigue decreased for substitutes ($\bar{x}$ = -.0685 SD = .8568) and also for first team players ($\bar{x}$ = -.0812, SD = - .8318) but the change was not significant (t (114) = .080, p = .936).

The level of tension increased for substitutes ($\bar{x}$ = .0975, SD = .6681) and also for first team ($\bar{x}$ = .0719, SD = .6053) but the change was not significant (t (114) = .215, p = .830). The level of vigour decreased for substitutes ($\bar{x}$ = -.1079, SD = .6677) and also for first team ($\bar{x}$ = -.2495, SD = .6762) but the change was not significant (t (114) = 1.120, p = .265).

The level of Total Mood Disturbance (TMD) increased for substitutes ($\bar{x}$ = .3318, SD = 3.4431) and also for first team ($\bar{x}$ = .7019, SD = 2.7545) but the increase was not significant (t (114) = -.643, p = .522). The results indicated that changes in the mood states of anger, confusion, depression, fatigue, tension, vigour and TMD were not significant. Specifically, these results suggest that the mood states did not increase to a level indicative of overtraining in hockey players in either first team or substitutes.

4.7.2 Mood States in First Team and Substitute Players of Elite Male Soccer Players

The results of the analysis of the changes in the six mood states as well as TMD between pre-test and mid- test of first team and substitute players of elite male soccer players are shown in Table 4.29.

Table 4.29: ***Independent Samples t-test for POMS Scores of Soccer Players by Starting Status***

Substitute/first team	Variable	Substitute/first team	Mean	Std. Deviation	t-test for Equality of Means		t-test for Equality of Means		
					95% Confidence Interval of the Difference				
					Lower	Upper	t	df	Sig. (2-tailed)
Soccer	Anger-change	Substitute	.0128	.79395	-.30023	.28913	-.037	114	.970
		First team	.0184	.79301					
	Confusion-change	Substitute	-.2305	.59263	-.43861	.08386	-1.345	114	.181
		First team	-.0531	.77646					
	Depression-change	Substitute	-.0290	.72797	-.30398	.22655	-.289	114	.773
		First team	.0097	.70366					
	Fatigue-change	Substitute	-.3252	.90580	-.43054	.29118	-.383	114	.703
		First team	-.2556	1.0184					
	Tension-change	Substitute	-.1156	.61326	-.28365	.36861	-.888	114	.376
		First team	-.0032	.71771					
	Vigour-change	Substitute	.0714	.73806	-.28365	.36861	.258	114	.797
		First team	.0290	.97037					
	TMD-change	Substitute	-.7589	2.9322	-1.6821	.78985	-.715	114	.476
		First team	-.3128	3.5974					

Table 4.29 shows the results of Independent Samples t-test for determining if the changes in mood states by starting status of the soccer players were significant. As shown in the table, the level of anger increased for substitutes ($\bar{x}$ = .0128, SD = .0184) and also for first team players ($\bar{x}$ = .0184, SD =.79301) but the change was not significant (t (114) = -.037, p = .970). The level of confusion decreased for substitutes ($\bar{x}$ = -.2305, SD = -.59263) and also for first team ($\bar{x}$ = -.0531, SD = .7765) but change was not significant (t (114) = -1.345, p = .181).

Depression decreased for substitutes ($\bar{x}$ = -.0290, SD = .7280) but increased for first team ($\bar{x}$ = .0097, SD = .70366) but the change was not significant (t (114) = -.289, p = .733). The level of fatigue decreased for substitutes ($\bar{x}$ = -.3252, SD = .9058) and also for first team ($\bar{x}$ = -.2556, SD = 1.0184) but decrease was not significant (t (114), = -.383, p = .703).

The level of tension decreased for substitutes ($\bar{x}$ = -.1156, SD = .6133) and also for first team ($\bar{x}$ = -.0032, SD = .7177) but the decrease was not significant (t (114) = -.888, p = .376). The level of vigour increased for substitutes ($\bar{x}$ = .0714, SD = .7381) and also for first team ($\bar{x}$ = 0.290, SD = .9704) but the increase was not significant (t (114) = .258, p = .797). The Total Mood Disturbance (TMD) decreased for substitutes ($\bar{x}$ = -.7589, SD = 2.9322) and also for first team ($\bar{x}$ = -.3128, SD = 3.5974) but the decrease was not significant (t (114) = -.715, p = .476). The results indicated that changes in the mood states of anger, confusion, depression, fatigue, tension, vigour as well as TMD were not significant. Specifically, these results suggest that the mood states did not increase to a level indicative of overtraining in soccer players in either first team or substitutes.

4.7.3 Mood States of First Team and Substitute Players Among Elite Male Hockey and Soccer Players

To determine whether there was any significant difference in the mood state profiles between starters and substitute players among elite male hockey and soccer players, it was hypothesized that there is no significant difference in the mood state profiles between substitutes and first team players among elite male hockey and soccer players in Kenya's top national leagues. However, the hypothesis was not tested because changes in all components of mood states were not significant even when tested for individual status (first team and substitute) in each sport. Results in table 4.28 and 4.29 respectively showed that in both sports, changes in the mood states of anger, confusion, depression, fatigue, tension as well as TMD were not significant in either first team or substitutes.

CHAPTER FIVE

DISCUSSION

5.1 Introduction

The study investigated prevalence of psychological markers of overtraining amongst elite male hockey and soccer players in top national leagues in Kenya. The study examined the prevalence of psychological markers of overtraining (anger, confusion, depression, fatigue, tension, and vigour) and TMD and their relationship to players' demographic factors of type of sport (hockey/soccer), age categories, playing experience, playing position and starting status. The results compared profile of mood states (POMS) scores between pre-test and mid-test and discussed as follows:

5.2 Prevalence of Mood States in Relation to Type of Sport (Hockey and Soccer)

5.2.1 Prevalence of Mood States in Hockey Players

The findings of this study showed that there was a high and significant level of confusion, depression and vigour among elite male hockey players. The high level of confusion and depression (negative mood states) could have been manifestation of increases in training load (Meeusen et al., 2006; Raglin, 2006). Notably, the level of vigour decreased and the change in mean POMS scores showed the change was significant. This is a normal occurrence since it has been noted that as training volume increases, the POMS profile changes with vigour decreasing (Thatcher et al., 2011; Beardsley, 2013). Therefore, the decrease in vigour an indicator of positive mood state was also a sign of overtraining. Decreased vigour is a psychological sign of prolonged training distress (Fry et al., 1998; Meeusen et al., 2006; Lox et al., 2006). The decrease of vigour suggests that there was an element of overtraining among hockey players. With increased training volume, the POMS profile changes with

negative mood sub-scales increasing and vigour scores decreasing (Halson & Jeukendrup, 2004; Meeusen et al., 2006; Nagle, 2011). This finding is in contrast to that of Martin et al., (2000) who found that neither TMD nor the specific mood states significant in cycling athletes following six weeks high intensity training. A possible explanation for such differing results could be that Martin et al (2000) study used individual sport athletes while the current study involved team sport athletes.

The discrepancy between the results of the two studies can also be attributed to the fact that the current study was carried out without manipulating the players' normal training regimen. The current findings also differ with those of Schultes (1995) whose results indicated no significant changes in mood states of anger, confusion, depression, fatigue, tension and vigour in female volleyball players. A possible explanation for the discrepancy may be due to the fact that the prevalence of psychological markers of overtraining in elite male hockey players might differ from those of female volleyball athletes. Interestingly, there is a similarity with Mushtaq and Vallimurugan's (2014) who found that the mood states of confusion, depression, and vigour in the hockey players were significant following mental imagery training.

Mushtaq and Vallimurugan (2014) examined mood states in relation to mental imagery training, whereas the current study examined mood states in relation to overtraining. The findings of the current study are also consistent with those of Ismail et al., (2016) who revealed that there was a significant difference in anger, confusion, depression, fatigue, tension and TMD between the winning and losing teams. However, Ismail et al., (2016) scrutinized mood states in relation to a team's level of performance.

Despite the fact that the researcher had no control over other factors that can contribute to mood changes of the players participating in the study, changes in the POMS suggest that hockey players training in Kenya predisposes them to a profile that could be interpreted as commensurate with overtraining. The current study suggests that the increased training load between pre-test and mid-test results in a change in POMS as reflected in high levels of confusion, depression and vigour. However, the paucity of related research with regard to hockey and mood states demands further scrutiny.

5.2.2 Prevalence of Mood States in Soccer Players

The findings of this study showed that the level of anger, depression, tension, vigour as well as TMD all changed but the change was not significant. This is a normal occurrence where the mood states change in relation to increases in training load. Study findings indicated that the level of confusion and fatigue decreased and the decrease was significant. The finding was against the norm where confusion and fatigue (negative mood states) are expected to increase in athletes following an intensive training (Johnson, 1994; Budgett, 1998; Greenwood, 2008; Cunha et al., 2006). Therefore, the finding was a surprise because negative mood states are expected to increase in relation to the training volume. That is why Kentta et al., (2006) found a correlation between mood states and overtraining in elite kayakers.

Mood states alter as a result of overtraining. As Budgett (1998) indicated, over-trained athletes experience higher ratings of confusion. In the same vein, Budgett (1998), Nicoll (2014) and Greenwood (2008) associated elevated fatigue with overtraining. Similarly, Kentta et al., (2006) found a correlation between mood states and overtraining in elite Kayakers. These results of the current study concur with those of

Lovell et al., (2010) who found that confusion, depression and tension were significant among English professional soccer players. Although Lovell et al., (2010) and the current study differed on the prevalence of some of psychological markers of overtraining, both studies showed the greatest change was towards the negative mood state profiles.

5.2.3 Mood State Profiles Among Elite Male Hockey and Soccer Players

A major interest of this study was to determine whether there was any significant difference in the mood state profiles between elite male hockey and soccer players. Despite the two sports having similarities in terms of team composition, players' designated roles, starting status and being grouped under team sports, there are limited studies that have compared the mood state profiles of the two sports. The findings provided no support for the hypothesis that there is no significant difference in the mood state profiles between elite male hockey and soccer players in top national leagues in Kenya.

The results of this study revealed that the two groups of hockey and soccer players differed significantly in as far as the confusion index was concerned. The two groups of hockey and soccer players differed significantly as far as the vigour index was concerned. The two groups (hockey and soccer players) also differed significantly in as far as TMD index was concerned. A possible explanation for the differences could be that the training methods of the two sports may have been different. Another possible reason for the significant differences in mood state profiles between hockey and soccer players could be due to ability levels. For example, though grouped under elite level, it was interesting to note that four out of nine hockey teams (44%) who participated in the study were university teams (Table 4.1). This can be because elite

athletes are more alike in their psychological traits and differ as a group from less-skilled groups (Cox, 2002). The results do not seem supportive of the Bita et al., (2013) findings that there was no significant difference between individual and team sports in all mood sub-scales (anger, confusion, depression, fatigue, tension and vigour). However, Bita et al., (2013) investigated mood states of individual and team sports prior to competition which implies that participants in their study, unlike the current one, did not undergo an overtraining period. The finding of the current study also differs from results by Rudolph (1996), who found a significantly high mood in aerobic and soccer participants, while bowlers and tennis players reported no change. A possible explanation for the different findings could be that Rudolph used recreational players, while athletes in the current study were elite athletes competing at national and international levels. The discrepancy between these two studies can also be attributed to differing training programmes.

The findings of this study indicated that the prevalence of psychological markers of overtraining differs between elite male hockey and soccer players. This could be because the task- specific nature of sport can influence the mood states of athletes (Bita et al., 2013). This view agrees with the assertion by Raglin and Wilson (2000) that the prevalence of overtraining in sports differs according to the sport being examined.

5.3 Prevalence of Mood States in Relation to Age Categories of Elite Male Hockey and Soccer Players

5.3.1 Prevalence of Mood States in Relation to Age Categories of Elite Male Hockey Players

The current study showed that changes in anger, confusion, depression, fatigue, tension and vigour as well as TMD in the hockey players in the three age categories (under 24 years, 25-29 years, and 30 years and above) were not significant. The findings may be explained by the assertion by Gibson's (1997) that when examining mood states in relation to age, response bias rather than age itself accounts for the decline. This finding is not in agreement with results of other studies. For example, Boldizsa`r et al., (2016) reported that senior (21-31 years) and junior gymnasts (15-20 years) had elevated anger levels ($p < 0.05$) compared to gymnasts (10-14 years old). Similarly, a study by Annesi (2004) reported a significant group difference on depression, fatigue, tension and vigour between younger exercise group (mean age = 33 years) and older exercise group (mean age = 63 years).

The findings are further conflicted with those of Aoki et al., (2017) who reported significant difference between under 16 years group and under 19 years group with a higher POMS scores in anger, depression, fatigue and tension between under 16 years and under 19 years of elite young volleyball players. The differences in results between findings of the current study and that of Boldizsa`r et al., (2016), Annesi (2004) and Aoki et al., (2017) could be attributed to differing age categories, type of sport, gender, ability levels, differing training methods and methodology used.

With regard to hockey, the researcher found no study that had examined the psychological markers of overtraining (mood states) of elite male hockey players in

relation to varying age categories. The finding of the current study suggests that the psychological markers of overtraining were not affected by the age of the players.

5.3.2 Prevalence of Mood States in Relation to Age Categories of Elite Male Soccer Players

Results of the current study showed that the change in mean scores in the mood states of anger, confusion, depression, fatigue, tension, vigour as well as TMD of the soccer players in the three age categories of under 24 years, 25-29 years, and 30 years and above, were not significant. Studies that have evaluated athletes' mood states in relation to age categories have found significant differences. Rostami, Nazemzadegan and Mohammadi (2016) showed that anger, depression and fatigue in basketball players in the four age groups (30-34, 35-39, 40-44, and 45 and above) were significantly different. Post hoc test (LSD) conducted on mood states in their study further revealed that 35-39 age group scored higher in negative mood sub-scales when compared to other age groups (30-34, 40-44, and 45 and above).

A study by Wughalter and Gondola (1991) indicated that older professional female tennis players scored higher on the vigour mood state and lower on the negative mood states of anger, confusion, depression, fatigue and tension compared to other age groups; college age women and young athletes. The findings of Rostami et al., (2016) and Wulghater and Gondola (1991) contrast with results of the current study that found changes in the mood states of anger, confusion, depression, fatigue, tension, vigour as well as TMD were not significant in the soccer players across the age categories. This implies that the prevalence of psychological markers of overtraining (mood states) in elite male soccer players did not differ in relation to age categories. The results indicate that the psychological markers of overtraining were not affected

by the age of the players. The findings of this study therefore suggest that age category is not a factor that influences the mood states of elite players in the area of soccer play.

5.3.3 Mood State Profiles Between Varying Age Categories among Elite Male Hockey and Soccer Players

Findings of the current study showed that changes in all components of mood states were not significant even when tested for individual sport (hockey and soccer) across all age categories. Thus, the results showed support for the hypothesis that there is no significant difference in the mood state profiles among varying age categories of elite male hockey and soccer players. From the results, it therefore emerged that there are no differences in as far as mood state profiles are concerned between varying age categories among elite male hockey and soccer players. This may be attributed to similarities in the two sports.

This contrasts with findings of studies that have compared mood states between athletes of different sports. For example, Bita et al., (2013) found that there is a significant difference in confusion, depression, tension and vigour at different time to event between individual and team sport. The study by Bita et al., (2013) further indicated a significant difference in tension and vigour at one day before competition between individual and team sport. The results by Zandi and Rad (2013) from a sample of 9 different sports (Karate, tennis, track and field, chess, badminton, basketball, shooters, volleyball and swimming) indicated that there are significant differences between the winning and losing female athletes in mood states of anger, confusion, fatigue and tension. The disparities in results between the current study and

that of Bita et al., (2013) and Zandi and Radi (2013) can be attributed to the purpose of the study, target population, time for data collection and methodology used.

With regard to hockey and soccer, the findings of the current study contradicts the findings by Visram (2012) that indicated a significant relationship between mental toughness and total mood disturbance for participants from both hockey and soccer teams. Although the purpose of the study by Visram (2012) and the current one differs, this lack of significant difference of mood states among age groups of elite male hockey and soccer players requires further investigation.

5.4 Prevalence of Mood States on the basis of Playing Experience of Elite Male Hockey and Soccer Players

5.4.1 Prevalence of Mood States on the basis of Playing Experience of Elite Male Hockey Players

Results on prevalence of mood states on the basis of playing experience of elite male hockey players showed that change in tension in elite male hockey players in the four playing experience categories (1-3 years, 4-6 years, 7-9 years, and above 9 years) was significant. Post hoc test (Scheffe) identified the difference to be mainly between players who had played for 7-9 years and those who had played for 1-3 years.

Although studies regarding the prevalence of mood states in relation to playing experience of hockey players are extremely limited, these significant findings agree with results of previous studies that have investigated mood states on the basis of playing experience in other sports. A study by Yoshihara et al., (2011) revealed significant difference in some mood state profiles between experienced and non-experienced yoga practitioners. Results of the study showed that experienced yoga

practitioners showed a lower TMD, tension, anger and fatigue scores in the profile of mood states. Moreover, experienced yoga group scored higher in vigour than the less experienced ones. In fact, with regard to the sub-scales of depression and confusion, the study results indicated there was no significant difference between experienced and less experienced groups. Similarly, Grobbelaar et al., (2010) investigated possible differences between the mood state profiles of experienced, less experienced and novice rugby players. The results of the study indicated that the group of less experienced players had significantly less negative mood scores than the experienced and novice participants. Newcombe and Boyle (1995) results revealed that elite athletes have a mood profile significantly different from that of non-athletes.

Although the results of Yoshihara et al., (2011), Grobbelaar et al., (2010) and Newcombe and Boyle (1995) reported that a significant difference in mood states exist between experienced and non-experienced athletes in other sports, their results agree with findings of the current study that showed that the two experience groups (1-3 years and 7-9 years) of elite male hockey players differed significantly as far as tension index was concerned. This implies that the psychological marker of tension was prevalent in elite male hockey players. The finding further implies that there was an element of overtraining among hockey players. Budgett (1998) reported that overtraining is associated with higher levels of tension. The findings of the current study therefore indicate that the demographic characteristic of playing experience is a factor that influences the mood states of players in the area of hockey.

5.4.2 Prevalence of Mood States on the Basis of Playing Experience of Elite Male Soccer Players

Findings of the current study on prevalence of mood states on the basis of playing experience of elite soccer players revealed that changes in the mood states of anger, confusion, depression, fatigue, tension, vigour as well as TMD in soccer players across the four playing experience categories of 1-3 years, 4-6 years, 7-9 years and over 9 years were not significant. The finding imply that the mood states of anger, confusion, depression, fatigue, tension, depression as well as TMD were not high to a level indicative of overtraining among elite soccer players in Kenya in relation to their playing experience levels of 1-3 years, 4-6 years, 7-9 years and over 9 years. Thelwell et al., (2006) studied the relationship between game location, players' experience and mood states of collegiate soccer players. With regard to experience, the participants were categorized into experienced and less experienced participants. The Brunel Mood Scale was used to assess the participants' mood states. The results showed that the mood state of calmness, happiness, tension and vigour were significantly greater in less experienced soccer players than that of experienced players. In contrast, the current study revealed that the mood state of anger, confusion, depression, fatigue, tension and vigour in the four experience categories of 1-3 years, 4-6 years, 7-9 years, and over 9 years were not significant. This implies that the demographic characteristic of playing experience is not a factor that influences the mood states of elite players in the area of soccer in Kenya.

5.4.3 Mood State Profiles between Varying Playing Experience Levels among Elite Male Hockey and Soccer Players

Findings of the current study showed that there was no significant difference in anger change, confusion change, depression change, fatigue change, tension change and vigour change as well TMD change among hockey and soccer players in the varying playing experience groups. Thus, the results showed support for the hypothesis that there is no significant difference in the mood state profiles among the varying playing experience categories of elite male hockey and soccer players. The findings, therefore, imply that the number of years of playing experience did not have a significant bearing on the prevalence of the psychological markers of overtraining (anger, confusion, depression, fatigue, tension and vigour) among the elite male hockey and soccer players in Kenya. The findings of the current study indicate that the demographic characteristic of playing experience is not a factor that influences the mood states of players in the area of hockey and soccer. On the other hand, McGowan et al., (1990) found that fatigue was significant in the very experienced black belts when compared to brown belts (experienced), coloured belts (moderately experienced) and white belts (novice) during regional competition. A possible explanation for the different results is that McGowan investigated mood states in relation to playing experience in individual sport (karate), while the current study involved team sport athletes. The lack of significant difference in the mood state profiles between varying playing experience levels among elite male hockey and soccer players may be explained by the fact that the two team sports of hockey and soccer have some similarities in team composition, players' positional requirements and starting status.

5.5 Prevalence of Mood States According to Varying Playing Positions Among Elite Male Hockey and Soccer Players

The playing position has been identified as a major factor that has an influence on athletes' mood states in various sports (Sukanta & Sarkar, 2016; Najah & Rejeb, 2015). Additionally, differences regarding psychological skills, mental toughness, and group cohesion in different playing positions have been reported in different sports (Asamoah & Globbelaar, 2016; Globbelaar & Eloff, 2011). These differences have been attributed to specific demand associated with each playing position (Sukanta & Sarkar, 2016; Asamoah & Globbelaar, 2016).

5.5.1 Prevalence of Mood States on the basis of Playing Positions of Elite Male Hockey Players

Findings of the current study on prevalence of psychological markers of overtraining (mood states) on the basis of playing position of elite male hockey players showed that changes in anger, confusion, depression, fatigue, tension and vigour as well as TMD in the four playing positions (goalkeeper, defender, midfielder and attacker) were not significant. The findings of the current study indicated that the demographic characteristic of playing position is not a factor that influences the mood states of players in the area of hockey. The lack of significant mood state changes revealed that the goalkeepers, defenders, midfielders and attacker players exhibit similar mood state profiles to subsequent training loads.

Conversely, Grobbelaar and Eloff (2011) reported significant differences in psychological skills among the seven playing positions of netball (goal shooter, goal attack, wing attack, centre, wing defence, goal defence and goalkeeper). Grobbelaar and Eloff concluded that there exist definite positional trends with regard to

psychological skills in netball players. Similarly, Nel (2012) also noted that backline players had significantly more anger, confusion and depression as well as TMD compared to forwards in rugby. In the same study, Nel (2012) found a significant difference in TMD between backline and forward players in rugby. Significant differences in mood states in various playing positions of rugby players have also been reported (Grobbelaar et al., 2010). The discrepancy in results between the findings of the current study and that of Grobbelaar and Eloff (2011), Nel (2012) and Grobbelaar et al., (2010) can be attributed to differing type of sports and psychological variables examined.

With regards to hockey, the findings differ with those of Eloff, Monyeki and Grobbelaar (2011) whose study indicated significant difference in mental skills level among the four positions of play (goalkeeper, back, midfield and forward) in hockey players. Similarly, a study by Night (2015) reported that the level of emotional intelligence of players in hockey is dependent on the position grouping. The differences in results can be attributed to the differing psychological variables under investigation in relation to playing position. For example, Eloff et al., (2011) examined mental skills in relation to position of play, while the current study assessed the prevalence of psychological markers of overtraining in relation to playing position. Therefore, based on the findings of the current study, it can be concluded that there are no significant differences in the mood states among the goalkeepers, defenders, midfielders and attacker playing positions in elite hockey in Kenya. In view of the paucity of related research with regard to mood states and playing position of hockey players, there is a definite need for further scrutiny.

5.5.2 Prevalence of Mood States on the basis of Playing Positions of Elite Male Soccer Players

Findings of the current study on prevalence of mood states on the basis of playing position of elite male soccer players revealed that out of the six mood subscales, significant change was only recorded on fatigue in the four positions of play (goalkeeper, defender, midfielder and attacker). Post-hoc test (Scheffe) indicated that change in fatigue among the defenders differed significantly from the attackers in soccer. The change in fatigue implies that there was an element of overtraining among the defender and attacker positions of soccer players. The finding is supported by the findings by Budgett (1998) and Nicoll's (2014) that when an athlete is over-trained, fatigue is elevated. The findings of the current study differ from those of Moghadam et al., (2015) who found no significant difference in anger, confusion, depression, fatigue, tension, vigour as well as TMD among the goalkeeper, defense, midfielder, and forwards in soccer. A possible explanation for the different results is that Moghadam et al., (2015) used young soccer players aged between 14-20 years, while players in the current study were elite players competing at national and international levels.

Similarly, a study by Jooste, Steyn and Berg (2014) showed that there was no significant difference between players' psychological skills in four positions of play (goalkeeper, defender, midfielder, and attacker) in soccer. The discrepancy between these two studies can be attributed to differing target population, methodology used and psychological variables under investigation.

The findings of the current study are consistent with those of Grobbelaar et al., (2010) that indicated a significant difference in mood states between the forwards and

backline players in elite student rugby players. Savanakumar and Arjunan's (2015) indicated significant differences in motivation, confidence, anxiety control, concentration, mental preparation and team emphasis among the goalkeeper, defender, midfielder and attacker playing positions of soccer. Savanakumar and Arjunan (2015) concluded that goalkeepers, defenders, midfielders and attackers were different on psychological characteristics.

Sukanta and Sarkar (2016) and Najah and Rejeb (2015) findings revealed significant differences among playing positions in soccer and various psychological variables. Although SavanaKumar and Arjunan (2015), Najah and Rejeb (2015) and Sukanta and Sarkar (2016) findings revealed significant differences among the various psychological variables and playing positions in soccer, the selected psychological variables were not examined in relation to overtraining the key concern of the current study. The findings of the current study indicate that the demographic characteristic of playing position is a factor that influences the mood states of elite soccer players in Kenya.

5.5.3 Mood State Profiles among Varying Playing Positions of Elite Male Hockey and Soccer Players

Findings of the current study on prevalence of mood states among varying playing positions of hockey and soccer players revealed that changes in anger, confusion, depression, fatigue, tension and vigour as well as TMD were not significant. The findings therefore showed support for the hypothesis that there is no significant difference in the mood state profiles among playing positions in elite male hockey and soccer players in the Kenyan top leagues.

The findings of the current study imply that the mood state profiles do not significantly differ among the varying playing positions (goalkeeper, defender, midfielder, and attacker) in elite male hockey and soccer players in top leagues in Kenya. The findings of the current study further imply that the psychological markers of overtraining were not affected by the playing position. The possible explanation for these findings are that the two sports (hockey and soccer) have similarities with regard to playing positions in which players have designated roles to play as goalkeepers, defenders, midfielders and attackers. The results do not seem supportive of Sewell and Edmondson (1996) findings that indicated that goalkeepers had significantly elevated levels of cognitive anxiety than players in other positions of play in soccer and field hockey. Sewell and Edmondson (1996) findings further revealed that the defenders were more self-confident than midfielders.

The differences in results between the results in the current study and those of Sewell and Edmondson (1996) can be attributed to differing psychological variables under investigation and the methodology used. Although the two groups (hockey and soccer) have similarities in terms of playing positions, the lack of significant differences on mood state profiles among the four playing positions (goalkeeper, defender, midfielder, and attacker) warrants further scrutiny in to whether the training methods between the two sports differ.

5.6 Prevalence of Mood States on the Basis of Starting Status of Elite Male Hockey and Soccer Players

The starting status (starters and substitutes) has been identified as a key factor that influences athletes' mood state profiles in various sports (Newland et al., 2013; Bernadette, 2007). The difference between the two groups can be attributed to the fact

that substitutes (non-starters) and starters experience different mood states (Coker & Mickle, 2000; Bernadette, 2007). Therefore, this study investigated the occurrence of mood states in starters and substitute players among elite male hockey and soccer players.

5.6.1 Prevalence of Mood States on the basis of Starting Status of Elite Male Hockey Players

Findings of the current study showed that changes in the level of anger, confusion, depression, fatigue, tension and vigour as well as TMD were not significant in either substitutes or first team of hockey. The results revealed that the mood states did not increase to a level indicative of overtraining in hockey players in either first team or substitutes.

The findings of the current study indicated that the demographic characteristic of starting status is not a factor that influences the mood states of hockey players. Findings of the Coker and Mickle (2000) study on the stability of the iceberg profile as a function of perceived difficulty in defeating an opponent indicated that the substitutes (non-starters) had significantly elevated fatigue than starters prior to playing the opponent perceived to be hard to defeat. This was a contrast to starters who did not show such elevated fatigue whether the opponent was perceived to be easy or difficult to defeat.

The findings by Coker and Mickle further showed a significant mean difference on the sub-scales of anger, tension, depression and confusion between starters and non-starters thereby indicating that starters and non-starters do not share the same psychological profile. Similarly, the finding contrasts the findings of Grobbelaar et al., (2010) that found reserve players (non-starters) had significantly better scores on

mood states than regular starters. Grobbelaar et al., (2010) concluded that to prevent an athlete from developing burnout and overtraining, the starting status should be considered as part of player management strategy. A possible explanation for the different results is that Coker and Mickle (2000) used women's softball team and Grobbelaar et al., (2010) examined rugby players, while the current study involved elite male field hockey players. Therefore, the differences among these studies can be attributed to different training methods and target population.

5.6.2 Prevalence of Mood States on the Basis of Starting Status of Elite Soccer Players

The results indicated that changes in the mood states of anger, confusion, depression, fatigue, tension, vigour as well as TMD were not significant. The findings revealed that the mood states did not increase to a level indicative of overtraining in soccer players in either first team or substitutes. The findings of the current study therefore indicated that the demographic characteristic of starting status is not a factor that influences the mood states of players in the elite soccer leagues in Kenya. The findings are in conflict with those of Bernadette and Thatcher (2009) who reported that non-starting players tend to be angrier, more depressed and concerned about physical appearance than starters. Their findings further indicated that non-starters considered self- confidence as being more facilitative than starters. Similarly, the findings also differ with those of Alix-sy et al., (2008) whose study results indicated that non-starters experience unpleasant transactional emotions than starters. The differences in results among Thatcher (2009), Alix-sy et al., (2008) and the current study can be attributed to differing psychological variables examined in relation to the starting status, the purpose of each study, as well as the methodology.

The findings of the current study are consistent with those of Newland et al., (2013) that showed no significant difference in mental toughness between starters and non-starters of basketball players. The findings of the current study are also consistent with those of Dyke's (2010) who indicated no significant difference in global stress, global recovery or recovery stress for starters and non-starters of basketball players. Although the findings of Newland et al., (2013) and Dyke (2010) are consistent with those of the current study, there are differences in the psychological variables examined in the three studies in relation to starting status. The findings of the current study strongly suggest that the mood state profiles do not differ between starters and substitutes of soccer players. However, the paucity of related research with regard to starting status of soccer players and mood states means the topic requires further scrutiny.

5.6.3 Differences in Mood State Profiles Between Substitutes and Starters of the Elite Male Hockey and Soccer Players

Findings from the current study showed that changes in the mood states of anger, confusion, depression, fatigue, tension and vigour were not significant in either first team or substitutes when tested for individual sports (hockey or soccer). The findings therefore showed support for the hypothesis that there is no significant difference in the mood state profiles between starters and substitute players of the elite male hockey and soccer players in Kenya's top national leagues. This implies that there was no significant difference in all components of mood states (anger, confusion, depression, fatigue, tension and vigour) as well as TMD between substitutes and starters of hockey and soccer players. The possible explanation for this finding is that the two sports (hockey and soccer) have similarities in terms of starting status where

players are designated roles as starters or substitutes (non-starters) before or during a competition.

The findings are consistent with those of Beck's (2012) who found no significant difference in the mental toughness between starters and non-starters in collegiate athletes in 12 different sports; women's soccer, football, women's volleyball, men and women's track, men's golf, women's golf, men's basketball, women's basketball, women's tennis, cross-country, softball, and women's swimming and diving. The possible explanation for the different findings between Beck (2012) and the current study can be attributed to methodology used, different training methods, purpose of the studies, as well as the target population.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This study was based on the premise that the mood states of anger, confusion, depression, fatigue, tension and vigour are considerably altered when an athlete is over-trained. Based on this assumption, data were collected at the beginning (pre-test) and at the peak (mid-test) of the leagues in order to find out whether there were significant changes in participants' mood states between these two periods. The study was limited to psychological markers (mood states) that are effective in predicting behaviour in a sport setting, in this case, overtraining. Therefore, this study examined prevalence of the psychological predictors of overtraining (anger, confusion, depression, fatigue, tension, and vigour) as well as TMD and their relationship to players' demographic factors of type of sport (hockey/soccer), age category, playing experience, playing position and starting status among elite male hockey and soccer players in top national leagues in Kenya.

6.2 Summary of Findings

6.2.1 Prevalence of Mood States Among Elite Male Hockey and Soccer Players

The focus under this section was to determine the prevalence of mood states among elite male hockey and soccer players in top national leagues in Kenya. The following are the findings under this objective;

6.2.1.1 Prevalence of Mood States of Elite Male Hockey Players

There were high and significant levels in three of psychological markers of overtraining; confusion, depression and vigour among elite male hockey players.

Additionally, although not statistically significant at 95% level of confidence, the levels of anger, fatigue, tension and TMD showed considerable changes.

6.2.1.2 Prevalence of Mood States of Elite Male Soccer Players

There were significant changes in the mood states of confusion and fatigue among elite male soccer players. The results indicated that the two psychological markers of overtraining (confusion and fatigue) decreased and the decrease was significant among soccer players.

6.2.1.3 Prevalence of Mood States between Elite Hockey and Soccer Players

The two groups (hockey and soccer) differed significantly as far as change in confusion marker index was concerned. The two groups (hockey and soccer) differed significantly with regard to change in vigour index. The two groups (hockey and soccer) differed significantly as far as change in TMD index. The results indicated that the two groups (elite male hockey and soccer players) differed significantly as far as mood state profiles were concerned.

6.2.2. Findings on Prevalence of Mood States in Relation to Age Categories of Elite Male Hockey and Soccer Players

The objective was to establish the prevalence of mood states in relation to age categories of elite male hockey and soccer players in top national leagues in Kenya. The following is a summary of the key findings;

6.2.2.1 Prevalence of Mood States in Relation to Age Categories of Elite Male Hockey Players

The changes in all components of mood states (anger, confusion, depression, fatigue, tension and vigour) as well as TMD in the hockey players among the three age

categories (under 24 years, 25-29 years, and 30 years and above) were not significant. The results indicated that there were no significant changes in mood states across the three age categories. The findings indicated that the psychological markers of overtraining were not influenced by age.

6.2.2.2 Prevalence of Mood States in Relation to Age Categories of Elite Male Soccer Players

The mood state of anger, confusion, depression, fatigue, tension and vigour as well as TMD of the soccer in the three age categories (under 24 years, 25-29 years, and 30 years and above) were not significant. The findings indicated that there were no significant changes in mood states in the three age categories during the period under study. This implies that the psychological markers of overtraining (mood states) were not affected by age.

6.2.2.3 Prevalence of Mood States in Relation to Age Categories Among Elite Male Hockey and Soccer Players

There were no significant differences in the mood states of anger, confusion, depression, fatigue, tension and vigour as well as TMD between varying age groups among elite male hockey and soccer players. The results indicate that there were no significant differences in the mood state profiles among the age groups of elite male hockey and soccer players.

6.2.3 Findings on Prevalence of Mood States on the Basis of Playing Experience of Elite Male Hockey and Soccer Players

The focus of this section was to establish the prevalence of mood states of elite male hockey and soccer players in top national leagues in Kenya in relation to their playing experience. The following are the key findings;

6.2.3.1 Prevalence of Mood States on the Basis of Playing Experience of Elite Male Hockey Players

The changes in tension among the hockey players in the four playing experience categories (1-3 years, 4-6 years, 7-9 years, and above 9 years) were significant. The overall results indicate there were significant differences in tension change among 1-3 years and 7-9 years' experience categories in the elite hockey players. There was no significant difference in change in tension between players in 4-6 years' experience and those who had over 9 years' experience in relation to other experience groups.

6.2.3.2 Prevalence of Mood States on the Basis of Playing Experience Levels of Elite Male Soccer Players

The changes in mood states of anger, confusion, depression, fatigue, vigour as well as TMD of soccer players in the four playing experience categories; 1-3 years, 4-6 years, 7-9 years, and above 9 years were not significant. The results showed that the prevalence of psychological markers of overtraining (mood states) in elite male soccer players do not differ in relation to age categories.

6.2.3.3 Prevalence of Mood States on the Basis of Playing Experience Among Elite Male Hockey and Soccer Players

There were no significant differences in the changes in anger, confusion, depression, fatigue, tension and vigour as well as TMD among age categories of elite male

hockey and soccer players. The results indicated that there were no significant differences in the mood state profiles among playing experience groups of elite male hockey and soccer players.

6.2.4 Findings on Prevalence of Mood States on the Basis of Playing Position of Elite Male Hockey and Soccer Players

The objective was to determine the prevalence of mood states of elite male hockey and soccer players in top national leagues in Kenya in relation to their playing positions. The following is a summary of the major findings;

6.2.4.1 Prevalence of Mood States on the Basis of Playing Position of Elite Male Hockey Players

There were no significant changes in all components of mood states (anger, confusion, depression, fatigue, tension and vigour) as well as TMD in the four playing positions (goalkeeper, defender, midfielder, and attacker) of hockey players.

6.2.4.2 Prevalence of Mood States on the Basis of Playing Position of Elite Male Hockey Players

There were significant changes in the mood state of fatigue among the four playing positions (goalkeeper, defender, midfielder, and attacker) of hockey players. There was a significant difference between the defenders and attackers in change in fatigue among elite male soccer players.

6.2.4.3 Prevalence of Mood States among the Playing Positions of Elite Male Hockey and Soccer Players

The playing positional groups in hockey and soccer did not differ significantly as far as changes in anger, confusion, depression, fatigue, tension and vigour as well as

TMD was concerned. The results indicated that there is no significant difference in the mood state profiles among the playing positions in elite male hockey and soccer players in Kenyan top leagues.

6.2.5 Findings on Prevalence of Mood States in first team and Substitute Players among Elite Male Hockey and Soccer Players

The objective was to investigate the occurrence of mood states in first team and substitute players in relation to starting status among elite male hockey and soccer players in top national leagues in Kenya. The following is a summary of key findings.

6.2.5.1 Prevalence of Mood States in First Team and Substitute Players among Elite Male Hockey Players

There were no significant differences in the changes of the mood states of anger, confusion, depression, fatigue, tension, vigour and TMD between substitutes and first team of hockey players.

6.2.5.2 Findings on Prevalence of Mood States in First Team and Substitute Players among Elite Male Soccer Players

There were no significant differences in the changes in mood states of anger, confusion, depression, fatigue, tension and vigour as well as TMD between the substitutes and first team of soccer players.

6.2.5.3 Prevalence of Mood States between First Team and Substitute Players among Elite Male Soccer Players

The substitutes and starting players in both hockey and soccer did not differ significantly as far as changes in anger, confusion, depression, fatigue, tension and vigour as well as TMD was concerned. The results indicated that there is no

significant difference in the mood state profiles between starters and substitute players among elite male hockey and soccer players.

6.3 Conclusions

Based on the objectives and findings of the study, the following conclusions were made.

6.3.1 Conclusions on Prevalence of Mood States among Elite Male Hockey and Soccer Players

The conclusions on the prevalence of mood states among elite male hockey and soccer players are as follows:

i. The prevalence of psychological markers of confusion, depression and vigour was significant among elite male hockey and soccer players. The high level of confusion, depression (negative mood states) and decrease of vigour (positive mood state) was a clear manifestation of increases in training load. This implies that there was an element of overtraining among elite male hockey players.

ii. Confusion and fatigue saw significant changes in elite soccer. The significant levels of confusion and fatigue (negative mood states) as measured by POMS pointed towards overtraining among soccer players.

iii. The two groups (elite male hockey and soccer players) differ significantly as far as mood state profiles are concerned.

6.3.2 Conclusions on Prevalence of Mood States in Relation to Age Categories of Elite Male Hockey and Soccer Players

Conclusions on the prevalence of mood states in relation to Age Categories of elite male hockey and soccer players were as follows;

i. There are no significant change differences in the mood states of anger, confusion, depression, fatigue, tension and vigour as well as TMD among the three age categories; under 24 years, 25-29 years and 30 years and above of hockey players. Thus, psychological markers of overtraining were not influenced by the age of players
ii. There are no significant change differences in the mood states of anger, confusion, depression, fatigue, tension and vigour as well as TMD among the three age categories; under 24 years, 25-29 years and 30 years and above of soccer players. Thus, psychological markers of overtraining were not affected by the age of players
iii. There is no significant difference in the mood state profiles among varying age groups of elite male field hockey and soccer players

6.3.3 Conclusions on Prevalence of Mood States on the Basis of Playing Experience of Elite Male Hockey and Soccer Players

The conclusions pertaining to the prevalence of Mood States on the basis of playing experience were as follows:

i. There is a significant difference between 1-3 years and 7-9 years playing experience levels of elite hockey players on tension.
ii. There are no significant change differences in the mood states of anger, confusion, depression, fatigue and vigour as well as TMD among the four

playing experience categories; 1-3 years, 4-6 years, 7-9 years, and above 9 years. Thus, playing experience does not seem to affect mood states of players in soccer.

iii. There is no significant difference in the mood state profiles between the varying playing experience categories of elite male hockey and soccer players

6.3.4 Conclusions on Prevalence of Mood States of Elite Male Hockey and Soccer Players in Relation to their Playing Position

Conclusions on the prevalence of mood states of elite male hockey and soccer players in relation to their playing position were as follows:

i There are no significant change differences in all components of mood states among the goalkeepers, defenders, midfielders, and attackers of elite male hockey players. Thus, playing position does not seem to influence mood states of players in hockey players.

ii There is a significant change difference in fatigue between defenders and attackers among elite male soccer players.

iii There is no significant difference in the mood state profiles between varying playing positions among elite male hockey and soccer players.

6.3.5 Conclusions on the Occurrence of Mood States in the First Team and Substitute Players among Elite Male Hockey and Soccer Players

Conclusions pertaining to the occurrence of mood states in the first team and substitute players are as follows:

i. There are no significant change differences in anger, confusion, depression, fatigue, tension and vigour as well as TMD among substitutes and first team of

elite male hockey players. Thus, starting position does not seem to influence mood states of players in hockey.

ii. There are no significant change differences in anger, confusion, depression, fatigue, tension and vigour as well as TMD among substitutes and first team of elite male soccer players. Thus, starting status does not seem to affect mood states of players in soccer.

iii. There is no significant difference in the mood state profiles between starters and substitute players of elite male hockey and soccer players.

6.4 Recommendations

Based on the conclusions of the study, the following recommendations are made for practice, policy and further research.

6.4.1 Recommendations for Practice

The study revealed that changes in mood states of confusion depression and vigour were significant among elite male hockey players. The study also indicated that changes in the mood states of confusion and fatigue were significant among elite male soccer players. Therefore, based on these findings, there is need for coaches and other stakeholders to assess their players' mood states during the season in order to help avoid overtraining. There is also need for coaches and other stakeholders to gather information on typical signs of mood states so that early intervention is taken before the player develops overtraining. The players should also be made aware about the psychological signs and symptoms of overtraining thereby helping them avoid tendencies towards overtraining. The creation of this awareness could be done by individuals and institutions involved in managing the leagues. The study results also indicated that the two groups (elite male hockey and soccer players) differ

significantly as far as mood state profiles are concerned. Therefore, it is recommended that while assessing the mood states, the coaches and other stakeholders should consider the task specific nature of the sporting activity being investigated.

The results also indicated there is significant difference in change in tension between 1-3 years and 7-9 years' experience groups in the hockey players. Therefore, to prevent hockey players from developing overtraining, the playing experience should be considered as part and parcel of player management strategy. The coaches and other stakeholders can achieve this by assessing their players' mood states in different experience levels during the season using an appropriate instrument such as POMS.

The study further revealed that there is a significant difference between defender and attacker positions on fatigue change among elite male soccer players. Therefore, to prevent soccer players from developing overtraining, the playing position should be considered as part of player management approach. The coaches and other stakeholders should therefore investigate their athletes' mood states in different playing positions during the season to provide information on the playing positions prone to overtraining. The assessment should be carried out by using appropriate psychological measuring instruments.

Although the mood states were not significant based on age and starting status of the hockey and soccer players, descriptive analysis revealed that there were changes in all sub-scales. Therefore, it is important for the coaches to assess their players' mood states in different age groups and starting status. This is because other studies have revealed significant results with regard to mood states and the two demographic

variables. Furthermore, given the detrimental effects of overtraining, every factor that could influence mood states in athletes should be considered.

6.4.2 Recommendations for Policy

Based on the findings of the current study, the following policy recommendations are made: The study recommends that the Ministry of Youth and Sports, the Kenya Football Federation, the Kenya Premier League, the Kenya Hockey Union and other stakeholders should initiate programmes geared towards educating the athletes, coaches and other stakeholders on psychological markers of overtraining in order to enable them to cater or address for them.

It is evident from the current study that the psychological markers of overtraining were prevalent amongst elite male hockey and soccer players. Therefore, it is also recommended that all stakeholders involved should organize seminars and forums to create awareness on psychological markers associated with overtraining amongst elite male hockey and soccer players. This will also help broaden the scope of knowledge in the areas of sports psychology.

6.4.3 Recommendations for Further Research

The following are recommended as possible areas for further research:

i. A study to be conducted on the same groups under biomechanical and physiological variables to find out whether what was found in the study can also correspond with findings under biomechanical and physiological indicators.

ii. There is need to replicate the current study on elite female hockey and soccer players. This could broaden the body of knowledge on the prevalence of mood states in relation to gender.

iii. There is need to investigate the prevalence of mood states of elite male hockey and soccer players in relation to other demographic factors such as team performances.

iv. Broader studies need to be carried out where data will be collected at the beginning and at the end of the league in order to determine whether the demographic characteristics of age categories and starting status would have an influence on hockey and soccer players' mood states.

v. There is also need to investigate if there are differences in mood states between individual and team sports.

vi. Similar studies should also be done to establish the prevalence of psychological indicators of overtraining in other sports.

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APPENDIX A

INFORMED CONSENT FOR PARTICIPATION IN THE STUDY

My name is Ndambiri Richard Karani. I am a Ph.D student from Kenyatta University. I am conducting a study on **Prevalence of Psychological Traits of Overtraining amongst Elite Male Field Hockey and Soccer Players in Top National Leagues in Kenya.** The information gathered will be used by Kenya Football Federation and Kenya Hockey Union in upgrading field hockey and soccer training programmes in the country so that overtraining is avoided.

PROCEDURES TO BE FOLLOWED

Participation in this study requires that you fill in the questionnaire/answer some questions. After filling in the questionnaire you will be expected to return it to the researcher or research assistant.

You have the right to refuse participation in this study. Please note that your involvement and participation is voluntary. You have the right to withdraw from this study and there will be no disclosure of the reasons as to why you decided to withdraw. The decision is yours on whether you want to participate or not in the study. You will benefit the same from the information gathered from the study whether you agree to participate or not.

Clarification of various concepts prior to filling the questionnaire will be done. However, should you have any questions related to the study they will be answered. We will be glad to answer and clarify any issues concerning the study that you may have.

DISCOMFORTS AND RISKS

There are no risks involved in this study. The questions in the questionnaire are not embarrassing and will not make you uncomfortable. However, should you feel otherwise, you may refuse to fill in the questionnaire if you so choose. The filling of the questionnaire should take 5-10 minutes to fill.

BENEFITS

If you participate in this study you will make a contribution towards establishing the prevalence of psychological traits of overtraining in the sport you participate in which is important information that will aid in preventing overtraining. You will also benefit since the information gathered will make you aware about the psychological markers of overtraining. This information will help you avoid overtraining or prevent tendencies towards it.

REWARD

You will not be receiving any payment for being involved in this study. The questionnaire will be filled in the training venue and therefore you will incur no cost to participate in this study.

CONFIDENTIALITY

You are assured of the confidentiality of the information gathered. The information gathered in this research will be confidential. Your name will not be recorded on the questionnaire. Everything gathered will be kept private. The consent form is the only part that will have your name and personal information. To hide your identity, a personal code will be used for identification of the questionnaire that you fill. The information that will be gathered about you will be secretive and no one apart from the researcher will be allowed to see it. To ensure everything is confidential, any information you give about you will have a number that will only be known by the researcher instead of your name. The information collected will be used for academic purposes only.

COMMUNITY CONSIDERATIONS

Data will be collected at the training venues to ensure that members of your community are not inconvenienced. The study is based on sport psychology; therefore, the researcher will conduct a workshop after the completion of the study for coaches and players to sensitize them on the importance of the elements of psychological traits of overtraining in sports.

CONTACT INFORMATION

If you have any questions you may contact Dr. Andaje Mwisukha on 0722936588, Dr. Bulinda on 0722677266 or the Kenyatta University Ethical Review Committee Secretariat on chairman.kuerc@ku.ac.ke, secretary.kuerc@ku.ac.ke, ercku2008@gmail.com

PARTICIPANT STATEMENT

The above information regarding my participation in the study is clear to me. I confirm that I have read and I am adequately informed about the purpose, procedure, discomforts and risks, benefits, rewards and confidentiality. I have been given a chance to ask questions and my questions have been answered to my satisfaction. I have been assured of confidentiality of the information gathered and that I can leave the study at any time. I understand I will benefit the same whether I agree to participate or not in the study.

Name of Participant----------

_____ _____

Signature or Thumbprint Date

RESEARCHER'S STATEMENT

I, the undersigned, have explained to the participant in a language he/she understands the procedures to be followed in the study and the risks and benefits involved.

Name of Researcher----------

_____ _____

Researcher's Signature Date

APPENDIX B

QUESTIONNAIRE

SECTION A: DEMOGRAPHIC QUESTIONNAIRE

1. Indicate the name of your club_____

2. Which sport do you play? (tick one) Soccer ☐ Field Hockey ☐

3. Indicate your age category (tick one)

Under 18 years ☐ 19-24years ☐ 25-29 years ☐ 30years and above ☐

4. How long have you been playing soccer/hockey in premier league? (tick one)

1-3 Years ☐ 4-6 Years ☐ 7-9 Years ☐ Over 9 Years ☐

5. In which position do you play? (circle one)

   a) Defender

   b) Midfielder

   c) Attacker/forward

   d) Goalkeeper

6. What is your status in the team? (circle one)

   a) Substitute

   b) First team

SECTION B: THE PROFILE OF MOOD STATES QUESTIONNAIRE

Instructions

This part contains the Profile of Mood States Questionnaire. Some words and Statements are difficult to understand. Alternative words list has been put in brackets in the questionnaire to clarify the meaning. However, should you encounter other words or statements that are difficult to understand, you are free to consult the researcher or research assistants.

POMS – Profile of Mood States

INSTRUCTIONS:
Below is a list of words that describe feelings people have. Please read each one carefully.
Then fill in **ONE** circle under the answer to the right which best describes
HOW YOU HAVE BEEN FEELING DURING THE PAST WEEK INCLUDING TODAY.

The numbers refer to these phrases

0 = Not at all
1 = A little
2 = Moderately
3 = Quite a bit
4 = Extremely

	Not At All	A Little	Moderately	Quite A Bit	Extremely
1. Friendly …….….	0	1	2	3	4
2. Tense ……..….	0	1	2	3	4
3. Angry ……..….	0	1	2	3	4
4. Worn out …..….	0	1	2	3	4
5. Unhappy…….	0	1	2	3	4
6. Clear –headed…	0	1	2	3	4
7. Lively ……..…..	0	1	2	3	4
8. Confused ……...	0	1	2	3	4
9. Sorry for things done…	0	1	2	3	4
10. Shaky……...	0	1	2	3	4
11. Listless	0	1	2	3	4
12. Peeved	0	1	2	3	4
13. Considerate ….	0	1	2	3	4
14. Sad……..	0	1	2	3	4
15. Active……..	0	1	2	3	4
16. On edge	0	1	2	3	4
17. Grouchy	0	1	2	3	4
18. Blue	0	1	2	3	4
19. Energetic……...	0	1	2	3	4
20. Panicky…….	0	1	2	3	4
21. Hopeless …….	0	1	2	3	4
22. Relaxed …….	0	1	2	3	4
23. Unworthy…..….	0	1	2	3	4
24. Spiteful	0	1	2	3	4
25. Sympathetic….	0	1	2	3	4
26. Uneasy……..….	0	1	2	3	4
27. Restless ……	0	1	2	3	4
28. Unable to concentrate …	0	1	2	3	4
29. Fatigued……..…..	0	1	2	3	4
30. Helpful…….….	0	1	2	3	4
31. Annoyed……..……	0	1	2	3	4
32. Discouraged …..…	0	1	2	3	4
33. Resentful……. …	0	1	2	3	4
34. Nervous …….	0	1	2	3	4
35. Lonely ……..	0	1	2	3	4
36. Miserable ……	0	1	2	3	4
37. Muddled	0	1	2	3	4
38. Cheerful……. ….	0	1	2	3	4
39. Bitter……..…..	0	1	2	3	4
40. Exhausted……..…..	0	1	2	3	4
41. Anxious ……	0	1	2	3	4
42. Ready to fight.	0	1	2	3	4
43. Good natured……...	0	1	2	3	4
44. Gloomy	0	1	2	3	4
45. Desperate… …	0	1	2	3	4
46. Sluggish ……	0	1	2	3	4
47. Rebellious… ….	0	1	2	3	4
48. Helpless… …….	0	1	2	3	4
49. Weary…… ….	0	1	2	3	4
50. Bewildered	0	1	2	3	4
51. Alert…… …….	0	1	2	3	4
52. Deceived… …...	0	1	2	3	4
53. Furious…… …...	0	1	2	3	4
54. Efficient ……..	0	1	2	3	4
55. Trusting ……..	0	1	2	3	4
56. Full of pep	0	1	2	3	4
57. Bad-tempered...	0	1	2	3	4
58. Worthless… …	0	1	2	3	4
59. Forgetful… ….	0	1	2	3	4
60. Carefree… …….	0	1	2	3	4
61. Terrified …….	0	1	2	3	4
62. Guilty ……..…	0	1	2	3	4
63. Vigorous ……	0	1	2	3	4
64. Uncertain about things…	0	1	2	3	4
65. Bushed	0	1	2	3	4

Make Sure You Have Answered Every Item!

Adapted from Berlin, A. A. (2004)

APPENDIX C

HOJAJI

SEHEMU YA A: HABARI YA KIBINAFSI

1. Andika jina la klabu yako _____
2. Wewe hucheza mchezo gani? (Weka alama ya ✓)

   Kandanda ☐ Mpira wa magongo ☐

3. Una miaka miaka mingapi? (Weka alama ya ✓)

   Chini ya miaka 18 ☐ Kati ya miaka 19-24 ☐

   Kati ya miaka 25-29 ☐ Miaka 30 au Zaidi ☐

4. Umekuwa ukicheza kandanda au mpira wa magongo katika ligi ya kitaifa kwa muda gani kufikia sasa?

Miaka 1-3 ☐ Miaka 4-6 ☐ Miaka 7-9 ☐ Zaidi ya miaka 9 ☐

5. Wewe hucheza nafasi gani?
   a) Mlinzi
   b) Kiungo cha kati
   c) Kiungo mshambulizi
   d) Mlinda lango au golikipa
6. Wewe hushikilia nafasi gani katika timu yako?
   a) Mimi huwa kwenye benchi / Nguvu mpya
   b) Kikosi cha kwanza

SEHEMU YA B: HOJAJI KUHUSU KIGEZO CHA HALI AU HISIA

Maagizo

Sehemu hii inajumuisha hojaji ya kuonyesha hali au hisia. Baadhi ya maneno na taarifa ni ngumu kuelewa. Maneno badala ambayo ni rahisi kuelewa yamewekwa kwenye mabano ili kufafanua maana. Hata hivyo, ikiwa utakumbana na maneno au taarifa ngumu isiyoeleweka, bila shaka kuwa huru kumuuliza mtafiti mkuu au wasaidizi wake.

MAAGIZO:
Ifuatayo ni orodha inayofafanua hali au hisia za watu. Tafadhali soma kwa makini kisha ujaze kwa kutoa jibu **MOJA** litakalofafanua **NAMNA UMEKUWA UKIHISI KWA MUDA WA WIKI MOJA ILIYOPITA IKIWA NI PAMOJA NA LEO?**

Nambari hizi zinarejelea maelezo haya.

0 = Hata kidogo
1 = Kidogo tu
2 = Kwa kiasi fulani
3 = Kiwango cha juu
4 = Kiwango cha juu z

	Hata kidogo	Kidogo tu	Kwa kiasi fulani	Kiwango cha juu	Kiwango cha juu zaidi		Hata kidogo	Kidogo tu	Kwa kiasi fulani	Kiwango cha juu	Kiwango cha juu zaidi		Hata kidogo	Kidogo tu	Kwa kiasi fulani	Kiwango cha juu	Kiwango cha juu zaidi
1. Nzuri……..…	0	1	2	3	4	23. Bure…..	0	1	2	3	4	45. Aliyetamauka……	0	1	2	3	4
2. Mwenye wasiwasi…… …	0	1	2	3	4	24. Aliyedharauliwa …	0	1	2	3	4	46. Mlegevu	0	1	2	3	4
3. Mwenye hasira .	0	1	2	3	4	25. Mwenye huruma..	0	1	2	3	4	47. Mwasi…	0	1	2	3	4
4. Umechoka….. ….	0	1	2	3	4	26. Asiyetulia…..…….	0	1	2	3	4	48. Asiye na msaada.	0	1	2	3	4
5. Hauna raha…….	0	1	2	3	4	27. Mchovu ……… …	0	1	2	3	4	49. Mchovu …	0	1	2	3	4
6. Asiye na hatia….	0	1	2	3	4	28. Asiyeweza kumakinika …	0	1	2	3	4	50. Aliyechanganyikiwa)….	0	1	2	3	4
7. Mchangamfu ….	0	1	2	3	4	29. Mchovu ……. …..	0	1	2	3	4	51. Makini… …	0	1	2	3	4
8. Aliyechanganyi kiwa ……...	0	1	2	3	4	30. Mwenye msaada …… ….	0	1	2	3	4	52. Aliyedanganywa…..	0	1	2	3	4
9. Mwenye kujutia mambo ya kale,…	0	1	2	3	4	31. Aliyekasirishwa …	0	1	2	3	4	53. Mwenye hasira….	0	1	2	3	4
10. Aliyetikisika…. ..	0	1	2	3	4	32. Aliyevunjwa moyo ..	0	1	2	3	4	54. Faafu ….	0	1	2	3	4
11. Mchovu…….	0	1	2	3	4	33. Mwenye dharau …	0	1	2	3	4	55. Mwenye kuamini	0	1	2	3	4
12. Aliyegadhabishwa……	0	1	2	3	4	34. Mwenye wasiwasi …….	0	1	2	3	4	56. Mwenye uhai na nguvu..	0	1	2	3	4
13. Mwenye kiasi ….	0	1	2	3	4	35. Mwenye upweke .	0	1	2	3	4	57. Mwenye hasira mbaya…	0	1	2	3	4
14. Mwenye huzuni……..	0	1	2	3	4	36. Aliyetamauka ……	0	1	2	3	4	58. Bure……	0	1	2	3	4

15.	Mwenye kujituma…… ..	0	1	2	3	4	37.	Aliyechanganyikiwa …..	0	1	2	3	4	59.	Msahaulifu…….	0	1	2	3	4
16.	Mwenye wasiwasi au wahka……..	0	1	2	3	4	38.	Mwenye furaha….	0	1	2	3	4	60.	Asiyejali ….	0	1	2	3	4
17.	Aliyechokozwa..	0	1	2	3	4	39.	Mwenye uchungu …….	0	1	2	3	4	61.	Aliyetishika…….	0	1	2	3	4
18.	Aliyevunjika moyo…….	0	1	2	3	4	40.	Aliyeta mauka …….	0	1	2	3	4	62.	Mwenye makosa…….…	0	1	2	3	4
19.	Mwenye nguvu…..….	0	1	2	3	4	41.	Mwenye wasiwasi au wahka ...	0	1	2	3	4	63.	Mwenye nguvu kupita kiasi)….	0	1	2	3	4
20.	Aliyetishika…..	0	1	2	3	4	42.	Tayari kupigana	0	1	2	3	4	64.	Asiye na uhakika wa mambo…	0	1	2	3	4
21.	Asiye na matumaini …..	0	1	2	3	4	43.	Aliye katika mazingira mazuri …	0	1	2	3	4	65.	Mchovu kupinduka……..	0	1	2	3	4
22.	Aliyetulia…… ….	0	1	2	3	4	44.	Mwenye huzuni …	0	1	2	3	4	**Hakikisha kuwa umejibu kila kipengele!**						

APPENDIX D

KIGEZO CHA HALI AU HISIA

KIAMBATISHO A: FOMU YA KUOMBA IDHINI YA KUSHIRIKI KATIKA UTAFITI

Jina langu ni Ndambiri Richard Karani. Mimi ni mwanafunzi wa kiwango cha shahada ya uzamifu katika chuo kikuu cha Kenyatta. Ninafanya utafiti kuhusu **"Uwepo wa tabia za kisaikolojia zinazotokana na kufanya mazoezi kupita kiasi miongoni mwa wachezaji maarufu wa kiume katika ligi kuu za kitaifa za michezo ya kandanda na magongo."** Taarifa itakayokusanywa itatumika na shirika la kandanda nchini Kenya na Chama cha mchezo wa Magongo ili kuboresha mchezo wa magongo na mipango ya mazoezi ya kandanda nchini kwa nia ya kuepuka kufanya mazoezi kupita kiasi

HATUA ZA KUFUATWA

Kushiriki kwako katika utafiti huu kutahitaji ujaze hojaji au ujibu maswali kadha. Baada ya kuijaza hojaji, utahitajika kuirejesha kwa mtafiti mkuu au msaidizi wake.

Una haki ya kuchagua kutoshiriki katika utafiti huu. Tafadhali fahamu kuwa kushiriki kwako katika utafiti huu ni kwa hiari. Unaweza kuchagua kujiondoa katika utafiti huu wakati wowote bila kueleza sababu za kujiondoa kwako. Uamuzi wa kushiriki au kutoshiriki katika utafiti huu ni wako. Hata hivyo, ikiwa utachagua kushiriki au kutoshiriki katika utafiti huu, bado utafaidi kutokana na taarifa zitakazokusanywa katika utafiti huu.

Utafafanuliwa baadhi ya mambo muhimu yanayohusu hojaji hii kabla ya wewe kuijaza. Hata hivyo, itakuwa fahari yetu kujibu swali lolote kutoka kwako ambalo litahusu utafiti huu.

HATARI ZITOKANAZO NA UTAFITI

Hakuna hatari zozote zitakazotokana na utafiti huu. Maswali katika hojaji hii si yenye kuleta aibu na hivyo basi hautapata ugumu wa kuyajibu. Hata hivyo, ikiwa utahisi vinginevyo, basi una uhuru wa kukataa kujibu maswali katika hojaji hii. Utahitajika kuchukua muda wa dakika 5-10 kuyajibu maswali haya.

FAIDA

Ikiwa utashiriki katika utafiti huu, basi utachangia pakubwa katika kutambua uwepo wa tabia za kisaikolojia zinazotokana na kufanya mazoezi kupita kiasi miongoni mwa wachezaji maarufu wa

kiume katika ligi kuu za kitaifa za michezo ya kandanda na magongo. Taarifa hii ni muhimu katika kuzuia kufanya mazoezi kupita kiasi miongoni mwa wachezaji. Pia utafaidi kwani habari hizi zitakusadia kujua masuala muhimu kuhusu kufanya

mazoezi kupita kiasi. Habari hizi zitakusaidia kuepuka kufanya mazoezi kupita kiasi au chochote kinachoweza kukusababisha kujipata katika hali hii.

TUZO

Hautapokea malipo yoyote kutokana na kushiriki kwako katika utafiti huu. Hojaji hii itajazwa katika eneo la mafunzo na hivyo basi hautagharamika kwa hali yoyote ila wakati wa kushiriki kwako katika utafiti huu.

KUWEKA SIRI

Umehahakikishiwa kuhusu usiri wa habari zozote zitakazokusanywa. Habari zitakazokusanywa katika utafiti huu zitawekwa kuwa siri. Jina lako halitaandikwa katika hojaji. Kila kitu kitafanywa kuwa siri. Fomu ya kutoa idhini ndiyo itakayokuwa tu na habari zako za kibinafsi. Ili kuficha kujulikana kwako, kodi ya kipekee itatumika kukutambulisha katika hojaji. Habari hii itakayokusanywa itawekwa mahali pa siri kwani hakuna yeyote atakayeifikia isipokuwa mtafiti pekee. Ili kuhakikisha kuwa habari hizi zimewekwa kuwa siri, taarifa yoyote utakayoitoa itatambulishwa kwa kodi ya kipekee na wala si kwa jina lako. Habari itakayokusanywa itatumika tu kwa sababu za kimasomo.

MATAKWA YA JAMII

Deta itakusanywa katika eneo la mafunzo ili kuhakikisha kuwa watu mnaoishi nao hawaathiriki kwa njia moja au nyingine. Utafiti huu unahusu saikolojia ya michezo; hivyo basi, mtafiti ataanda warsha ya makocha na wachezaji baada ya kufanya utafiti ili aweze kuwahamasisha kuhusu umuhimu wa vipengele muhimu vya kisaikolojia vinavyofaa kuzingatiwa hasa wakati wa kufanya mazoezi kupita kiasi katika michezo.

NAMNA YA KUWASILIANA NASI

Ikiwa una maswali yoyote, unaweza kuwasiliana na Dkt. Andaje Mwisukha kupitia nambari ya simu 0722936588, Dkt. Bulinda kwa nambari ya simu 0722677266 au Kamati inayoshughulikia maadili ya utafiti kwenye anwani chairman.kuerc@ku.ac.ke, secretary.kuerc@ku.ac.ke, ercku2008@gmail.com

TAARIFA YA MTAFITIWA

Habari iliyotolewa kuhusu kushiriki kwangu katika utafiti huu imefafanuliwa vizuri. Ninathibitisha kuwa nimesoma na kwamba nina habari kamili kuhusu malengo, hatua, hatari zozote, faida na kuwekwa kwa siri katika utafiti huu. Nimepewa fursa ya kuuliza maswali yote kuhusu utafiti huu na yamejibiwa hadi nikaridhika. Nimehakikishiwa kuhusu kuwekwa kwa siri ya habari itakayokusanywa. Pia nimefahamishwa kuwa ninaweza kujiondoa katika utafiti huu wakati wowote kwa hiari. Ninafahamu kuwa ikiwa nitashiriki au kujiondoa katika utafiti huu wakati wowote, bila shaka bado nitafaidi matokeo ya utafiti.

Jina la Mtafitiwa ----------

_____ _____

Sahihi au Alama ya Kidole **Tarehe**

TAARIFA YA MTAFITI

Nimemfafanulia mtafitiwa kila hatua inayohitajika kufuatwa katika utafiti huu. Nimemweleza kuhusu hatari na faida zinazoweza kutokana na utafiti huu.

Jina la mtafiti ----------

_____ _____

Sahihi ya mtafiti **Tarehe**

APPENDIX E

EXPLANATIONS OF ADJECTIVES AND STATEMENTS IN POMS

KISWAHILI

Mchangamfu- mtu anayeongea na kucheka na watu wengine kwa furaha

Aliyetikisika- kusikia huna nguvu

Aliyegadhabishwa- aliyekasirika

Mwenye kiasi- mwenye kufikiria wengine

Asiyeweza kumakinika- kukosa kuwa makini

Mwenye msaada- kuwa mtu mwenye msaada kwa wengine

Mwenye upweke- kusikia kukaa peke yako

Aliyetamauka- kusikia hauna furaha

Mlegevu- kusikia unafanya mambo poleploe, yaani, goigoi

Mwasi- kusikia unataka kuvunja sheria au makataa uliyopewa

Asiye na msaada- kusikia hauna msaada wowote

Faafu- Kusikia unafanya kazi yako kwa ubora

Aliyetishika- aliye na uoga mwingi

APPENDIX F

EXPLANATIONS OF ADJECTIVES AND STATEMENTS IN POMS

Clear-headed- able to think

Lively- full of energy and enthusiasm

Shaky- feeling weak

Listless- feeling as if you have no energy and no interest in anything

Peeved- annoyed or upset

Active- Feeling you have a lot of energy to do a lot of activities

Grouchy- often in a bad mood or complaining a lot

Panicky- very nervous or worried

Unworthy- dishonest or morally wrong

Spiteful- deliberately trying to upset someone or cause problems for them, because you think something is unfair

Sympathetic- feeling kindness to others who have problems and you are willing to understand how they feel

Uneasy- feeling slightly nervous, worried, or upset about something

Restless- Impatient.

Helpful- Useful or providing help to others

Resentful- offended i.e. feeling angry and unhappy because you think you have been treated unfairly or without respect

Nervous- feeling excited and worried, or slightly afraid

Miserable- feeling extremely unhappy or uncomfortable

Muddled- confused i.e. feeling not clear or effective

Anxious- feeling worried because you think something bad might happen

Good natured- feeling kind, friendly and not easily annoyed

Desperate- feeling very worried and angry because you do not know how to deal with the situation

Sluggish- not performing or reacting as well as usual

Rebellious- opposing authority or the accepted rules

Weary- feeling very tired

Bewildered- confused and not certain what to do

Alert- able to think in a clear and intelligent way

Deceived- feeling cheated

Efficient- feeling well organized

Full of pep- full of life

Worthless- feeling you are useless i.e. of no value

Terrified- extremely frightened

Vigorous- feeling full of energy

Bushed- Extremely tired

APPENDIX G

Scoring the mood sub-scales and total mood disturbance (TMD)

	Item	Scale	Not at All	A Little	Moderate	Quite a Lot	Extremely
1.	Friendly	Do not- score this item					
2.	Tense	**TEN**	0	1	2	3	4
3.	Angry	**ANG**	0	1	2	3	4
4.	Worn Out	**FAT**	0	1	2	3	4
5.	Unhappy	**DEP**	0	1	2	3	4
6.	Clear-headed	Do not- score this item					
7.	Lively	**VIG**	0	1	2	3	4
8.	Confused	**CON**	0	1	2	3	4
9.	Sorry for things done	**DEP**	0	1	2	3	4
10.	Shaky	**TEN**	0	1	2	3	4
11.	Listless	**FAT**	0	1	2	3	4
12.	Peeved	**ANG**	0	1	2	3	4
13.	Considerate	Do not- score this item					
14.	Sad	**DEP**	0	1	2	3	4
15.	Active	**VIG**	0	1	2	3	4
16.	On edge	**TEN**	0	1	2	3	4
17.	Grouchy	**ANG**	0	1	2	3	4
18.	Blue	**DEP**	0	1	2	3	4
19.	Energetic	**VIG**	0	1	2	3	4
20.	Panicky	**TEN**	0	1	2	3	4
21.	Hopeless	**DEP**	0	1	2	3	4
22.	Relaxed	**TEN**	Reverse- score this item (0 = 4, 1 = 3, 2 = 2, 3 = 1, 4 = 0)				
23.	Unworthy	**DEP**	0	1	2	3	4
24.	Spiteful	**ANG**	0	1	2	3	4
25.	Sympathetic	Do not- score this item					
26.	Uneasy	**TEN**	0	1	2	3	4
27.	Restless	**TEN**	0	1	2	3	4
28.	Unable to concentrate	**CON**	0	1	2	3	4
29.	Fatigued	**FAT**	0	1	2	3	4
30.	Helpful	Do not- score this item					
31.	Annoyed	**ANG**	0	1	2	3	4
32.	Discouraged	**DEP**	0	1	2	3	4
33.	Resentful	**ANG**	0	1	2	3	4
34.	Nervous	**TEN**	0	1	2	3	4
35.	Lonely	**DEP**	0	1	2	3	4
36.	Miserable	**DEP**	0	1	2	3	4
37.	Muddled	**CON**	0	1	2	3	4
38.	Cheerful	**VIG**	0	1	2	3	4
39.	Bitter	**ANG**	0	1	2	3	4

40.	Exhausted	**FAT**	0	1	2	3	4
41.	Anxious	**TEN**	0	1	2	3	4
42.	Ready to fight	**ANG**	0	1	2	3	4
43.	Good natured	Do not- score this item					
44.	Gloomy	**DEP**	0	1	2	3	4
45.	Desperate	**DEP**	0	1	2	3	4
46.	Sluggish	**FAT**	0	1	2	3	4
47.	Rebellious	**ANG**	0	1	2	3	4
48.	Helpless	**DEP**	0	1	2	3	4
49.	Weary	**FAT**	0	1	2	3	4
50.	Bewildered	**CON**	0	1	2	3	4
51.	Alert	**VIG**	0	1	2	3	4
52.	Deceived	**ANG**	0	1	2	3	4
53.	Furious	**ANG**	0	1	2	3	4
54.	Efficient	**CON**	Reverse- score this item (0 = 4, 1 = 3, 2 = 2, 3 = 1, 4 = 0)				
55.	Trusting	Do not- score this item					
56.	Full of pep	**VIG**	0	1	2	3	4
57.	Bad tempered	**ANG**	0	1	2	3	4
58.	Worthless	**DEP**	0	1	2	3	4
59.	Forgetful	**CON**	0	1	2	3	4
60.	Carefree	**VIG**	0	1	2	3	4
61.	Terrified	**DEP**	0	1	2	3	4
62.	Guilty	**DEP**	0	1	2	3	4
63.	Vigorous	**VIG**	0	1	2	3	4
64.	Uncertain about Things	**CON**	0	1	2	3	4
65.	Bushed	**FAT**	0	1	2	3	4
	The figures refer to these phrases: 0 = Not at all, 1 = A Little, 2 = Moderately, 3 = Quite a bit, 4 = Extremely.						

ANG = Anger	Note that two (2) of the items: Efficient on confusion sub-scale and relaxed on tension sub-scale are reverse scored prior to being summed with the other items.
CON = Confusion	
DEP = Depression	Note that friendly, considerate, clear-headed, helpful, sympathetic, trusting and good natured are not used in the scoring (dummy items)
FAT = Fatigue	
TEN = Tension	**TOTAL MOOD DISTURBANCE (TMD**) is calculated by adding the scores for anger, confusion, depression, fatigue and tension (negative subscales) and then subtracting the scores for vigour (positive subscale)
VIG = Vigour	A constant figure (e.g., 100) can be added to the (TMD) formula in order to eliminate negative scores.

Adopted from: Mackenzi (2001), Grove and Prapavessis (2016).

APPENDIX H

HOCKEY 2017 FIXTURES

Elite Hockey Men' Teams Participating in the League	
1	STRATHMORE UNIVERSITY MEN
2	BUTALI WARRIORS
3	KENYA POLICE
4	GREENSHARKS
5	CHASE SAILORS
6	NAKURU
7	KCAU
8	PARKLANDS
9	USIU-A MEN
10	WAZALENDO
11	NAIROBI SIKH
12	PARKROAD BADGERS
13	KENYATTA UNIVERSITY
14	TUK
15	WESTERN JAGUARS

SATURDAY 11TH MARCH 2017					
PREMIER MEN	TUK	v	CHASE SAILORS	4.00 P.M	CITY PARK
	GREENSHARKS	v	WAZALENDO	6.00 P.M	
SUNDAY 12TH MARCH 2017					
PREMIER MEN	USIU-A MEN	v	KENYATTA UNIVERSITY	1.00 P.M	CITY PARK
	KENYA POLICE	v	KCAU	3.00 P.M	
WEDNESDAY 15TH MARCH 2017					
PREMIER MEN	STRATHMORE UNIVERSITY MEN	v	NAIROBI SIKH	6.00 P.M	CITY PARK
SATURDAY 18TH MARCH 2017					
PREMIER MEN	TUK	v	NAKURU	4.00 P.M	CITY PARK
	WESTERN JAGUARS	v	BUTALI WARRIORS	6.00 P.M	
SUNDAY 19TH MARCH 2017					
PREMIER MEN	PARKLANDS	v	WESTERN JAGUARS	9.00 A.M	CITY PARK
	USIU-A MEN	v	NAKURU	11.00 A.M	

SATURDAY 25TH MARCH 2017					
PREMIER MEN	NAKURU	v	WAZALENDO	4.00 P.M	NAKURU
	WESTERN JAGUARS	v	STRATHMORE UNIVERSITY MEN	4.00 P.M	KAKAMEGA
SUNDAY 26TH MARCH 2017					
PREMIER MEN	PARKROAD BADGERS	v	GREENSHARKS	3.00 P.M	CITY PARK
	CHASE SAILORS	v	KENYA POLICE	5.00 P.M	
SATURDAY 01ST APRIL 2017					
PREMIER MEN	GREENSHARKS	v	TUK	4.00 P.M	CITY PARK
	NAIROBI SIKH	v	USIU-A MEN	6.00 P.M	
SUNDAY 02ND APRIL 2017					
PREMIER MEN	NAKURU	v	PARKROAD BADGERS	1.00 P.M	NAKURU
	STRATHMORE UNIVERSITY MEN	v	PARKLANDS	3.00 P.M	CITY PARK
SATURDAY 08TH APRIL 2017					
PREMIER MEN	KCAU	v	CHASE SAILORS	4.00 P.M	CITY PARK
	KENYATTA UNIVERSITY	v	WAZALENDO	6.00 P.M	
SUNDAY 09TH APRIL 2017					
PREMIER MEN	KENYA POLICE	v	GREENSHARKS	1.00 P.M	CITY PARK
	USIU-A MEN	v	PARKLANDS	3.00 P.M	
FRIDAY 14TH APRIL 2017					
PREMIER MEN	CHASE SAILORS	v	PARKLANDS	10.00 A.M	CITY PARK
	WAZALENDO	v	TUK	12.00 P.M	
	GREENSHARKS	v	NAIROBI SIKH	2.00 P.M	
SATURDAY 15TH APRIL 2017					
PREMIER MEN	KENYATTA UNIVERSITY	v	STRATHMORE UNIVERSITY MEN	4.00 P.M	CITY PARK
	USIU-A MEN	v	BUTALI WARRIORS	6.00 P.M	
SUNDAY 16TH APRIL 2017					
PREMIER MEN	PARKROAD BADGERS	v	KENYATTA UNIVERSITY	4.00 P.M	CITY PARK
	BUTALI WARRIORS	v	STRATHMORE UNIVERSITY MEN	6.00 P.M	
MONDAY 17TH APRIL 2017					
PREMIER MEN	USIU-A MEN	v	WAZALENDO	2.00 P.M	CITY PARK
	TUK	v	KENYA POLICE	4.00 P.M	
SATURDAY 22ND APRIL 2017					
PREMIER MEN	GREENSHARKS	v	KCAU	12.00 P.M	CITY PARK
	KENYA POLICE	v	PARKLANDS	2.00 P.M	
	WESTERN JAGUARS	v	USIU-A MEN	2.00 P.M	KAKAMEGA

SUNDAY 23RD APRIL 2017					
PREMIER MEN	WESTERN JAGUARS	v	KENYATTA UNIVERSITY	9.00 A.M	KAKAMEGA
	KENYATTA UNIVERSITY	v	TUK	3.00 P.M	CITY PARK
WEDNESDAY 26TH APRIL 2017					
PREMIER MEN	NAIROBI SIKH	v	PARKROAD BADGERS	6.00 P.M	CITY PARK
SATURDAY 29TH APRIL 2017					
PREMIER MEN	CHASE SAILORS	v	GREENSHARKS	4.00 P.M	CITY PARK
	KENYA POLICE	v	NAKURU	6.00 P.M	
SUNDAY 30TH APRIL 2017					
PREMIER MEN	KCAU	v	NAKURU	9.00 A.M	CITY PARK
	WAZALENDO	v	NAIROBI SIKH	3.00 P.M	
MONDAY 01ST MAY 2017					
PREMIER MEN	GREENSHARKS	v	NAKURU	11.00 A.M	CITY PARK
	STRATHMORE UNIVERSITY MEN	v	PARKROAD BADGERS	1.00 P.M	
WEDNESDAY 03RD MAY 2017					
PREMIER MEN	KENYA POLICE	v	KENYATTA UNIVERSITY	6.00 P.M	CITY PARK
SATURDAY 06TH MAY 2017					
PREMIER MEN	KCAU	v	NAIROBI SIKH	2.00 P.M	CITY PARK
	CHASE SAILORS	v	PARKROAD BADGERS	4.00 P.M	
SUNDAY 07TH MAY 2017					
PREMIER MEN	TUK	v	NAIROBI SIKH	1.00 P.M	CITY PARK
	STRATHMORE UNIVERSITY MEN	v	USIU-A MEN	3.00 P.M	
WEDNESDAY 10TH MAY 2017					
PREMIER MEN	WAZALENDO	v	PARKLANDS	6.00 P.M	CITY PARK
SATURDAY 13TH MAY 2017					
PREMIER MEN	BUTALI WARRIORS	v	WAZALENDO	4.00 P.M	CITY PARK
	CHASE SAILORS	v	WESTERN JAGUARS	6.00 P.M	
SUNDAY 14TH MAY 2017					
PREMIER MEN	KENYA POLICE	v	WESTERN JAGUARS	9.00 A.M	CITY PARK
	NAIROBI SIKH	v	BUTALI WARRIORS	3.00 P.M	
	KCAU	v	TUK	5.00 P.M	
SUNDAY 17TH MAY 2017					
PREMIER MEN	PARKROAD BADGERS	v	PARKLANDS	6.00 P.M	CITY PARK

SATURDAY 20TH MAY 2017					
PREMIER MEN	STRATHMORE UNIVERSITY MEN	v	CHASE SAILORS	4.00 P.M	CITY PARK
	BUTALI WARRIORS	v	KENYATTA UNIVERSITY	6.00 P.M	
SUNDAY 21ST MAY 2017					
PREMIER MEN	KENYA POLICE	v	NAIROBI SIKH	1.00 P.M	CITY PARK
	GREENSHARKS	v	PARKLANDS	3.00 P.M	
WEDNESDAY 24TH MAY 2017					
PREMIER MEN	KCAU	v	KENYATTA UNIVERSITY	6.00 P.M	CITY PARK
SATURDAY 27TH MAY 2017					
PREMIER MEN	TUK	v	PARKROAD BADGERS	12.00 P.M	CITY PARK
	WAZALENDO	v	STRATHMORE UNIVERSITY MEN	2.00 P.M	
SUNDAY 28TH MAY 2017					
PREMIER MEN	NAKURU	v	BUTALI WARRIORS	9.00 A.M	NAKURU
	STRATHMORE UNIVERSITY MEN	v	KENYA POLICE	3.00 P.M	CITY PARK
SATURDAY 3RD JUNE 2017					
PREMIER MEN	NAKURU	v	NAIROBI SIKH	2.30 P.M	NAKURU
	BUTALI WARRIORS	v	PARKROAD BADGERS	4.00 P.M	CITY PARK
	GREENSHARKS	v	USIU-A MEN	6.00 P.M	
SUNDAY 4TH JUNE 2017					
PREMIER MEN	NAIROBI SIKH	v	PARKLANDS	1.00 P.M	CITY PARK
	KCAU	v	WAZALENDO	3.00 P.M	
WEDNESDAY 7TH JUNE 2017					
PREMIER MEN	KENYA POLICE	v	WAZALENDO	6.00 P.M	CITY PARK
SATURDAY 10TH JUNE 2017					
PREMIER MEN	TUK	v	WESTERN JAGUARS	4.00 P.M	CITY PARK
	STRATHMORE UNIVERSITY MEN	v	GREENSHARKS	6.00 P.M	
SUNDAY 11TH JUNE 2017					
PREMIER MEN	WAZALENDO	v	WESTERN JAGUARS	9.00 A.M	CITY PARK
	KENYATTA UNIVERSITY	v	PARKLANDS	3.00 P.M	
WEDNESDAY 14TH JUNE 2017					
PREMIER MEN	BUTALI WARRIORS	v	TUK	6.00 P.M	CITY PARK

SATURDAY 17TH JUNE 2017					
PREMIER MEN	CHASE SAILORS	v	NAKURU	4.00 P.M	CITY PARK
	WESTERN JAGUARS	v	GREENSHARKS	4.00 P.M	KAKAMEGA
SUNDAY 18TH JUNE 2017					
PREMIER MEN	PARKLANDS	v	NAKURU	11.00 A.M	CITY PARK
	WESTERN JAGUARS	v	PARKROAD BADGERS	9.00 A.M	KAKAMEGA
	KENYA POLICE	v	USIU-A MEN	3.00 P.M	CITY PARK
WEDNESDAY 21ST JUNE 2017					
PREMIER MEN	KCAU	v	USIU-A MEN	6.00 P.M	CITY PARK
SATURDAY 24TH JUNE 2017					
PREMIER MEN	PARKROAD BADGERS	v	KCAU	4.00P.M	CITY PARK
	BUTALI WARRIORS	v	GREENSHARKS	6.00 P.M	
SUNDAY 25TH JUNE 2017					
PREMIER MEN	KENYATTA UNIVERSITY	v	NAIROBI SIKH	1.00 P.M	CITY PARK
	USIU-A MEN	v	TUK	3.00 P.M	
WEDNESDAY 28TH JUNE 2017					
PREMIER MEN	CHASE SAILORS	v	BUTALI WARRIORS	6.00 P.M	CITY PARK
SATURDAY 01ST JULY 2017					
PREMIER MEN	WESTERN JAGUARS	v	NAKURU	3.00 P.M	KAKAMEGA
	CHASE SAILORS	v	WAZALENDO	4.00 P.M	CITY PARK
	BUTALI WARRIORS	v	KENYA POLICE	6.00 P.M	
SUNDAY 02ND JULY 2017					
PREMIER MEN	KCAU	v	PARKLANDS	4.00 P.M	CITY PARK
	NAIROBI SIKH	v	CHASE SAILORS	6.00 P.M	
WEDNESDAY 5TH JULY 2017					
PREMIER MEN	STRATHMORE UNIVERSITY MEN	v	TUK	6.00 P.M	CITY PARK
SATURDAY 8TH JULY 2017					
PREMIER MEN	PARKROAD BADGERS	v	WAZALENDO	2.00 P.M	CITY PARK
	KENYATTA UNIVERSITY	v	GREENSHARKS	6.00 P.M	
SUNDAY 9TH JULY 2017					
PREMIER MEN	TUK	v	PARKLANDS	3.00 P.M	CITY PARK
WEDNESDAY 12TH JULY 2017					
PREMIER MEN	PARKROAD BADGERS	v	USIU-A MEN	6.00 P.M	CITY PARK

SATURDAY 15TH JULY 2017					
PREMIER MEN	WESTERN JAGUARS	v	KCAU	3.00 P.M	KAKAMEGA
	KENYATTA UNIVERSITY	v	CHASE SAILORS	6.00 P.M	CITY PARK
SUNDAY 16TH JULY 2017					
PREMIER MEN	PARKLANDS	v	BUTALI WARRIORS	1.00 P.M	CITY PARK
	STRATHMORE UNIVERSITY MEN	v	KCAU	3.00 P.M	
WEDNESDAY 19TH JULY 2017					
PREMIER MEN	USIU-A MEN	v	CHASE SAILORS	6.00 P.M	CITY PARK
SATURDAY 22ND JULY 2017					
PREMIER MEN	WESTERN JAGUARS	v	NAIROBI SIKH	3.00 P.M	KAKAMEGA
	NAKURU	v	KENYATTA UNIVERSITY	3.00 P.M	NAKURU
SUNDAY 23RD JULY 2017					
PREMIER MEN	PARKROAD BADGERS	v	KENYA POLICE	1.00 P.M	CITY PARK
	NAKURU	v	STRATHMORE UNIVERSITY MEN	2.00 P.M	NAKURU
	KCAU	v	BUTALI WARRIORS	3.00 P.M	CITY PARK
2ND LEG FIXTURES					
PREMIER MEN	CHASE SAILORS	v	TUK	4.00 P.M	CITY PARK
	WAZALENDO	v	GREENSHARKS	6.00 P.M	
SUNDAY 3RD SEPTEMBER 2017					
PREMIER MEN	KENYATTA UNIVERSITY	v	USIU-A MEN	1.00 P.M	CITY PARK
	KCAU	v	KENYA POLICE	3.00 P.M	
WEDNESDAY 6TH SEPTEMBER 2017					
PREMIER MEN	NAIROBI SIKH	v	STRATHMORE UNIVERSITY MEN	6.00 P.M	CITY PARK
SATURDAY 9TH SEPTEMBER 2017					
PREMIER MEN	WAZALENDO	v	NAKURU	4.00 P.M	CITY PARK
	STRATHMORE UNIVERSITY MEN	v	WESTERN JAGUARS	6.00 P.M	
SUNDAY 10TH SEPTEMBER 2017					
PREMIER MEN	KCAU	v	WESTERN JAGUARS	9.00 A.M	CITY PARK
	NAIROBI SIKH	v	NAKURU	11.00 A.M	
SATURDAY 16TH SEPTEMBER 2017					
PREMIER MEN	NAKURU	v	KENYA POLICE	4.00 P.M	NAKURU
	GREENSHARKS	v	PARKROAD BADGERS	6.00 P.M	CITY PARK
SUNDAY 17TH SEPTEMBER 2017					
PREMIER MEN	WESTERN JAGUARS	v	BUTALI WARRIORS	11.00 A.M	KAKAMEGA
	KENYA POLICE	v	CHASE SAILORS	3.00 P.M	CITY PARK

SATURDAY 23RD SEPTEMBER 2017					
PREMIER MEN	TUK	v	GREENSHARKS	2.00 P.M	CITY PARK
	USIU-A MEN	v	NAIROBI SIKH	4.00 P.M	
SUNDAY 24TH SEPTEMBER 2017					
PREMIER MEN	KCAU	v	NAKURU	1.00 P.M	NAKURU
	WAZALENDO	v	KENYATTA UNIVERSITY	3.00 P.M	CITY PARK
SATURDAY 30TH SEPTEMBER 2017					
PREMIER MEN	CHASE SAILORS	v	KCAU	4.00 P.M	CITY PARK
	PARKLANDS	v	STRATHMORE UNIVERSITY MEN	6.00 P.M	
SUNDAY 1ST OCTOBER 2017					
PREMIER MEN	PARKLANDS	v	USIU-A MEN	1.00 P.M	CITY PARK
	GREENSHARKS	v	KENYA POLICE	3.00 P.M	
SATURDAY 7TH OCTOBER 2017					
PREMIER MEN	STRATHMORE UNIVERSITY MEN	v	KENYATTA UNIVERSITY	12.00 P.M	CITY PARK
	BUTALI WARRIORS	v	USIU-A MEN	6.00 P.M	
SUNDAY 8TH OCTOBER 2017					
PREMIER MEN	KENYATTA UNIVERSITY	v	PARKROAD BADGERS	3.00 P.M	CITY PARK
	STRATHMORE UNIVERSITY MEN	v	BUTALI WARRIORS	5.00 P.M	
SATURDAY 14TH OCTOBER 2017					
PREMIER MEN	PARKLANDS	v	KENYA POLICE	12.00 P.M	CITY PARK
	KCAU	v	GREENSHARKS	2.00 P.M	
	WESTERN JAGUARS	v	CHASE SAILORS	2.00 P.M	KAKAMEGA
SUNDAY 15TH OCTOBER 2017					
PREMIER MEN	WESTERN JAGUARS	v	WAZALENDO	9.00 A.M	KAKAMEGA
	TUK	v	KENYATTA UNIVERSITY	3.00 P.M	CITY PARK
WEDNESDAY 18TH OCTOBER 2017					
PREMIER MEN	PARKROAD BADGERS	v	NAIROBI SIKH	6.00 P.M	CITY PARK
SATURDAY 28TH OCTOBER 2017					
PREMIER MEN	GREENSHARKS	v	CHASE SAILORS	4.00 P.M	CITY PARK
	BUTALI WARRIORS	v	NAKURU	6.00 P.M	
SUNDAY 29TH OCTOBER 2017					
PREMIER MEN	PARKROAD BADGERS	v	NAKURU	9.00 A.M	CITY PARK
	NAIROBI SIKH	v	WAZALENDO	3.00 P.M	

WEDNESDAY 1ST NOVEMBER 2017					
PREMIER MEN	KENYATTA UNIVERSITY	v	KENYA POLICE	6.00 P.M	CITY PARK
SATURDAY 4TH NOVEMBER 2017					
PREMIER MEN	NAIROBI SIKH	v	KCAU	2.00 P.M	CITY PARK
	PARKROAD BADGERS	v	CHASE SAILORS	4.00 P.M	
SUNDAY 5TH NOVEMBER 2017					
PREMIER MEN	NAIROBI SIKH	v	TUK	1.00 P.M	CITY PARK
	USIU-A MEN	v	STRATHMORE UNIVERSITY MEN	3.00 P.M	
WEDNESDAY 8TH NOVEMBER 2017					
PREMIER MEN	PARKLANDS	v	WAZALENDO	6.00 P.M	CITY PARK
SATURDAY 11TH NOVEMBER 2017					
PREMIER MEN	WAZALENDO	v	BUTALI WARRIORS	4.00 P.M	CITY PARK
	GREENSHARKS	v	WESTERN JAGUARS	6.00 P.M	
SUNDAY 12TH NOVEMBER 2017					
PREMIER MEN	KENYATTA UNIVERSITY	v	WESTERN JAGUARS	9.00 A.M	CITY PARK
	BUTALI WARRIORS	v	NAIROBI SIKH	3.00 P.M	
	TUK	v	KCAU	5.00 P.M	
SUNDAY 15TH NOVEMBER 2017					
PREMIER MEN	PARKLANDS	v	PARKROAD BADGERS	6.00 P.M	CITY PARK
SATURDAY 18TH NOVEMBER 2017					
PREMIER MEN	CHASE SAILORS	v	STRATHMORE UNIVERSITY MEN	4.00 P.M	CITY PARK
	KENYATTA UNIVERSITY	v	BUTALI WARRIORS	6.00 P.M	
SUNDAY 19TH NOVEMBER 2017					
PREMIER MEN	NAIROBI SIKH	v	KENYA POLICE	1.00 P.M	CITY PARK
	PARKLANDS	v	GREENSHARKS	3.00 P.M	
WEDNESDAY 22ND NOVEMBER 2017					
PREMIER MEN	KENYATTA UNIVERSITY	v	KCAU	6.00 P.M	CITY PARK
SATURDAY 25TH NOVEMBER 2017					
PREMIER MEN	PARKROAD BADGERS	v	TUK	12.00 P.M	CITY PARK
	STRATHMORE UNIVERSITY MEN	v	WAZALENDO	2.00 P.M	
SUNDAY 26TH NOVEMBER 2017					
PREMIER MEN	NAKURU	v	GREENSHARKS	9.00 A.M	NAKURU
PREMIER MEN	KENYA POLICE	v	STRATHMORE UNIVERSITY MEN	3.00 P.M	CITY PARK

SATURDAY 2ND DECEMBER 2017					
PREMIER MEN	NAKURU	v	TUK	2.30 P.M	NAKURU
	PARKROAD BADGERS	v	BUTALI WARRIORS	4.00 P.M	CITY PARK
	USIU-A MEN	v	GREENSHARKS	6.00 P.M	
SUNDAY 3RD DECEMBER 2017					
PREMIER MEN	PARKLANDS	v	NAIROBI SIKH	1.00 P.M	CITY PARK
	WAZALENDO	v	KCAU	3.00 P.M	
WEDNESDAY 6TH DECEMBER 2017					
PREMIER MEN	WAZALENDO	v	KENYA POLICE	6.00 P.M	CITY PARK
SATURDAY 9TH DECEMBER 2017					
PREMIER MEN	PARKLANDS	v	CHASE SAILORS	12.00 P.M	CITY PARK
	GREENSHARKS	v	STRATHMORE UNIVERSITY MEN	4.00 P.M	
	NAIROBI SIKH	v	WESTERN JAGUARS	6.00 P.M	
SUNDAY 10TH DECEMBER 2017					
PREMIER MEN	PARKROAD BADGERS	v	WESTERN JAGUARS	9.00 A.M	CITY PARK
	KENYATTA UNIVERSITY	v	PARKLANDS	3.00 P.D26M	
TUESDAY 12TH DECEMBER 2017					
PREMIER MEN	USIU-A MEN	v	WAZALENDO	12.00 P.M	CITY PARK
	TUK	v	BUTALI WARRIORS	2.00 P.M	
	KCAU	v	STRATHMORE UNIVERSITY MEN	4.00 P.M	
SATURDAY 16TH DECEMBER 2017					
PREMIER MEN	NAIROBI SIKH	v	GREENSHARKS	4.00 P.M	CITY PARK
	WESTERN JAGUARS	v	PARKLANDS	4.00 P.M	KAKAMEGA
	STRATHMORE UNIVERSITY MEN	v	NAKURU	6.00 P.M	CITY PARK
SUNDAY 17TH DECEMBER 2017					
PREMIER MEN	KENYATTA UNIVERSITY	v	NAKURU	9.00 A.M	CITY PARK
	KENYA POLICE	v	USIU-A MEN	3.00 P.M	
WEDNESDAY 20TH DECEMBER 2017					
PREMIER MEN	USIU-A MEN	v	KCAU	6.00 P.M	CITY PARK
SATURDAY 13TH JANUARY 2018					
PREMIER MEN	WAZALENDO	v	CHASE SAILORS	2.00 P.M	CITY PARK
	KCAU	v	PARKROAD BADGERS	4.00P.M	
	GREENSHARKS	v	BUTALI WARRIORS	6.00 P.M	
	WESTERN JAGUARS	v	KENYA POLICE	3.00 P.M	KAKAMEGA

SUNDAY 14TH JANUARY 2018					
PREMIER MEN	NAIROBI SIKH	v	KENYATTA UNIVERSITY	1.00 P.M	CITY PARK
	TUK	v	USIU-A MEN	3.00 P.M	
WEDNESDAY 17TH JANUARY 2018					
PREMIER MEN	BUTALI WARRIORS	v	CHASE SAILORS	6.00 P.M	CITY PARK
SATURDAY 20TH JANUARY 2018					
PREMIER MEN	NAKURU	v	WESTERN JAGUARS	3.00 P.M	NAKURU
	TUK	v	WAZALENDO	4.00 P.M	CITY PARK
	KENYA POLICE	v	BUTALI WARRIORS	6.00 P.M	
SUNDAY 21ST JANUARY 2018					
PREMIER MEN	PARKLANDS	v	TUK	4.00 P.M	CITY PARK
	CHASE SAILORS	v	NAIROBI SIKH	6.00 P.M	
WEDNESDAY 24TH JANUARY 2018					
PREMIER MEN	TUK	v	STRATHMORE UNIVERSITY MEN	6.00 P.M	CITY PARK
SATURDAY 27TH JANUARY 2018					
PREMIER MEN	GREENSHARKS	v	KENYATTA UNIVERSITY	4.00 P.M	CITY PARK
	WAZALENDO	v	PARKROAD BADGERS	6.00 P.M	
SUNDAY 28TH JANUARY 2018					
PREMIER MEN	NAKURU	v	USIU-A MEN	11.00 A,M	NAKURU
	KENYA POLICE	v	TUK	900 A.M	CITY PARK
	PARKLANDS	v	KCAU	3.00 P.M	
WEDNESDAY 31ST JANUARY 2018					
PREMIER MEN	USIU-A MEN	v	PARKROAD BADGERS	6.00 P.M	CITY PARK
SATURDAY 3RD FEBUARY 2018					
PREMIER MEN	WESTERN JAGUARS	v	TUK	3.00 P.M	KAKAMEGA
	CHASE SAILORS	v	KENYATTA UNIVERSITY	6.00 P.M	CITY PARK
SUNDAY 4TH FEBUARY 2018					
PREMIER MEN	BUTALI WARRIORS	v	PARKLANDS	1.00 P.M	CITY PARK
	PARKROAD BADGERS	v	STRATHMORE UNIVERSITY MEN	3.00 P.M	
WEDNESDAY 7TH FEBUARY 2018					
PREMIER MEN	CHASE SAILORS	v	USIU-A MEN	6.00 P.M	CITY PARK
SATURDAY 10TH FEBUARY 2018					
PREMIER MEN	WESTERN JAGUARS	v	USIU-A MEN	6.00 P.M	CITY PARK
	NAKURU	v	PARKLANDS	3.00 P.M	NAKURU
	KENYA POLICE	v	PARKROAD BADGERS	1.00 P.M	CITY PARK
	NAKURU	v	CHASE SAILORS	2.00 P.M	NAKURU
	BUTALI WARRIORS	v	KCAU	3.00 P.M	CITY PARK

APPENDIX I

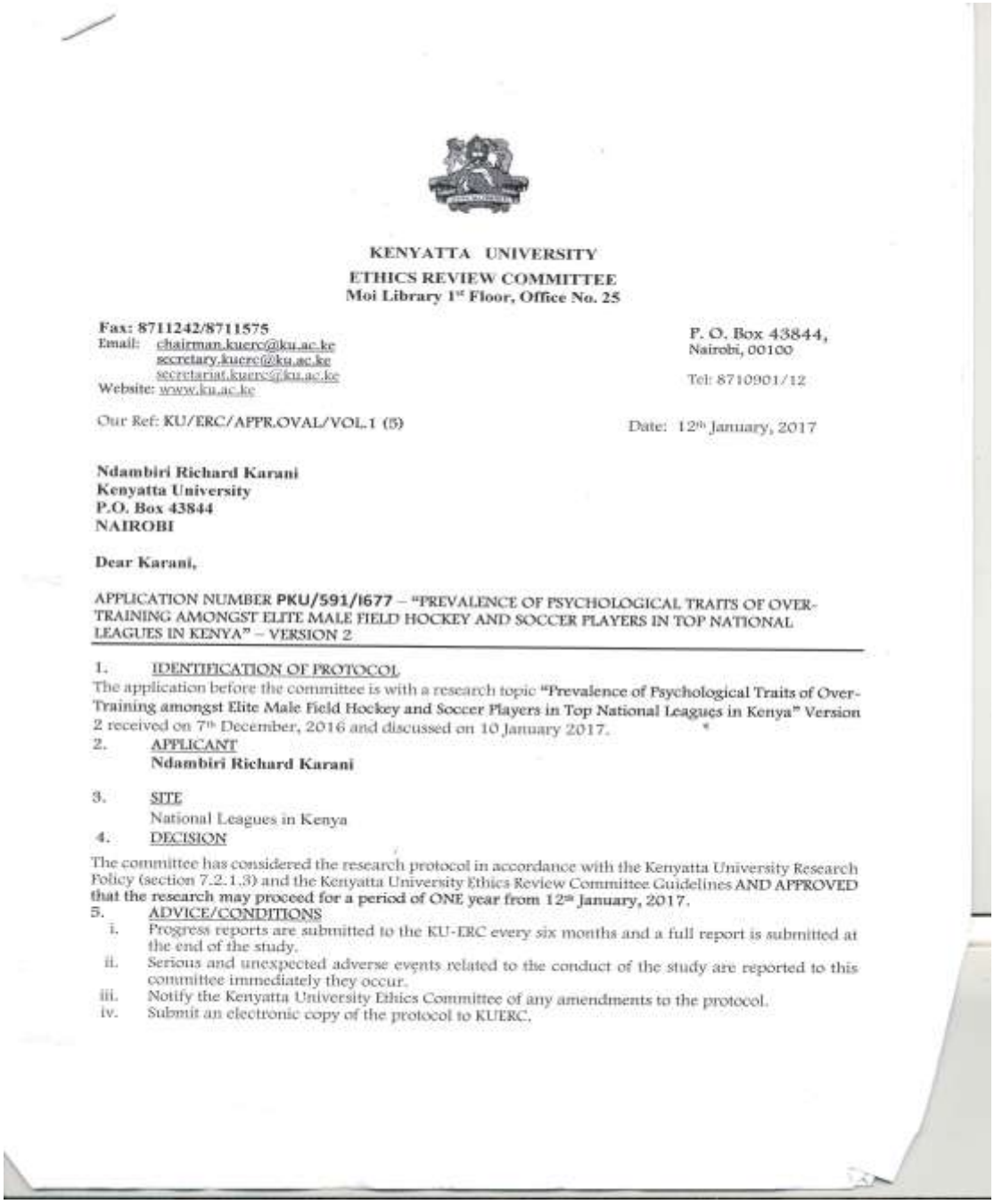
SOCCER FIXTURE 2017

2017 SEASON FIXTURES							
Key to the Fixtures							
1. League matches are denoted by black fonts							
2. FIFA matchdays are denoted by blue font							
3. CAF matchdays are denoted by red font							
4. Gotv matches are denoted by red font							
5. Hull City trip denoted by purple font							
6. ** Catch up due to club commitment in CAF/Gotv/Top 8							
7. Team X and Team Y will be determined after the Sports Dispute Tribunal hearing							
8. Changes in fixtures must be in accordance to the Rules Governing Kenyan Football							
9. Venue with TBA due to closure of Nyayo Stadium and Kasarani Stadium							
10. Kericho Green pending further inspection by the SSSC.							
Date	**Day**	**Time**	**Host club**	**Visitng club**	**Venue**	**#**	**Round**
4-Feb-17	Fri	3:00	Al-Hilal Benghazi	Ulinzi Stars	Cairo		CAF CC
5-Feb-17	Sat	3:00	Tusker	AS Port-Louis 2000	TBA		CAF CL
11-Feb-17	Sat	3:00	AS Port-Louis 2000	Tusker	Mauritius		CAF CL
11-Feb-17	Sat	3:00	Ulinzi Stars	Al-Hilal Benghazi	TBA		CAF CC
Penalties				CAF CC			
27-Feb-17	Mon	9:30	Hull City	SportPesa Allstars	KCOM	…	Round 2
5-Mar-17	Sun	3:00	Tusker	Gor Mahia	Afraha		Super Cup
10-Mar-17	Fri	3:00	Smouha	Ulinzi Stars	Cairo		CAF CC
11-Mar-17	Sat	3:00	Tusker	Nzoia United	TBA	1	Round 1
11-Mar-17	Sat	3:00	Bandari	Nakumatt	Mbaraki	2	Round 1
11-Mar-17	Sat	3:00	Kakamega Homeboyz	Muhoroni	Mumias	3	Round 1
11-Mar-17	Sat	3:00	AFC Leopards	Ulinzi Stars*	TBA	4	Round 1
11-Mar-17	Sat	3:00	Zoo Kericho	Posta Rangers	TBA	8	Round 1
12-Mar-17	Sun	2:00	Mathare United	Thika United	TBA	9	Round 1
12-Mar-17	Sun	4:15	Kariobangi Sharks	Gor Mahia	TBA	7	Round 1
12-Mar-17	Sun	3:00	SoNy Sugar	Chemelil Sugar	Awendo	8	Round 1
12-Mar-17	Sun	3:00	Western Stima	Sofapaka	Kisumu	9	Round 1
18-Mar-17	Sat	3:00	Ulinzi Stars	Smouha	Nairobi		CAF CC
18-Mar-17	Sat	3:00	Team X	SoNy Sugar	TBA	10	Round 2
18-Mar-17	Sat	3:00	Chemelil	Kakamega	Chemelil	11	Round 2

			Sugar	Homeboyz			
18-Mar-17	Sat	3:00	Gor Mahia	Zoo Kericho	TBA	12	Round 2
18-Mar-17	Sat	3:00	Team Y	Kariobangi Sharks	Muhoroni	13	Round 2
18-Mar-17	Sat	3:00	Nzoia United	Mathare United	Mumias	14	Round 2
19-Mar-17	Sun	2:00	Posta Rangers	Bandari	TBA	15	Round 2
19-Mar-17	Sun	4:15	Nakumatt	AFC Leopards	TBA	16	Round 2
19-Mar-17	Sun	4:00	Thika United	Tusker	Thika	17	Round 2
19-Mar-17	Sun	3:00	Ulinzi Stars	Western Stima	Afraha	18	Round 2

APPENDIX J

RESEARCH AUTHORIZATION LETTERS



KENYATTA UNIVERSITY
ETHICS REVIEW COMMITTEE
Moi Library 1st Floor, Office No. 25

Fax: 8711242/8711575
Email: chairman.kuerc@ku.ac.ke
secretary.kuerc@ku.ac.ke
secretariat.kuerc@ku.ac.ke
Website: www.ku.ac.ke

P. O. Box 43844,
Nairobi, 00100

Tel: 8710901/12

Our Ref: KU/ERC/APPR.OVAL/VOL.1 (5)

Date: 12th January, 2017

Ndambiri Richard Karani
Kenyatta University
P.O. Box 43844
NAIROBI

Dear Karani,

APPLICATION NUMBER **PKU/591/I677** – "PREVALENCE OF PSYCHOLOGICAL TRAITS OF OVER-TRAINING AMONGST ELITE MALE FIELD HOCKEY AND SOCCER PLAYERS IN TOP NATIONAL LEAGUES IN KENYA" – VERSION 2

1. IDENTIFICATION OF PROTOCOL
The application before the committee is with a research topic **"Prevalence of Psychological Traits of Over-Training amongst Elite Male Field Hockey and Soccer Players in Top National Leagues in Kenya" Version 2** received on 7th December, 2016 and discussed on 10 January 2017.

2. APPLICANT
Ndambiri Richard Karani

3. SITE
National Leagues in Kenya

4. DECISION
The committee has considered the research protocol in accordance with the Kenyatta University Research Policy (section 7.2.1.3) and the Kenyatta University Ethics Review Committee Guidelines **AND APPROVED that the research may proceed for a period of ONE year from 12th January, 2017.**

5. ADVICE/CONDITIONS
i. Progress reports are submitted to the KU-ERC every six months and a full report is submitted at the end of the study.
ii. Serious and unexpected adverse events related to the conduct of the study are reported to this committee immediately they occur.
iii. Notify the Kenyatta University Ethics Committee of any amendments to the protocol.
iv. Submit an electronic copy of the protocol to KUERC.

When replying, kindly quote the application number above.
If you accept the decision reached and advice and conditions given please sign in the space provided below and return to KU-ERC a copy of the letter.

KENYATTA UNIVERSITY
OFFICE OF THE CHAIRMAN
13 JAN 2017
ETHICS REVIEW COMMITTEE
P.O. BOX 43844-00100 NAIROBI

DR. TITUS KAHIGA
CHAIRMAN ETHICS REVIEW COMMITTEE

I [illegible] accept the advice given and will fulfill the conditions therein.

Signature ..... Dated this day of 13/01/ ..... 2017.

cc. Vice-Chancellor
DVC-Research Innovation and Outreach

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 57530

Internal Memo

FROM: Dean, Graduate School

DATE: 3rd October, 2016

TO: Ndambiri Richard Karani
C/o Department of Physical & Health Education

REF: H87/31722/15

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that Graduate School Board, at its meeting of 21st September, 2016 approved your Research Proposal for the Ph.D. Degree **entitled, "Prevalence of Psychological Traits of Over-Training amongst Elite Male Field Hockey and Soccer Players in Top National Leagues in Kenya".**

You may now proceed with your Data Collection, subject to clearance with Director General, National Commission for Science, Technology and Innovation. Subject to Clearance with the office of the Director, Ethical Committee, Kenyatta University.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

Thank

KENYATTA UNIVERSITY OFFICE OF DEAN 12 JAN 2017 P.O. BOX 43844-00100 NAIROBI

JACKSON LUVUSI
FOR: DEAN, GRADUATE SCHOOL

c.c. Chairman, Department of Physical & Health Education

Supervisors:

1. Dr. Andanje Mwisukha
   C/o Recreation Management & Exercise Science Department
   Kenyatta University
2. Dr. Hannington Bulinda
   C/o Physical & Health Education
   Kenyatta University

JL/cww

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

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when replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No: **NACOSTI/P/16/75738/14349**

Date: **8th November, 2016**

Richard Karani Ndambiri
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Prevalence of psychological traits of over-training amongst elite male field hockey and soccer players in top national leagues in Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **all Counties** for the period ending **8th November, 2017.**

You are advised to report to **the County Commissioners and the County Directors of Education, all Counties** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioners
All Counties.

The County Directors of Education
All Counties.

KENYAN PREMIER LEAGUE
For the good of our sport and nation
Brookside Grove, Westlands
Box 5350 - 00506 Nairobi
Mobile: +254-700-313331
Mobile: +254-739-222000
e-mail: info@kpl.co.ke
web: www.kpl.co.ke

Tuesday, 31 January 2017

Richard Karani Ndambiri
Kenyatta University
P. O. Box 43844-00100
Nairobi

Dear Sir,

RE: RESEARCH AUTHORIZATION

Following your request to be authorized to carry out research on "***Prevalence of psychological traits of over-training amongst elite male field hockey and soccer players in top national leagues in Kenya***," we are glad to inform you that you have been authorized to undertake this research among all Kenyan Premier League clubs participating in the 2017 SportPesa Premier League season.

We feel that the topic of your research will add value to our sport in way or another and it is our request that upon completion of your research you submit one hard copy and a soft copy in PDF Format so that we can share your findings with clubs and our Medical Committee.

We are
Yours faithfully
Kenyan Premier League

Jack Oguda
Chief Executive Officer

KENYAN PREMIER LEAGUE LIMITED

SportPesa

SuperSport
World of Champions

Kenya Hockey Union
Affiliated to International Hockey Federation (FIH) • Africa Hockey Federation (AfHF)
National Olympic Committee - Kenya (NOC-K) • Kenya National Sports Council (KNSC)
P. O Box 42602 - 00100 Nairobi, Kenya | www.kenyahockeyunion.org

Monday, 15th March 2017
Richard Karani Ndambiri
Kenyatta University
P.O BOX 43844-00100
NAIROBI

RE. : RESEARCH AUTHORIZATION

Following your request for authority to carry out research on **"Prevalence of Psychological trait: of over-training amongst elite male field hockey and soccer players in top national leagues ir Kenya,"** We are glad to inform you that you have been authorized to undertake this research among all Kenya Hockey Union clubs participating in the 2017 premier league season.

We feel that this particular area of research concerns upgrading field hockey training programmed i the country which would be of great assistance e for us, KHU.

On completion of this research, it is our request you submit one hard copy and soft copy of the research report in PDF format so that KHU can share the findings with respective clubs.

Yours faithfully
Duncan

Hon. Secretary General, KHU

Football Kenya Federation

Affiliated to CECAFA - CAF - FIFA

P. O. Box 12705-00400
Nairobi

Tel: + 254 795 758 887
+ 254 795 757 805
+ 254 795 757 804

Email: info@footballkenya.org
Website: www.fkf.or.ke

February 20, 2017

Richard Karani Ndabiri
Kenyatta University
P.O. Box 43844-00100
Nairobi.

Dear Sir,

RE: RESEARCH AUTHORIZATION

Following your request to be authorized to carry out research on *"Prevalence of psychological traits of over-training amongst elite male field hockey and soccer players in the top national leagues in Kenya"* we are glad to inform you that you have been authorized to undertake this research among all Kenyan Premier League clubs participating in the 2017 FKF Premier League season.

We feel that the topic of your research will add value to sports and it is our request that upon completion of your research you submit your findings to the National Office in order for us to share the same with our Sports Medicine Committee and our clubs.

Yours Sincerely,

Robert Muthomi
General Secretary/CEO

Nick Mwendwa
President
Email: nick.mwendwa@footballkenya.org

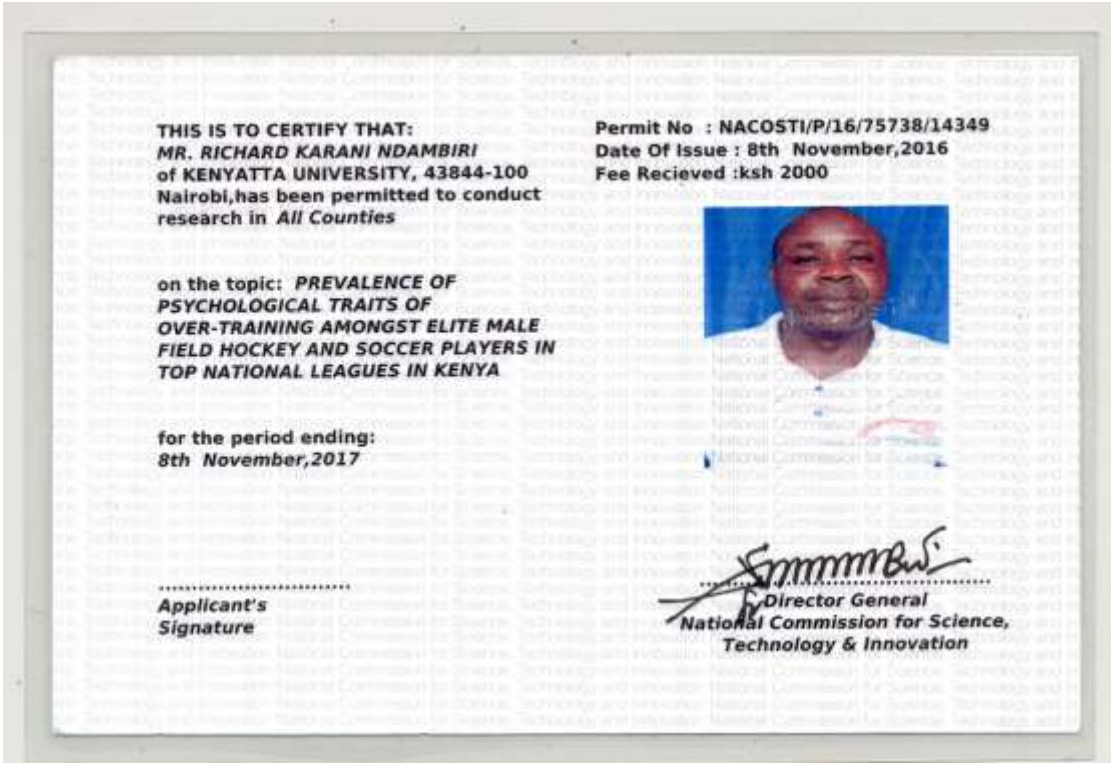
Robert Muthomi
Secretary General/CEO
Email: robert.muthomi@footballkenya.org

Petra Doris
Vice -President
Email: petradoris@footballkenya.org

All correspondence should be addressed to the General Secretary

APPENDIX K

RESEARCH PERMIT



THIS IS TO CERTIFY THAT:
MR. RICHARD KARANI NDAMBIRI
of KENYATTA UNIVERSITY, 43844-100
Nairobi,has been permitted to conduct
research in *All Counties*

on the topic: *PREVALENCE OF PSYCHOLOGICAL TRAITS OF OVER-TRAINING AMONGST ELITE MALE FIELD HOCKEY AND SOCCER PLAYERS IN TOP NATIONAL LEAGUES IN KENYA*

for the period ending:
8th November,2017

.....
Applicant's
Signature

Permit No : NACOSTI/P/16/75738/14349
Date Of Issue : 8th November,2016
Fee Recieved :ksh 2000