

THE ROLE OF COACH-ATHLETE RELATIONSHIPS ON MENTAL HEALTH,
COPING AND PSYCHOLOGICAL SKILLS OF ADOLESCENT ATHLETES

By

Kapule David Mabuta

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Kinesiology – Doctor of Philosophy

2023

PUBLIC ABSTRACT

The role of coach-athlete relationships on youth athlete performance and development outcomes has generated significant research interest seeking to understand the dynamics that underlie the nature and development of these relationships. Earlier investigations focused on understanding coaching styles and coaching leadership behaviors which made coaches effective and successful. However, there has been a shift in focus to how coach behaviors and leadership styles affect relationships with athletes and their performance outcomes. More recently, researchers have developed interest in the role of these relationships on athletes' psychological states and wellbeing. This shift has been necessitated in part by growing evidence of coaches' abuse of power, emotional and sexual abuse, and maltreatment of athletes. The recent rise to prominence of mental health states of elite athletes has also led to new ways of looking at coach-athlete relationships. Of recent interest is how these relationships could tilt in a direction that either positively or negatively affect athletes' mental health. Consequently, there is an emerging body of literature devoted to understanding how the quality and type of coach-athlete relationships relate to mental health and wellbeing of athletes.

The goal of this two-study dissertation was to investigate how coach-athlete relationships relate to mental health states of young adult and adolescent athletes in the US and Botswana. Study 1 involved descriptive analyses of the relationships between coach-athlete relationships, mental health, coping functions, and psychological skills of young adult athletes aged 18-24 years. This study involved a sample of 62 young adult athletes in the Greater Lansing area in the state of Michigan who agreed to complete in an online survey. Independent samples t-tests showed that female young athletes reported quality coach-athlete relationships, coping and psychological skills but scored poorly on mental health than their male counterparts.

Complementarity, a dimension of the coach-athlete relationship, had significant positive correlations with motivation and mental preparation which are both dimensions of psychological skills. Regression analyses showed that coach-athlete relationships did not predict mental health. The data did not support the hypothesized mediational role of psychological skills. These results could have largely been influenced by a small sample size and a substantial amount of missing data which could have been due to zoom fatigue in the COVID era. Despite the small sample size and other limitations, the findings show that, overall female athletes have better coach-athlete relationships and resorted more to emotion-focused coping than their male peers. A larger sample size was needed to fully examine the mediational relationship.

Study 2 was an extension of Study 1 with a large sample of adolescent athletes from Botswana. A sample of 255 adolescent senior secondary school student-athletes from Botswana completed pencil and paper questionnaires. The main aim of study 2 was to test the mediational role of psychological skills and coping function in the relationship between coach-athlete relationships and mental health. Regression analyses showed that coach-athlete relationships predicted both mental health and coping functions, and that coping functions in turn predicted mental health. In the mediation model, psychological skills and coping function mediated the effect of complementarity on social dysfunction and dysphoria (mental health). However, psychological skills alone did not mediate the effect of coach-athlete relationships on mental health.

Overall, the two studies emphasize the importance of positive coach-athlete relationships as they are facilitative of athletes' good mental health, coping abilities, and wellbeing of adolescent and young adult athletes. In turn good mental health, adaptive coping function and wellbeing positively impact sports climate and athletes' experiences.

ABSTRACT

Complimentary coach-athlete relationships are fundamental to athlete mental health and wellness. Quality coach-athlete complementarity is essential for mitigating against social dysfunction and dysphoria in adolescent athletes. Coach behaviors can positively or negatively impact athletes' affect and well-being. Controlling and abusive coach behaviors are detrimental to young athletes' mental health. However, reciprocal complementarity coach-athlete relationships and supportive coach behaviors are associated with positive mental health in young athletes. The first purpose of this study was to test the hypothesis that coach-athlete relationships, psychological skills, and coping function predict mental health of adolescent athletes. The second purpose was to test the hypothesis that the relationship between coach-athlete relationships and mental health is mediated by psychological skills and coping function of adolescent athletes. The purpose of study 1 was to examine the association of coach-athlete relationships with mental health and coping in young adult athletes, as well as the mediational role of psychological skills in this relationship. Sixty-two participants, female ($n = 22$), male ($n = 40$) young athletes from various sports, aged 18 and 24 years ($M = 18.7$, $SD = 1.48$) completed a demographic questionnaire, the Coach-Athlete Relationship Questionnaire, the General Health Questionnaire, the Coping Function Questionnaire, and the Psychological Skills Inventory – Youth Version. Study 2 was an extension of Study 1 with a larger sample, and a pencil and paper completion of the questionnaires from a sample of 255 (male=142, female = 113, $M = 17.6$ years, $SD = .72$) adolescent senior secondary school student-athletes from Botswana. Participants completed a demographic questionnaire, coach-athlete relationship questionnaire (CART-Q), general health questionnaire (GHQ-12), coping function questionnaire (CFQ), and the psychological skills inventory- youth version (PSIS-Y). The main aim of study 2 was to test the

mediational role of psychological skills and coping function in the relationship between coach-athlete relationships and mental health. Regression analyses showed that coach-athlete relationships predicted both mental health and coping functions, and that coping functions in turn predicted mental health. In the mediation model, the total indirect effect of complementarity on mental health (social dysfunction and dysphoria) was statistically significant ($\beta = .23$, $t = 3.64$, $p = .0001$). Equally significant was the mediational role of psychological skills and coping function in the relationship between complementarity and social dysfunction ($\beta = -.024$, 95% CI [-0.070, -0.002]) and dysphoria ($\beta = 0.007$, 95% CI [0.001, 0.023]). Overall, the study emphasizes the importance of positive coach-athlete relationships as they directly impact athletes' mental health, coping abilities, and wellbeing. In turn good mental health, adaptive coping function and wellbeing positively impact sports climate and athletes' experiences.

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To my late dad, who desired education for me and my siblings.

ACKNOWLEDGMENTS

Foremost, I would like to thank Dr Leapetswe Malete, my academic advisor for providing me the opportunity to join the doctoral program at MSU under his tutelage. My special thanks go to my dissertation committee members: Dr Kristen Renn, Dr Janet Hauck, and Dr Michael Lachney. All my committee members were at some point my instructors when I was enrolled in coursework. My experience with my committee members could be summed in the Jewish adage “From all my teachers, I have grown wise”. I would also like to thank the Department of Kinesiology, and the College of Education, for their support in the past four years plus in the form of teaching assistantships, and research fellowships which have provided me the much vital financial support, health insurance, and research funding including these two studies which constitute my dissertation. I would like to thank Mr Jackson Kaguri and his son Nicholas Kaguri for their assistance in connecting me to coaches and athletes who were recruited for study 1. Special thanks to Chelsi Ricketts, Hennie Gerber, and Dr Hope Akaeze for assisting me with the statistics part. Lastly, I would like to appreciate the assistance rendered by my colleague at the University of Botswana, Dr Tshepang Tshube, my brother Isaac Mabuta, my best friend Gaone Kgabuki, and her friend Olorato Mosweu, of collecting data for study 2 in various senior secondary schools across Botswana. I thank my roommate Ronald Asimwe and his partner Eucharia Ganda, for giving me good company and creating a hospitable environment. Lastly, I thank Michael Gaiuranos for editing and formatting the document.

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CHAPTER ONE:

GENERAL INTRODUCTION

A positive coach-athlete relationship is foundational to athletes' optimal performance and coaches' success (Jowett & Wachsmuth, 2020; Stirling & Kerr, 2009). Coach-athlete relationships are mutual interdependent relationships whose success depend on the reciprocal actions and behaviors of the coach and the athlete (Jowett & Wachsmuth, 2020; Phillippe & Seiler, 2006). Positive coach-athlete relationships are associated with good performance and other positive emotional outcomes (Davis et al. 2018; Duyan, 2021; Vella et al., 2013). Good quality coach-athlete relationships are essential for athletes and coaches' experiences of success and wellbeing (Jowett & Wachsmuth, 2020). Coach-athlete relationships are critical to the athletes' success, personal development, sport experiences and well-being (Burke, 2001; Jowett & Nezlet, 2011; Powers et al., 2020; Vella et al., 2013). Poor quality coach-athlete relationships lead to poor performance and ill-being in athletes and coaches over time (Jowett & Wachsmuth, 2020; Lafrenière et al., 2011). Coach-athlete relationships have been explained through the interdependence theory (Arriaga, 2013; Lafrenière et a., 2011) and the 3+1Cs conceptual model which describes the three main components of this relationship as closeness, commitment, and complementarity (Jowett & Wachsmuth, 2020; Phillippe & Seiler, 2006; Vieira et al., 2015). The 3C model of coach-athlete relationships and the coach-athlete relationship questionnaire (CART-Q; Jowett & Ntoumanis, 2004) were founded on the pillars of the Interdependence Theory (Jackson, Grove & Beauchamp, 2010, Jowett & Nezelek, 2011). The Interdependence Theory is a framework that social psychologists have used to examine dyadic relationships such as romantic relationships and later coach-athlete relationships (Arriaga, 2013). The Interdependence Theory posits that partners in a dyadic relationship decide whether to maintain or abandon the

relationship based on their perception of the benefits associated with staying in the relationship versus the costs (Jowett & Nezlek, 2011; Rusbult & Lange, 2003).

Young athletes depend on significant others such as parents, coaches, siblings, and teachers for support and learning (Macnamara & Collines, 2013; Weiss & Fretwell, 2005). Young athletes view the coach as a very important figure in their careers (Macnamara & Collins, 2013; Stirling & Kerr, 2009). Previous research has shown that athletes' perceptions of coach behavior can promote or thwart their degree of commitment, closeness, and complementarity to their coach, thus affecting their performance (Duyan, 2021; Jowett, 2017; Jowett & Nezlet, 2011).

Coach-athlete relationships can be described as effective and successful, effective, and unsuccessful or ineffective and successful/unsuccessful (Jowett, 2005). Effective relationships pertain to a relationship where a coach helps the athletes to thrive in life in general as well as meeting their performance goals (Jowett, 2005; Rottensteiner et al., 2015). Effective coach-athlete relationships, whether successful or unsuccessful are ideal (Jowett, 2005). An unsuccessful coach-athlete relationship is whereby the athlete enjoys a healthy relationship with the coach but fails to attain performance goals (Jowett, 2005). Ineffective coach-athlete relationships are undesirable as they are either characterized by controlling coach behaviors, exploitation, or abuse, even when they are successful, because success is measured by performance outcomes (Jowett, 2005; Lafrenière et al., 2011; Rottensteiner et al., 2015). Barnett et al. (1992) argue that effective coach-athlete relationships are predictors of athletes' commitment, attrition and drop out from sport. There are instances whereby coach-athlete relationships are characterized by power differential, abuse of power, exploitation, mistreatment, coercion, harassment, and manipulation (Burke, 2001; Jowett & Wachsmuth, 2020; Lafrenière et

al., 2011). These abusive coach behaviors are associated with negative emotional and psychological outcomes such as anxiety, eating disorders, depressive symptoms, overuse injuries and chronic pain (Cavallerio, Wadey, & Wagstaff, 2016; Lafrenière et al., 2011). Gervis et al. (2016) reported some of the negative coach behaviors which comprise shouting, belittling, threatening and humiliating young athletes. These negative coach behaviors have the potential to adversely affect athlete performance and wellbeing (Gervis et al., 2016; Lafrenière et al., 2011).

Another aspect of coach-athlete relationships that is equally compelling but less studied is the role of athletes' coping and psychological skills in mediating the relationship between coach-athlete relations and mental health. Psychological skills and coping strategies are important skill sets which could help adolescent athletes navigate challenges associated with personal development and pressures of competitive sports (Tamminen, 2021). Coping has been found to be strongly associated with superior athletic performance and adaptations to sports' demands (Macnamara & Collins, 2013; Tamminen, 2021). Research suggests that athletes who fail to cope effectively develop maladaptive behaviors such as stress, anxiety, and depression, and are even more likely to commit suicide (Amirkhan & Auyeung, 2007). The mediational role of psychological skills and coping in the relationship between coach-athlete relationship and mental health is relatively unknown. Therefore, this research investigated the role of coach-athlete relationships on mental health, mediated by both psychological skills and coping functions of adolescent athletes.

The goal of this dissertation was to enhance understanding of coach-athlete relationships and how different qualities of this relationship affect adolescents and young athletes' mental health in sports. Different coaching behaviors, leadership styles, communication types and training methods affect and elicit varied emotional, psychological, and behavioral responses

from athletes. These in the long term come to define the type of coach-athlete relationships and wellbeing of athletes. Previous research had focused on the role of coach-athlete relationships on athlete performance and sports success, and more recently on its relationship with mental health (Lafrenière et al., 2011). The two studies examined the relationships between coach-athlete relationships and mental health and whether this relationship was mediated by psychological skills and coping function among the youth and adolescent athletes. The two studies explored the unique coach-athlete relationships' role on mental health using similar instruments but different data collection methods and study populations. Both studies contributed to the body of literature regarding possible mediators in the relationship between coach-athlete relations and mental health in the sporting context. More importantly, the two studies did this with young adults and adolescent athlete populations from the US and Botswana, thereby adding diversity to this line of research as this was a cross-cultural study.

Study 1 was a cross-sectional online survey of American young adult athletes in Michigan's Greater Lansing area aged 18 to 24 years. The purpose of Study 1 was to answer the following research questions and hypotheses: a) if coach-athlete relationships, coping and psychological skills predicted mental health of young adult athletes, and b) if the relationship between coach-athlete relationship and mental health was mediated by psychological skills. The study sought to test two hypotheses: 1) Coach -athlete relationships predict mental health and coping function of young athletes, and 2) The relationship between coach-athlete relationships (predictor) and mental health (outcome) was mediated by psychological skills (Mediation model). Sixty-two participants female ($n = 22$), male ($n = 40$) young adult athletes from various sports, aged 18 to 24 years ($M = 18.7$, $SD = 1.48$) participated in the study. The participants were recruited via email messages to team head coaches, coaches and managers. The participants

were asked to respond to five online questionnaires: demographic, coach-athlete relationship (CART-Q-11), mental health (GHQ-12), coping function questionnaire (CFQ), and the psychological skills inventory youth version (PSI-Y). The process lasted about 45 minutes.

One of the main limitations of Study 1 was a small sample size and the timing of the study. It is not clear how lockdowns and anxiety associated with COVID-19 affected the mental health of the respondents and their perceptions of the relationship with their coaches. Both lower response rates and missing data accounted for the lower sample size. A larger sample size was therefore needed to fully examine the mediational relationship between coach-athlete relationships and mental health. An extension of Study 1 with a larger sample size followed.

Study 2 was a cross-sectional pencil and paper survey replicating the research design in Study 1 but with a larger sample of adolescent athletes from Botswana. The five questionnaires used in Study 1 were used in Study 2. The study population was adolescent athletes attending senior secondary schools in Botswana. A sample of 261 male and female athletes aged 14-19 ($M=17.6$, $SD=.72$) years was recruited for this study. However, six participants were excluded for not meeting the age of consent in the study as indicated in the inclusion criteria leaving 256 (male =142, female = 113). Participants were recruited through their school management. Formal letters explaining the objectives of the study and seeking the participation of the schools' athletes were delivered to schools. Sports masters (senior teachers responsible for sports administration) facilitated the recruitment process on the part of the school management. Research assistants obtained consent and administered the questionnaires in designated school classrooms starting with the demographic questionnaires, CART-Q-11, GHQ-12, CFQ, and the (PSI-Y). The process lasted about 50 – 60 minutes.

CHAPTER TWO: STUDY ONE

THE EFFECT OF COACH-ATHLETE RELATIONSHIPS ON MENTAL HEALTH, COPING, AND PSYCHOLOGICAL SKILLS OF YOUNG ATHLETES

Preface

The initial proposal for this study was presented to the College of Education, Michigan State University for 2020 Summer Research Fellowship. The results of this study were presented on April 9th, 2021, at the Practicum Research Presentations for Kinesiology Department at Michigan State University.

Abstract

Despite growing awareness of the value of coach-athlete relationships, significant challenges remain, making it necessary to continue investigating the nature and impact of these relationships on athlete well-being. The purpose of this study was to examine the association of coach-athlete relationships with mental health and coping in adolescent athletes, as well as the mediational role of psychological skills in this relationship. Sixty-two participants female ($n = 22$), male ($n = 40$) young adult athletes from various sports, aged 18 to 24 years completed a demographic questionnaire, the Coach-Athlete Relationship Questionnaire, the General Health Questionnaire, the Coping Function Questionnaire, and the Psychological Skills Inventory – Youth Version. Independent samples *t*-tests showed that young female athletes presented with psychological distress and social dysfunction than their male peers. Correlations analyses results showed that commitment, closeness, and complementarity were significantly and positively correlated with dysphoria. Both problem-focused, and emotion-focused coping were significantly and negatively correlated with loss of confidence in young adult athletes. Self-confidence, a dimension of psychological skills was significantly and negatively correlated with

loss of confidence. Multiple linear regressions analyses showed that complementarity significantly predicted dysphoria ($\beta=1.14$, $t=2.24$, $p=.04$). Avoidance-focused coping predicted dysphoria (mental health) ($\beta= -.44$, $t=-2.28$ $p = .03$). Self-confidence significantly predicted dysphoria ($\beta=.64$, $t= 2.30$, $p =.03$). Despite sample size and other limitations, the findings show that, overall young adult athletes have better coach-athlete relationships and global psychological skills. A larger sample size was needed to examine the mediational role of psychological skills and coping in the relationship between coach-athlete relationships and mental health.

Introduction

The quality of coach-athlete relationships is fundamental to the success of athletes (Foulds et al., 2019; Jowett & Wachsmith, 2020). Coach-athlete relationships are not only critical to the athlete's success but also to their personal development, sport experience and well-being (Burke, 2001; Jowett & Cockerill, 2002; Jowett & Ntoumanis, 2004). Adolescents depend on significant others such as parents, coaches or teachers for support and learning (Macnamara & Collines, 2013; Weiss & Fretwell, 2005). Adolescents who are involved in sports view the coach as the most instrumental figure in their lives (Macnamara & Collins, 2013; Rottensteiner et al., 2015). Athletes' perceptions about coach behaviors promote or thwart their degree of commitment, closeness, and complementarity to their coach (Jowett & Ntoumanis, 2004; Lafrenière et al., 2011).

Commitment is the aspect of the coach-athlete relationship that is concerned with their intention to maintain their relationship for some time (Jowett & Ntoumanis, 2004; Phillippe and Seiler, 2006; Vieira et al., 2015). It is the cognitive aspect of their relationship. It is characterized by feelings of psychological attachment, cognitions, or thoughts about the interdependent nature of their relationship (Jowett & Ntoumanis, 2004; Phillippe & Seiler, 2006). Commitment is often

demonstrated through willingness to sacrifice for the good of the relationship, communication and cooperative gestures which accommodate each other and perceive each other favorably (Camiré et al., 2019; Contreira et al., 2019). A coach-athlete relationship that is positive is characterized by better understanding and appreciation of the parties in the relationship (Jowett & Ntoumanis, 2004; Lafrenière et al., 2011).

Closeness reflects the emotional connection that coaches and athletes experience and express in their relationships (Contrira et al., 2019; Rottensteiner et al., 2015; Vieira et al., 2015). Closeness is an interdependent relationship that entails behavioral or affective ties between the coach and the athletes (Jewett & Meek, 2000). Closeness describes the types of interconnected relationship often observed in family, romantic relationships, marital, small groups, and friendships (Rottensteiner et al., 2015; Vieira et al., 2015). Athletes need parents and coaches who value, help, support, and care for them (Weiss & Fretwell, 2005). Mentor-coaches adopt helping roles, have genuine concern and respect, and thus develop relationships with their athletes that are committed and trusting in nature (Jowett & Meek, 2000). Coaches' description of their relationships in terms of interpersonal liking, trust and respect indicate the level and nature of closeness (Foulds et al., 2019). In contrast, lack of perceived social support or emotional concern makes athletes interact more negatively than positively with both coaches and parents (Camiré et al., 2019; Udry, Gould, Bridges & Tuffey, 1997).

Complementarity involves interpersonal actions which are intended to invite, attract, express, entice, or solicit reactions from persons in the relationship, especially from significant others (Foulds et al., 2019; Rottensteiner et al., 2015). Interactions revolve around how friendly or hostile the relationship partners are with each other and how much power each of them will exert in their interactions. Complementary behaviors involve cooperation whereby the dyad

negotiates issues and support each other's performance of mutually agreed tasks (Jowett & Meek, 2000; Phillippe & Siler, 2006). Complementarity is essential in the formation and sustainability of coach-athlete relationship. For instance, the coach provides expertise that the athletes often do not have, but that they need to optimize performance (Jowett & Cockerill, 2003; Martinent & Ansnes, 2020). In a complementing way, coaches need athletes to apply their competencies in pursuit of professional excellence (Contraira et al., 2019; Jowett & Cockerill, 2003; Lafrenier et al., 2011; Martinent & Ansnes, 2020). Given the interdependent and reciprocal nature of coach-athlete relationships, complementarity is expressed through interactions that coaches and athletes view as cooperative and essential (Jowett & Meet, 2000; Lafrenier et al., 2011). Research suggests that interpersonal actions which are complementary lead to optimal performance on both decision-making and motor tasks (Contreira et al., 2019; Jowett & Cockerill, 2003).

On the other hand, passion for sport motivates coaches to build close relationships with athletes (Lafreniere et al., 2011). The higher the degree of athletes' perception of commitment, closeness, and complementarity to the coach, the more positive the coach-athlete relationships (Camiré et al., 2019; Jowett & Ntoumanis, 2004; Martinent & Ansnes, 2020). Barnett, Smoll and Smith (1992) argue that positive coach-athlete relationships are predictors of athletes' commitment, persistence, and drop out from sport.

Theoretical Framework

The Interdependence Theory is a framework that social psychologists have used to examine and explain dyadic relationships such as romantic relationships and later coach-athlete relationships (Arriaga, 2013). The 3C model of coach-athlete relationships and coach-athlete relationship questionnaire (CART-Q; Jowett & Ntoumanis, 2004) were founded on the pillars of

the Interdependence Theory (Jackson, Grove & Beauchamp, 2010, Jowett & Nezlek, 2011). The Interdependence Theory posits that partners in a dyadic relationship decide whether to maintain or abandon the relationship based on their perception of the benefits associated with staying in the relationship versus the costs (Jowett & Nezlek, 2011; Rusbult & Lange, 2003). This model is presented in Figure 1.

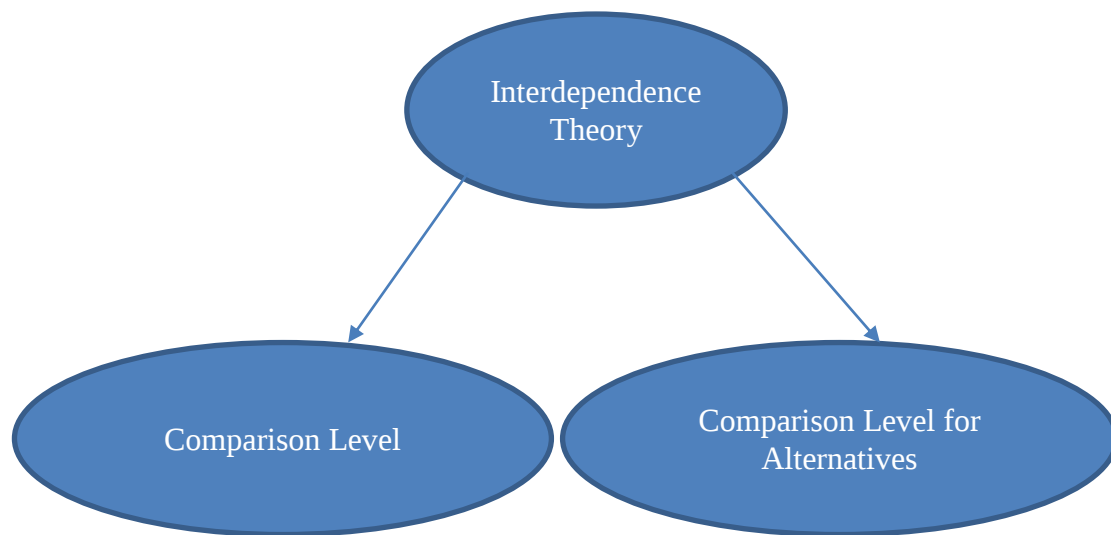


Figure 1: Interdependence Theory by Thibaut and Kelley (1978).

A partner in a dyadic relationship could decide to remain in the current relationship because it is satisfying them or because it presents more benefits than other alternative relationships. Therefore, coaches and athletes could decide to maintain their relationships based on their perceived benefits derived from the relationship and whether such benefits satisfy their expectations. Conversely, a coach or athlete would choose to terminate a relationship they perceive to present more costs than benefits in relation to the outcomes of their interactions (Jackson et al., 2010; Jowett & Nezlek, 2011). The main tenets of the Interdependence Theory are situational factors, social interactions, and their impact on relationship quality (Arriaga, 2013). Social interactions should be viewed from the lens of individual reactions to social

contexts, individual characteristics, desire for social connection, a sense of security and the striving for survival (Arriaga, 2013). The interdependence theory is one of the earliest frameworks that was developed to explain interdependent relationships. It is the prototype from which the 3C coach-athlete relationship model was later developed. It proposes that coach-athlete relationships are interdependent. This theory is the foundation for the construct coach-athlete relationship and its three dimensions which are part of the investigations of this study.

3C Model of Coach-Athlete Relationship

The 3C model (Figure 2; Jowett & Ntoumanis, 2004) coach-athlete relationship has been widely used to study associations of coach athlete relationships and athlete outcomes. This model has three key elements, namely, commitment, closeness, and interpersonal complementarity.

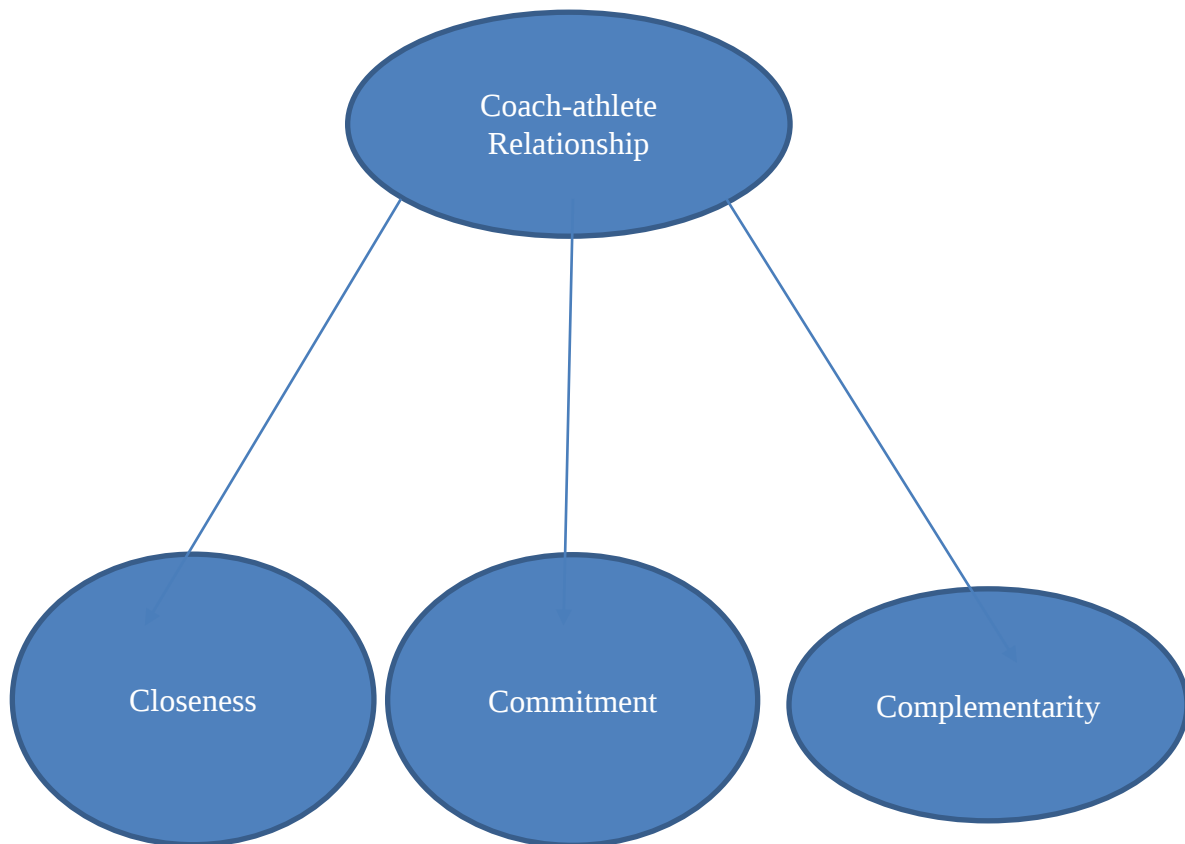


Figure 2: The 3C Model of Coach-athlete Relationship (Jowett, 2004).

Coach-Athlete Relationship and Mental Health

The International Mental Health Conference defined mental health as the “good state of the human body, cognitions, and affect, encompassing mental function and mental state health” (Bapat, Jorm & Lawrence, 2009). The concept of wellbeing has been construed to mean sound psychological functioning and experience of satisfaction with one’s life (Felton & Jowett, 2013). Subjective wellbeing (SWB) is the experience of pleasure and satisfaction in one’s life and closely associated with the concept of hedonic living in which happiness is viewed as the primary goal (Felton & Jowett, 2013). Psychological wellbeing (PWB) refers to the experience of personal growth, mastery, and self-acceptance (Felton & Jowett, 2013). It is closely associated with eudaimonic living style which places more emphasis on living a complete life and realizing human potential (Felton & Jowett, 2013). Effective coach-athlete relationships promote both the coach and the athlete’s mental health and wellbeing (Jowett, 2005; Lafrenniere, Jowett, Vallerand & Carbonneau, 2011). The coach’s behavior could have an impact on how the athlete perceives the amount of need satisfaction they receive from the coach (Felton & Jowett, 2013; Martnent & Ansnes, 2020).

Research shows that coaches who employ autonomy-supportive behaviors can create an environment in which the athletes feel that their psychological needs are being satisfied (Felton & Jowett, 2013; Martnent & Ansnes, 2020). Conversely, a coach who uses controlling behaviors is more likely to have athletes whose psychological needs are not satisfied (Felton & Jowett, 2013; Lafreniere et al., 2011). Therefore, for the athlete to experience need satisfaction, the coach should use autonomy-supportive behaviors to develop a positive environment (Felton & Jowett, 2013; Martnent & Ansnes, 2020). Research suggests that athletes with an avoidant attachment style can function optimally if they perceive that their basic psychological needs are

satisfied within their relationship with the coach (Felton & Jowett, 2013; Martnent & Ansnes, 2020).

The satisfaction of basic psychological needs within coach-athlete relationship is associated with psychological wellbeing and experiences of personal growth, mastery, and self-acceptance (Camiré et al., 2019; Felton & Jowett, 2013). Therefore, athletes with an avoidant attachment style are more likely to feel that their potential is realized if their needs are satisfied within the coaching relational context (Felton & Jowett, 2013). Research suggests that the satisfaction of the basic psychological needs by the coach can potentially explain the association between athletes' avoidant attachment style and wellbeing (Felton & Jowett, 2013). Typically, an avoidant attached athlete would perceive low levels of need satisfaction from their coach, and this perception that their needs are not being met has an impact on wellbeing (Camiré et al., 2019; Felton & Jowett, 2013).

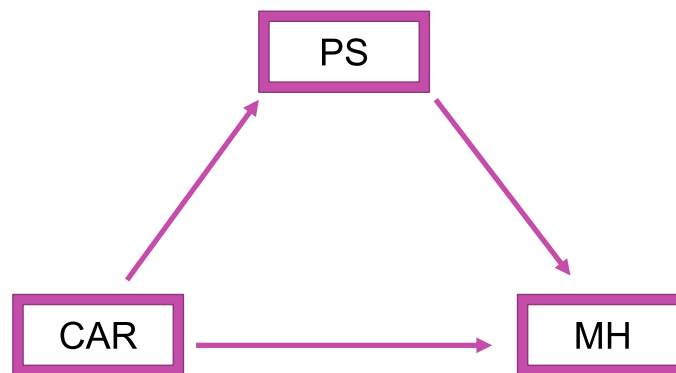
Research on French elite athletes found a 6-month prevalence rate of 6% (male =5.5%, female = 7.5%) for generalized anxiety disorder (GAD) in athletes (Gulliver et al., 2015). The prevalence of mental disorders was different for male and female with female athletes aged between 18-24 years having higher scores than their male peers (Gulliver et al., 2015). Both depression and anxiety were comparable to the general population (Gulliver et al., 2015). A previous study in a French population found a prevalence level of 16.9% (males=15.1%, females = 20.2%) for the following: anxiety disorders (including panic attacks, agoraphobia, obsessive-compulsive disorder, generalized anxiety disorder, and social phobia), depression, eating disorders (anorexia nervosa, bulimia and eating disorders not otherwise specified, suicidal thoughts and attempts, psychosis, or substance abuse and dependence (including nutritional

supplements, tobacco, cannabis, alcohol, doping agents, psychoactive substances (Yang et al., 2007).

Hypotheses

Due to a small sample size owing to a low sport activity and low response rate associated with COVID-19 restrictions, some adjustments had to be made to the hypothesized relationships to get around sample size limitations. Therefore, the following hypotheses were finally tested for study 1.

1. Coach-athlete relationships, coping function, and psychological skills will not predict mental health of young adult athletes.
2. Psychological skills will not mediate the relationship between coach-athlete relationship and mental health of youth adult athletes.



Hypothesized mediation model

Figure 3: The hypothesized mediation model.

NOTE: CAR: Coach-athlete Relationship, MH: Mental Health, PS: Psychological Skills

Coach-Athlete Relationship and Coping

Coping is a dyadic process in which the quality of coach-athlete relationship especially closeness determines the openness of communication whereby the athlete communicates the stressor and receives protection and support from the coach (Staff, Didymus, & Backhouse, 2017; Staff et al., 2020). Nicholls et al. (2016) found that athletes who perceived their relationship with their coach to be highly committed often viewed challenges as threatening and suffered from maladaptive coping such as disengagement. On the other hand, athletes who viewed their relationship with their coaches as very close viewed challenges positively (Nicholls et al., 2016). Athletes who perceive their coach behaviors as unsupportive tend to evaluate situations and challenges as threatening and suffer from increased anxiety and poor performance (Nicholls et al., 2016). Athletes who are more committed to working with their coaches appraise situations as threatening because they do not want to let their coaches down (Nicholls et al., 2016) and tend to experience anxiety. Lack of emotional closeness, co-oriented views, and complementary acts of interaction in the coach-athlete relationships give rise to the diametrically opposite relational aspects of negative closeness, dis-orientation, and non-complementarity (Camiré et al., 2019; Jowett & Cockerill, 2003). Yi, Smith, and Vitaliano (2005) state that “coping involves cognitive and behavioral measures designed to master, tolerate, or reduce external and internal demands” (p. 258). Adolescents are also reported to experience the most dramatic changes in their coping abilities (Compas et al., 2001). Yi et al. (2005) identified seeking social support, problem-focused coping and minimizing threat through rational thinking as some of the main adaptive coping behaviors. Behaviors such as avoidance, blaming others and wishful thinking have been described as maladaptive coping behaviors (Yi et al., 2005). The ability to cope with stressors is an important asset for all adolescents as they navigate through the tumultuous growth and

development phase in their lives. It is evident that those who fail to cope effectively develop maladaptive behaviors such as stress, anxiety, and depression, and some unfortunately commit suicide (Amirkhan & Auyeung, 2007). Coping is strongly correlated with superior athletic performance and ability to positively deal with changes in sports (Macnamara & Collins, 2013). Task-oriented coping is positively correlated with goal attainment, improved performance, and adaptive behaviors (Nicholls et al., 2016). Disengagement oriented coping on the other hand, is negatively correlated with goal attainment, optimal performance, and effective coping (Nicholls et al., 2016).

Psychological skills training can improve athletes' performance and substantially influence their cognitive and emotional states (Sheard & Golby, 2006). Psychological skills such as goal setting, planning, and performance evaluation are essential to optimal performance (Macnamara & Collins, 2013). Howland (2007) identified relaxation, visualization, goal setting, positive self-talk, focusing and refocusing as some of the psychological skills that are instrumental to performance. Previously Mahoney, Gabriel, and Perkins (1987) found that psychological skills such as anxiety management, self-confidence, mental preparation, and motivation are critical to attaining optimal performance. The purpose of this study is to examine the effect of coach-athlete relationships on mental health, adaptive coping, and psychological skills in young athletes.

Research Questions

1. Do coach-athlete relationships, coping function and psychological skills predict mental health in young adult athletes?
2. Do psychological skills mediate the relationship between coach-athlete relationships and mental health?

Significance

This study contributes to the body of literature on coach-athlete relationship and how it correlates and influences other variables such as mental health, psychological skills and coping in young athletes. A better understanding of the relationship among coach-athlete relationship, mental health, psychological skills, and coping function offers sports psychologists and coaches additional skills set to use in their service to athletes. The study will show whether coach-athlete relationship could predict mental health and coping function, and whether a positive coach-athlete relationship relates with improved psychological skills profiles in adolescent athletes. Understanding this dynamic relationship offers additional variables to be considered by practitioners working sports teams and individual athletes' welfare.

Methods

Research Design

This study employed a cross-sectional online survey design. A survey was set online using the Qualtrics software to solicit responses from online. This design was the most appropriate as this study was conducted during the COVID-19 lockdown of Summer 2020 which had placed restrictions on physical human interactions. The online survey was also deemed appropriate as most young athletes have access to social media through various gadgets from smart phones, laptops, tablets, and computers.

Participants

Eighty participants female (n = 22), male (n = 40) youth athletes playing various sports within the Greater Lansing area of Michigan, aged 18 and 24 years completed an online demographic questionnaire, the Coach-Athlete Relationship Questionnaire (CART-Q), the General Health Questionnaire (GHQ-12), the Coping Function Questionnaire (CFQ), and the

Psychological Skills Inventory – Youth Version. A majority of the participants in this study were male athletes (64.5%) and the most represented sports were soccer (16.1%), and basketball (16.1%), followed by football (12.9%) and track and field sports (12.9%). Overall, participants were drawn from the following sports: soccer, football, gymnastics, golf, volleyball, basketball, tennis, swimming, cross country and baseball. Table 1 below summarizes the demographic information of the participants.

Table 1
Demographic variables and types of sports played by youth athletes.

Variable	Participant	Percentage
Male	40	64.5
Female	22	35.5
Basketball	10	16.1
Swimming	7	11.3
Golf	3	4.8
Baseball	3	4.8
Football	8	12.9
Soccer	10	16.1
Track & Field	8	12.9
Tennis	1	1.6
Gymnastics	1	1.6
Volleyball	5	8.1
Cross country	6	9.7
18-20 year	54	87.1
21-24 years	8	12.8

Measures

The 11-item Coach-Athlete relationship Questionnaire (CART-Q) was used to assess athletes' perception of closeness, commitment, and complementarity to their coach (Nicholls et al., 2015). The items are expressed as statements such as "I trust my coach" and are measured on a 7-point Likert scale that ranges from 1 (strongly disagree) to 7 (strongly agree). Higher scores indicate higher quality of coach-athlete relationships (Camiré et al., 2019). The questionnaire has

a three-factor structure and a Cronbach's alpha of 0.93 (Jowett and Ntoumanis, 2004). The 12-item General Health Questionnaire (GHQ-12) was used to assess psychological health. The instrument is commonly used in assessing nonclinical mental health in nonclinical populations (Baksheev, Robinson, Cusgrve, Baker & Yung, 2011). It is measured on a 4-point Likert scale ranging from "0" to "3" with responses 0 (not at all), 1 (seldom), 2 (usual) and 3 (more than usual) (Wesneke et al., 2000). The GHQ-12 has a two-factor solution and a Cronbach alpha of 0.90 (Quietal et al. 2018).

The Coping Function Questionnaire (CFQ) for adolescents in sport was used to assess coping behaviors of the participants (CFQ; Kowalski & Crocker, 2001). According to Kowalski and Crocker (2001) CFQ is an 18-item scale that measures three dimensions of coping namely problem-focused coping, emotion-focused coping, and avoidance coping. The questionnaire has three factors and reliability that is greater than 0.80 (Kowalski & Croker, 2001).

The Psychological Skills Inventory for Sports – Youth Version (PSIS-Y) (Milavic et al., 2019) was used to assess psychological skills knowledge and use. The PSIS-Y has been acknowledged in some studies to have been able to assess athletes' different psychological skills levels as well as demonstrating adequate reliability and validity measures (Milavic et al., 2019). The PSIS-Y is a 6-factor structure instrument measuring six dimensions namely: mental preparation, motivation, concentration, self-confidence, team emphasis and anxiety control (Milavic et al, 2019). The items are measured on a 5-point Likert scale ranging from 1(almost never) to 5 (most always). The instrument has a reliability of 0.74 (Milavic et al., 2019).

Procedure

IRB was obtained from Michigan State University to conduct the study during the summer of 2020. A packet including the research proposal, a consent letter, demographic

questionnaire, the coach-athlete relationship questionnaire (CART-Q), the General Health Questionnaire (GHQ-12), the Coping Function Questionnaire (CFQ), and the Psychological Skills Inventory for Sports -Youth Version (PSIS-Y) were submitted to the IRB office. Following the MSU IRB approval, a Qualtrics Online survey questionnaire was set up. Participants were recruited via email to the club management and coaches. Club coaches and managers who were interested in having their athletes participate in the study relayed the message to the athletes. The Qualtrics link was then shared with the club coaches/managers through their email or the club email. Participants completed the questionnaires online beginning with signing the consent form to proceed to responding to the rest of the questionnaires. The process of completing questionnaires lasted about 45 minutes. G*Power (Faul et al., 2009) online statistical software version 3.1.9.4 was used apriori to estimate sample size of 111 for a correlational study. The software estimated the power of the study at 0.95, effect size at 0.3 and p-value at 0.05. Of the 82 participants who responded to the online survey, 22 did not meet the inclusion criteria leaving 62 participants who constituted 55.5% response rate for inclusion in the analyses.

Statistical Analysis

The data was analyzed using IBM SPSS version 26. Descriptive statistics were computed to provide means and standard deviation scores on the five measures of interest by gender. Independent samples *t*-test was used to compare males and female participants on the four measures of interest. The Pearson product-moment correlation coefficient was used to test for associations between coach-athlete relationships and mental health, coping skills, and psychological skills. Multiple linear regression analysis was conducted to see whether coach-athlete relationship, psychological skills and coping function would predict mental health.

Results

First, descriptive statistics, independent samples *t* test, and correlation analyses were performed to provide preliminary analyses of the relationships between the study variables before turning to answering the proposed research questions. Independent samples *t*-test was conducted to compare male and female participants on the four study variables: coach-athlete relationships, mental health, coping function, and psychological skills of youth adult athletes. Descriptive analyses are presented in Table 2 below.

Table 2
Descriptive statistics for study variables.

Variable	Male		Female		Cronbach's α
	M	SD	M	SD	
CART-Q (Total)					
Commitment	4.76	1.58	5.02	1.54	0.90
Closeness	5.44	1.47	5.83	1.26	0.91
Complementarity	5.20	1.33	5.47	1.24	0.92
GHQ-12	2.40	0.35	2.66	0.40	0.61
Social Dysfunction	2.36	.94	2.82	.99	1.00
Dysphoria	2.83	.45	2.73	.37	1.00
Loss of Confidence	1.68	.81	2.13	.96	1.00
CFQ (Total)					
Problem-focused	3.25	0.97	3.25	1.01	0.90
Emotion-focused	3.27	0.70	3.33	1.04	0.86
Avoidance Coping	2.62	1.00	3.13	1.10	0.91
PSI (Total)					
Motivation	0.72	0.37	0.91	0.20	0.76
Self-Confidence	0.63	0.38	0.55	0.38	0.71
Anxiety Control	0.48	0.40	0.67	0.37	0.70
Mental Preparation	0.63	0.41	0.55	0.45	0.79
Team Emphasis	0.57	0.35	0.69	0.29	0.60
Concentration	0.25	0.40	0.23	0.32	0.79

Independent samples t-test were run to compare male and female athletes on coach-athlete relationship, coping function, psychological skills, and mental health. Overall, there were no statistically significant differences in the quality of coach-athlete relationship between male and female young athlete ($t(59) = -1.17, p = .25$). On the other hand, there was a significant difference in mental health (loss of confidence) between male and female athletes ($t(53) = -2.74, p = .008$). Female athletes ($M = 2.82, SD = .99$) presented more with social dysfunction compared to their male counterparts ($M = 2.13, SD = .84$).

Table 3
Mean differences between male and female young adult athletes on loss of confidence.

Variable	Total (n=62)	Males (n=40)	Females (n=22)	P-Value
Commitment	4.91 (1.54)	4.78 (1.59)	5.14 (1.45)	.44
Closeness	5.63 (1.39)	5.47 (1.48)	5.92 (1.20)	.41
complementarity	5.36 (1.26)	5.22 (1.34)	5.60 (1.08)	.27
Emotion-focused	3.27 (.85)	3.26 (.71)	3.29 (1.06)	.02
Loss of Confidence	1.84 (.88)	1.68 (.81)	2.13 (.96)	.83
Social Dysfunction	2.36 (.94)	2.13 (.84)	2.82 (.99)	.16
Dysphoria	2.79 (.42)	2.83 (.45)	2.73 (.37)	.36

The Pearson correlation analyses showed that coach-athlete relationship was significantly associated with dysphoria: commitment ($r=.32$), closeness ($r=.28$) and complementarity ($r=.28$). Problem-focused coping was significantly and negatively correlated with loss of confidence, a dimension of mental health ($r=-.42$). Emotion-focused coping was also significantly and negatively associated with loss of confidence ($r= -.35$). Self-confidence, a dimension of

psychological skills was significantly and negatively correlated with loss of confidence ($r=-.46$).

A summary of correlations coefficients among study variables is presented in Table 4 below.

Table 4
Correlations.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Commitment															
2. Closeness	.84**														
3. Complementarity	.79**	.90**													
4. Problem-focused	-.03	-.06	.06												
5. Emotion-focused	-.01	.04	.09	.76**											
6. Avoidance	.01	.02	.13	.38*	.41**										
7. Motivation	.10	.04	.29	.04	.03	.10									
8. Self-confidence	.17	.07	.16	.29	.30	.45**	.46**								
9. Anxiety-control	.05	.16	.23	-.22	-.07	.17	.09	-.16							
10. Mental preparation	.09	.05	.29	-.02	-.09	.28	.57**	.52**	.04						
11. Team emphasis	.06	.05	.14	.09	-.10	.14	.50**	.38*	.11	.32					
12. Concentration	-.05	-.02	-.06	-.02	.01	.30	-.19	-.07	.51*	.01	-.18				
13. Social dysfunction	-.06	-.08	-.10	-.13	-.18	.28	.13	-.26	.31	.10	.13	.21			
14. Dysphoria	.32*	.28*	.28*	.18	.20	-.06	.34*	.42**	-.13	.12	.33*	-.12	-.29*		
15. Loss of confidence	-.17	-.14	-.20	-.42**	-.35*	.11	-.11	-.46**	.15	-.04	-.21	.11	.63**	-.53**	

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

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

Multiple linear regression analyses were conducted to test the second hypothesis which stated that coach-athlete relationship, coping function, and psychological skills, would predict mental health. Age and gender were included in the model as covariates. Linear regressions analysis showed that complementarity significantly predicted dysphoria ($\beta=1.14$, $t=2.24$, $p=.04$). Avoidance-focused coping predicted dysphoria (mental health) ($\beta= -.44$, $t=-2.28$, $p = .03$). Self-confidence significantly predicted dysphoria ($\beta=.64$, $t= 2.30$, $p =.03$). Regression analyses are presented in Table 5 below.

Table 5
Regressions of Dysphoria on Predictor Variables.

Variable	β	SE	T	P-Value	95% CI
Commitment	.01	.09	.01	.99	[-.18 .18]
Closeness	-.47	.14	-1.05	.31	[-.45 .15]
Complementarity	1.14	.19	2.24	.04	[.03 .84]
Problem-focused	.17	.11	.81	.41	[-.14 .33]
Emotion-focused	.09	.13	.41	.68	[-.21 .31]
Avoidance	-.44	.09	-2.28	.03	[-.37 -.02]
Motivation	-.35	.16	-1.32	.20	[-.54 .12]
Self-confidence	.64	.13	2.30	.03	[.03 .58]
Anxiety control	-.16	.09	-.90	.40	[-.25 .11]
Mental preparation	-.22	.09	-1.18	.25	[-.29 .80]
Team emphasis	.26	.11	1.43	.17	[-.07 .38]
Concentration	.26	.09	1.41	.17	[-.02 .32]
Gender	-.12	.15	-.10	.93	[-.32 .29]
Age	.00	.05	.01	.99	[-.10 .10]

Mediation analyses are presented in Tables 6. Results show that coach-athletes relationship did not have a direct effect on mental health ($\beta=-.35$, $t=-.67$). When psychological skills were regressed on coach-athlete relationship, the result was not statistically significant. Psychological skills did not mediate the relationship between coach-athlete relationship and mental health ($\beta=-.11$, $t = .85$). The direct effect of coach-athlete relationship on mental health

was not statistically significant ($\beta=.04$, $t=.67$). The indirect effect of coach-athlete relationship on mental health was also not statistically significant ($\beta=.01$, CI $-.02$ to $.06$).

Table 6

The effect of coach-athlete relationship on mental health through the mediator psychological skills.

Effects	Estimate	SE	95%LB	95%UB
CAR	.04	.05	-.07	.14
PS	.11	.13	-.16	.39
Direct effect	.04	.05	-.07	.14
Indirect Effect	.01	.02	-.02	.05

CAR: Coach-athlete relationships

PS: Psychological skills

Discussion

The first purpose of this study was to test if coach-athlete relationship, coping function, and psychological skills predicted mental health on young adult athletes. The study found that coach-athlete relationships predicted mental health. Specifically, complementarity was found to predict dysphoria in young adult athletes. This finding is related to the findings by Jowett and Ntoumanis (2004), and Yang and Jowett (2013) who found complementarity to be a positive predictor of satisfactory coach-athlete relationships, and a negative predictor of misunderstandings and conflicts in coach-athlete relationships (Jowett, 2009b; Yang & Jowett, 2013). Complementary coach-athlete relationships pertain to the collaborative and reciprocal behaviors between coaches and their athletes. In this study sample, complementarity was found to significantly predict dysphoria. Complementarity was also significantly and positively correlated with dysphoria in this study sample. Despite these significant positive correlations, the logical implications are that deficient coach complementarity behaviors lead to negative psychological experiences which are indicative of dysphoria. These experiences include feeling

anxious, feeling sad and stressed because of the actions and behaviors of the coach. On the other hand, positive coach complementarity behavior will be related with athletes' sense of satisfaction about their coach behaviors and overall sound psychological wellbeing. These results mean that coaches who strive to create and enhance rapport, open communication, psychologically safe climate, and social support for their athletes are more likely to nurture athletes that are mentally healthy, more engaged in their sport and likely to perform optimally. Consequently, athletes that operate in a complementary coach-athlete climate are more likely to experience adverse mental health issues. Therefore, this study finding has implications for coaching practice regarding desirable coach behaviors which promote sound coach-athlete relationships and wellbeing.

The study also found that self-confidence, a dimension of psychological skills significantly predicted dysphoria in young adult athletes. Young adult athletes who present with a high perception of self-worth and a global belief in themselves and their abilities including athletic abilities are more likely to feel positive and satisfied with their life, and more thriving. The more the athletes feel satisfied about their experiences and opportunities as athletes, their greater their sense of wellbeing. Therefore, psychological skills training with emphasis on building self-confidence should be a key component of a coach's mental skill training plan. Self-confident young adult athletes are less likely to experience dysphoria and other adverse mental health factors.

This study also found a significant and positive correlation between self-confidence and dysphoria. This finding is problematic as it implies that a high perception of self-confidents corresponds to dysphoria or some psychological distress. This pattern of significant positive correlations was also observed in the relationship between complementarity and dysphoria above. The more plausible findings would have been significant negative correlations between

complementarity and dysphoria, and self-confidence, and dysphoria. It is most likely that the GHQ-12 questionnaire was not sensitive enough to recognize that the positive corrections should have been in fact negative. This lack of sensitivity would have probably been since the GHQ-12 questionnaire items were not reverse coded.

The study found that psychological skills did not mediate the relationship between coach-athlete relationships and mental health as was initially hypothesized. This was an interesting finding considering the recognition of the significance of psychological skills in literature such as emotional regulation, stress management, concentration, self-confidence, and their role in athlete performance, and wellbeing. This finding means that psychological skills in young adult athletes did not directly or indirectly affect mental health states. This is an intriguing finding considering what abound in the literature regarding psychological skills, athlete performance, injury, burnout, and mental health. Therefore, the need to further explore the mediational relationships between coach-athlete relations and mental health in a large sample size arose. Study 2 was therefore conceptualized on the premise that a larger sample size, and an inclusion of another mediator namely coping function would yield significant results in the mediated relationship between coach-athlete relationship and mental health of young athletes.

Limitations

Powers et al. (2020) claim that their study was the first to test the relationship between coach-athlete relationship and mental health. This presents a limitation in the availability of extant literature to review and make reasonable comparisons between findings and identify lessons relating to best methodological approaches to study these phenomena. The study was conducted during COVID-19 lockdowns when young athletes, and student athletes were not actively interacting with their coaches and not competing in their respective tournaments and

leagues. Due to the implications of COVID-19, the geographical setting of the study was changed which possibly affected the sample size. The method of data collection had to be adjusted from the initially planned in-person distribution of questionnaires to an online Qualtrics survey which possibly contributed to a smaller sample size and missing data. Only 82 young athletes responded to the online survey. Out of 82 respondents, only 62 satisfied the inclusion criteria. The other 16 respondents did not meet the inclusion criteria for various reasons such as wrong age group or lots of missing data which made their responses meaningless to the study. As a result, the small sample size might have affected the results that emerged from this study. The small sample size affected the external validity of this study and therefore, the results limits generalizability of findings to the general youth athlete population.

Rationale

The sample for this study was small with lots of missing data attributable to zoom fatigue at the height of COVID-19 in the Summer of 2020. A larger sample was deemed necessary to test whether a mediation model in Study 2 would not yield significant results. Other processes such as reverse coding of negatively worded items in the GHQ-12 questionnaires were to be undertaken in the second study to enhance the sensitivity of the instrument in detecting the existing relationships between the variables. It could be possible that in the American culture from which Study 1 sample was drawn, psychological skills do not directly nor indirectly affect mental health. Subsequently, it becomes imperative to explore possible variables that would mediate the relationship between coach-athlete relationships and mental health in young athletes in an American culture. Coping function or coping strategies were therefore hypothesized to be potential mediators of this relationship leading to Study 2.

Implications

Youth athletes from Michigan presented with moderate mean scores of mental health and coping signaling a relatively above normal psychological distress. These results call for further investigations which could lead to recommendation for referral should they be replicated. The youth athletes reported very low levels of dimensions of psychological skills such as motivation, self-confidence, anxiety control, mental preparation, team emphasis, and concentration. This state could substantially affect their performance as athletes (Lim et al., 2016; Nanda et al., 2021) and wellbeing (Hogue, 2020). Bebetos and Antoniou (2002), and Sotoodeh et al. (2012) found that psychological skills were associated with high performance in a sample of Greek badminton players. Therefore, coaches may have to include psychological skills training in their training plans or enlist the roles of sport psychologists to provide the training. On a positive note, the youth athletes from Michigan had a moderately good coach-athlete relationship and global psychological skills. Coaches seem to be employing the right coach behaviors and psychological skills training that they need to refine.

Conclusion

The study findings led to the conclusions that overall young female athletes presented with more mental health (social dysfunction) challenges than their male counterparts and this seems to be the trend even in the general population. Female athletes tend to form strong relationship bonds with their coaches than their male peers. Overall, the sample of American youth athletes presented with moderately high levels of psychological distress. This mental state may require further evaluation through a follow-up study with a large sample to see if these findings can be replicated.

CHAPTER THREE: STUDY TWO

**THE ROLE OF COACH-ATHLETE RELATIONSHIPS ON MENTAL HEALTH,
COPING, AND PSYCHOLOGICAL SKILLS OF ADOLESCENT ATHLETES IN
BOTSWANA**

Abstract

This study aimed at achieving two main purposes. The first purpose was to test the hypothesis that coach-athlete relationships, psychological skills, and coping function predict mental health of adolescent athletes. The second purpose was to test the hypothesis that the relationship between coach-athlete relationship and mental health is mediated by psychological skills and coping function of adolescent athletes. Study 2 was an extension of Study 1 with a large sample, and a pencil and paper completion of the questionnaires from a sample of 255 (male=142, female = 113, M=17.6 years, SD=.72) adolescent senior secondary school student-athletes from Botswana. Participants completed a demographic questionnaire, coach-athlete relationship questionnaire (CART-Q), general health questionnaire (GHQ-12), coping function questionnaire (CFQ,) and the psychological skills inventory- youth version (PSIS-Y). The main aim of study 2 was to test the mediational roles of coping function and psychological skills in the relationship between coach-athlete relationships and mental health. Regression analyses showed that coach-athletes relationship predicted both mental health and coping functions, and that coping functions in turn predicted mental health. In the mediation model, the total indirect effect of complementarity on mental health (social dysfunction and dysphoria) was statistically significant. Equally significant was the mediational role of psychological skills and coping function in the relationship between complementarity and social dysfunction and dysphoria. Overall, the study emphasizes the importance of positive coach-athlete relationships as they

directly impact athletes' mental health, coping abilities, and wellbeing. In turn good mental health, adaptive coping function and wellbeing positively impact sports climate and athletes' experiences.

Introduction

The mediational role of psychological skills and coping on mental health of adolescent athletes and how these interact with various demographic factors are relatively unknown. This is especially true for less studied youth populations. Therefore, study 2 seeks to examine the role of coach-athlete relationship on mental health, coping and psychological skills of adolescent athletes in a Botswana sample. A preliminary Qualtrics Survey involving a small sample size of youth in the mid-Michigan area was conducted during the summer of 2020. Sixty-six young adult athletes from various sports (female = 22; male = 40) aged 18 and 24 years ($M = 18.7$, $SD = 1.50$) were recruited. They completed a demographic questionnaire, the Coach-Athlete Relationship Questionnaire, the General Health Questionnaire, the Coping Function Questionnaire, and the Psychological Skills Inventory – Youth Version.

Results from independent samples t-tests showed that female adolescent athletes scored better than their male counterparts on the quality of coach-athlete relationships, coping and psychological skills but scored poorly on mental health than their male counterparts. Complementarity, a dimension of the coach-athlete relationship had significant positive correlations with motivation and mental preparation and both dimensions of psychological skills. There was a significant positive relationship between complementarity and psychological skills. Regression analyses showed that coach-athlete relationships did not predict mental health. The data did not support the hypothesized mediational role of psychological skills. Despite sample size and other limitations, the findings showed that, overall, female athletes have better coach-

athlete relationships and coping. It was determined that a larger sample size would be needed to fully examine the mediational relationship, and this led to Study 2, the present dissertation research.

Statement of the Problem

Research has revealed some cases of abusive coach behaviors which negatively impact athlete emotional states and wellbeing (Kassing & Infante, 1999). Researching coach-athlete relationships provides insights on the prevalence of these behaviors and how they affect relations, emotional states, and athlete wellbeing. Athletes' perceptions of their relationship with their coaches' mirrors coach behaviors and their effects on athletes (Kassing & Infante, 1999). Negative coach behaviors have the potential to hurt athletes' emotional states and, performance in the short-term and their wellbeing and mental health in the long run. Limited research has been conducted on the prevalence of mental health among elite and collegiate athletes in the west and north America (Rice, Walton, Gwyther, & Purcell, 2021) but even less has been done in Africa and Botswana in particular (Tshube, Mbakile-Mahlanza, Nthutang, & Dipeba, 2021). This study seeks to extend the research on mental health among the adolescent athletes' population to a Botswana context. There is dearth of literature on athlete mental health in general and adolescent athletes in Botswana that could be masking a potential mental health problem for this vulnerable population. Available literature on mental health in Botswana pertains to clinical mental health reports from public health centers relevant to the general population but not necessarily generalized to the adolescent athlete population (See studies by Diratsagae & Rasisego, 2018); Maphisa, Mogotsi, Maswabi, Motswamai, & Mosupiemang, 2020; Olashore, Molebatsi, Othieno & Ayugi, 2020; Ramothan & P'Olak, 2020).

Sports participation among adolescents in Botswana has risen exponentially in the recent years at amateur level at both schools and club levels, national and regional competition predisposing young athletes to the risks of negative coach-athlete relations, strained mental states and the burden of coping with such factors. In addition, there is lack of literature on the coping strategies and requisite psychological skills necessary to navigate bruised relations with coaches and their attendant challenges on adolescent mental health. These variables individually and collectively present a complex intersection that is worthy of systematic study.

Nonclinical mental health data in special populations such as adolescents' athletes are scarce owing to the initial limited research on the mental health of special populations such as athletes. Coping and psychological skills are seldom taught in sports and a handful of coaches who teach them do so volitionally in accord with their coaching philosophy. Studies explaining the nature of coach-athlete relationships in least studied populations and contexts like Botswana are likely to broaden the evidence on mental health issues affecting youth health, and lead to the development of appropriate strategies to enhance athlete skills and agency to deal with harmful coach-athlete relationships, as well as coaches' capacity to spot problem behaviors and help athletes cope with mental health issues.

Research Questions

1. Does coach-athlete relationship, psychological skills and coping function predict mental health in adolescent athletes?
2. Is the relationship between coach-athlete relationship and mental health mediated by athletes' psychological skills and coping function?

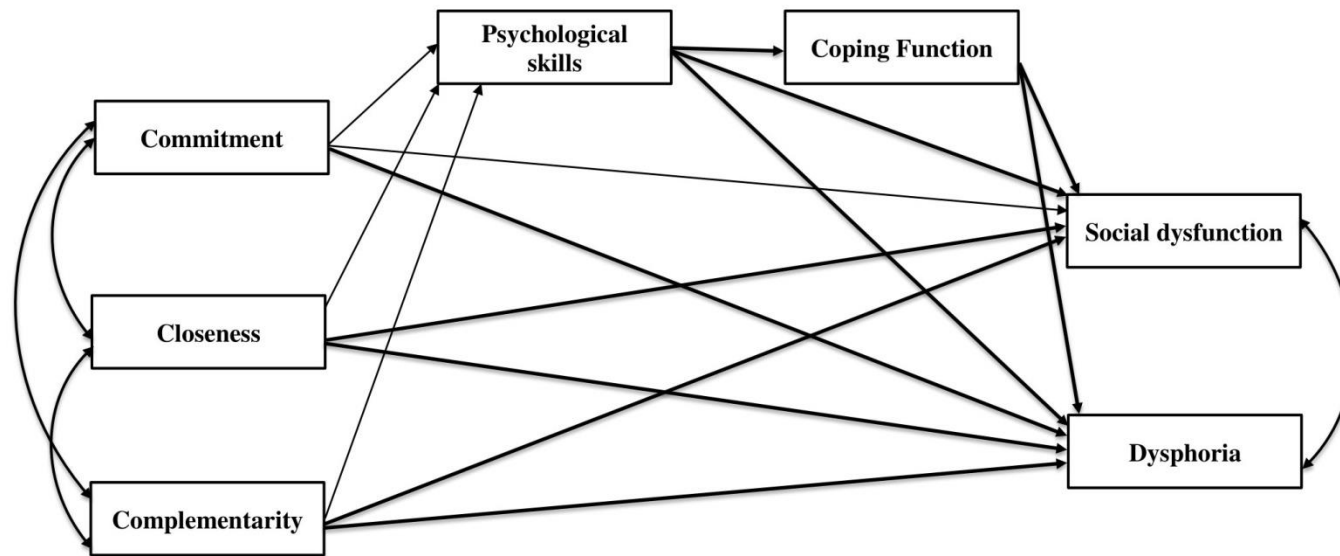


Figure 4: The hypothesized mediation model.

Hypotheses

1. Coach-athlete relationship, psychological skills and coping function predict mental health of adolescent athletes.
2. The relationship between coach-athlete relationship and mental health is mediated by psychological skills and coping function of adolescent athletes, while controlling for age and gender

Significance of the Study

This study contributes to the literature on coach-athlete relationships and how they relate to mental health, psychological skills, and coping strategies. Understanding the magnitude and direction of the relationship between coach-athlete relationship and dysphoria provides sports psychologists the flexibility to explore a range of interventions based on the current knowledge. The significant relationship found between commitment; a dimension of coach-athlete relationship and social dysfunction; a dimension of mental health is important to both the sports psychologist and the coach. This relationship suggests that a more socially supportive climate and behavior by the coach could ameliorate social dysfunction in adolescent athletes. The significant relationship found between coach-athlete relationship and coping strategies of adolescent athletes is profound. A good coach-athlete relationship would nurture good mental health. The study emphasizes the importance of coach behaviors which foster positive relationships between athletes which would lead to healthy mental health outcomes.

The youth in Botswana aged between 10 and 35 years represents about 49.3% of the population based on the 2011 census (World Health Organization, 2014), and the age group 14 to 19 years comprise the population of this study. The rise of sport participation at both amateur and elite level in Botswana has likely sparked increased participation in public school sports

programs which serves as the grassroots sports for the school-going athletes in Botswana fostering coach-athlete relationships and their attendant dynamics. There is a likely correlation between adolescent sport participation and the notable growth of Botswana's sport competitiveness at regional and international level. This could mean that many adolescents are now involved in sports and are experiencing firsthand effects of both positive and negative coach behaviors, the stress associated with sports training and competitions and how all these intersect to affect psychological wellbeing. Vella (2019) argued that structured sports are associated with known risks such as over-training, stress, burnout, and coach maltreatment among other risks. It was critical to survey Botswana adolescent athletes to see the prevalence of variables such as coach-athlete relationships, mental health and detect some of the risks associated with competitive adolescent sport participation. It was also of interest, to study this population and assess its coping resources and psychological skills that enable them to navigate the intersection of the various biological, social, and psychological factors at play in their lives and environments as adolescent athletes. The prevalence of mental health among the youth of Botswana has been explored by various researchers (e.g., Opondo et al., 2020; Maphisa et al., 2020). Further investigations focusing on mental health among adolescent athletes in Botswana is critical because coach-athlete relationships can shape current emotional states and psychological wellbeing in the long term. Other factors such as training, preparations for competition, actual competition, teammates, and opponents affect them physically, emotionally, and psychologically, and all these put a strain on their mental health. It is critical to assess whether they possessed sufficient coping resources and psychological skills to survive turbulent relationships with their coaches and navigate sport competition-elicited stress.

Method

Design

The study used a quantitative approach employing a cross-sectional survey design to measure the study variables, answer the research questions, and accomplish the purpose of the study. The study design complied with the Botswana COVID-19 Guidelines 5: Quarantine and Isolation (Republic of Botswana, 2020). The key protocols followed were wearing of masks, social distancing, practice of good hygiene, referral of any suspected cases to health authorities for testing, quarantine, isolation, and contact tracing. The class size in all schools in Botswana was a maximum of 30 students to enable a 1-meter social distance between students.

In accordance with interval sampling, a list of prospective participants was requested from each participating school, took the total number, and divided it by the number of expected participants to be recruited, in this case 30 to get an interval, I . A starting point was randomly chosen on the list and recruited every, I^{th} person. In case one declined to participate in the study, the next individual was chosen, and the interval restarted until the total sample size was achieved.

Participants

An a priori power analysis was conducted using G*Power (Faul et al., 2009) to determine a sample size for the proposed statistical analyses. A sample of 250 participants was determined to be appropriate for providing statistically significant results, based on the medium effect size benchmark (Pillai & Mijares, 1959), an alpha level of .05, and a power of .95 (Cohen, 1988). To account for potential non-response or decline to participate, 300 participants were to be recruited. A sample of 261 male and female senior secondary school athletes aged 14-19 years was

recruited for this study. However, six participants were excluded for not meeting the inclusion criteria for age leaving 256 (male=142, female = 113).

Data was collected from 10 public senior secondary schools in southern and northern parts of the country. The schools were conveniently selected based on the practicality of conducting the study and the approximate representativeness of these schools in terms of density of student-athletes population in Botswana. Participants were drawn from a total of 11 different sports including: football (soccer), squash, volleyball, track and field, softball, basketball, table tennis, badminton, boxing, karate, and netball (see Table 7).. Participants aged 18 years and above are considered to have reached the age of majority in Botswana and gave consent to participate in the study. The participants were males and females who were active members of the school teams during the time data was collected.

Table 7
Frequencies and percentages of demographic variables.

Variable	N	Percentage
Gender	255	
Male	142	55.7
Female	113	44.3
Education	256	
Form 4	83	32.4
Form 5	173	67.6
Badminton	26	10.2
Basketball	6	2.4
Boxing	11	4.3
Soccer	83	32.5
Karate	8	3.1
Netball	28	11
Softball	26	10.2
Table tennis	7	2.7
Track & Field	29	11.4
Volleyball	31	12.2

Measures

Demographic Information. Demographic information was collected about the participants' age, gender, level in schools, name of the school, primary sport, years playing primary sport, having a coach and duration with the coach.

Coach-athlete Relationship. The 11-item Coach-Athlete relationship Questionnaire (CART-Q) was used to assess athletes' perception of closeness, commitment, and complementarity to their coach (Nicholls et al., 2015). The items are expressed as statements such as "I trust my coach" and are measured on a 7-point Likert scale that ranges from 1 (strongly disagree) to 7 (strongly agree). Higher scores indicate higher quality of coach-athlete relationships (Camiré et al., 2019). This instrument was validated on a sample of British athletes aged 16 years and above playing sports such as athletics, swimming, tennis, squash, and badminton to mention only these. The questionnaire has a three-factor structure and Cronbach's alphas were: commitment ($\alpha=.70$), closeness ($\alpha=.78$), and complementarity ($\alpha=.77$).

Mental Health. The 12-item General Health Questionnaire (GHQ-12) was used to assess psychological health. The instrument is commonly used in assessing nonclinical mental health of adolescents between the age of 15 and 18 years (Baksheev, Robinson, Cusgrve, Baker & Yung, 2011). It is measured on a 4-point Likert scale ranging from "0" to "3" with responses 0 (not at all), 1 (seldom), 2 (usual) and 3 (more than usual) (Wesneke et al., 2000). Studies using the GHQ-12 have yielded various factor structure, a two-factor solution, and a Cronbach alpha of .83 (Gelaye et al., 2015) and a three-factor solution and a Cronbach's alpha of .88 (Picardi, Abeni, & Pasquin, 2001). This study yielded a two-factor solution with a Cronbach's alpha of .69.

Coping Function. The Coping Function Questionnaire (CFQ) for adolescents in sport was used to assess coping behaviors of the participants (CFQ; Kowalski & Crocker, 2001).

According to Kowalski and Crocker (2001) CFQ is an 18-item scale that measures three dimensions of coping namely problem-focused coping, emotion-focused coping, and avoidance coping. This instrument was validated on a Canadian sample of public schools' student-athletes who participated in at least one sport. The questionnaire has three factors and reliability ranging from 0.74 to 0.82 (Kowalski & Crocker, 2001). Cronbach's alphas for this study with a sample from Botswana ranged from .70 to .74 showing that the tool has acceptable internal consistency.

Psychological Skills. The Psychological Skills Inventory for Sports – Youth Version (PSIS-Y) (Milavic et al., 2019) was used to assess psychological skills knowledge and use. The PSIS-Y has been acknowledged in some studies to have been able to assess athletes' different psychological skills levels as well as demonstrating adequate reliability and validity measures (Milavic et al., 2019). The PSIS-Y is a 6-factor structure instrument measuring six dimensions namely: mental preparation, motivation, concentration, self-confidence, team emphasis and anxiety control (Milavic et al., 2019). The items are measured on a 5-point Likert scale ranging from 1(almost never) to 5 (most always). The instrument showed a reliability of .67. Cronbach's alphas for this study with a sample from Botswana was showing that the tool has acceptable internal consistency.

Procedure

Following approval from the Institutional Review Board (IRB) from Michigan State University and the Ministry of Basic Education in Botswana, regional education directors of the selected schools were contacted via phone and/or email, or in-person meeting with members of the research team to discuss the purpose of the study, obtain permission to access the schools. The leader of the research team contacted the school management by telephone and arranged a

follow-up in-person meeting to explain the purpose of the study and request the school management to assist in participant recruitment.

The sites for data collection were prepared by teachers appointed by the schools and one or both research assistants to ensure compliance with Covid-19 protocols including the 1 - meter physical distance and disinfecting the chairs and desks' surfaces. Windows of the classrooms or halls that were be used for data collection were kept open to allow ventilation. All participants will be wearing face masks.

Ethical Considerations

Access to schools was gained through the regional offices and management of the selected schools. The participant assent and consent forms provided information about the objectives of the study and stated explicitly that participation was voluntary, and the information provided would be kept confidentially. Any personal information will be kept in a safe place and will not be included in the computer file. Participants were required to read the consent form and sign it to grant their consent before filling out the questionnaires. Participants below the age of 18 co-signed the assent form with their parents or legal guardians before they were allowed to participate in the study. Participants were informed of their right not to answer any questions they were not comfortable with. The process of filling out the questionnaire lasted between 30 and 45 minutes.

Statistical Analysis

The data was analyzed using IBM SPSS version 28. Descriptive statistics were conducted to provide means and standard deviations, skewness, and kurtosis of the study variables. Confirmatory Factor Analysis (CFA) was performed on the General Health Questionnaire (GHQ-12) to confirm the factor structure of the instrument and see whether it fitted the data.

Independent samples T-Test was conducted to check for mean differences between males and females of the study variables. Scatter plots were generated to see whether the variables show linear relationship. Pearson correlations and multiple regression analyses were conducted on coach-athlete relationships, social dysfunction, dysphoria, psychological skills, and coping function. Mediation analysis used *Mplus* VERSION 8.9 (Muthén & Muthén, 2017) to test for the mediational role of psychological skills and coping function in the relationship between coach-athlete relationship and social dysfunction and dysphoria (mental health).

Results

Hypothesis Testing

SPSS missing data analysis was conducted to check the degree of missing data from each variable in the study. The percentage of missing data ranged from 1.6% for dysphoria to 5.5% for complementarity. The amount of missing data per variable is: 4 participants for dysphoria (1.6%), 4 for social dysfunction (1.6%), 0 for psychological skills (0%), 1 for coping function (0.4%), 0 for gender (0%), 13 for commitment (5.1%), 13 for closeness (5.1%), and 14 for complementarity (5.5%). SPSS excluded missing data from analysis by default. For the mediation analysis conducted through *Mplus* Version 8.9, Full Information Maximum Likelihood has a default system that excludes missing data from analyses.

Two hypotheses were proposed for this study. The first hypothesis stated that coach-athlete relationship, psychological skills, and coping function predict mental health of adolescent athletes. The second hypothesis stated that the relationship between coach-athlete relationship and mental health is mediated by psychological skills and coping function of adolescent athletes.

Prior to hypotheses testing, Confirmatory Factor Analysis (CFA) was conducted on the General Health Questionnaire (GHQ-12) to examine the underlying factor structure of this

instrument when used with the study sample. The rationale for a CFA was to test the underlying conceptual framework that guided the development of the original GHQ -12 with the current sample, considering the that earlier studies using the GHQ-12 have yielded different factors (Campbell et al., 2003; Gelaye et al., 2015).

Table 8
Standardized Loads from CFA.

Dimensions	Estimate	S.E.	Est./S.E.	P-Value
Social Dysfunction				
1. Lost sleep	0.519	0.091	5.703	.000
3. Feeling unhappy	0.622	0.083	7.535	.000
4. Couldn't overcome	0.523	0.076	6.915	.000
Dysphoria				
5. Able to concentrate	0.572	0.072	7.925	.000
6. Pay useful part	0.412	0.072	5.728	.000
7. Capable of making decision	0.619	0.062	9.960	.000
8. Face up to problems	0.554	0.070	7.929	.000
9. Enjoy day to day activities	0.496	0.079	6.255	.000
10. Reasonably happy	0.513	0.076	6.782	.000
Correlations between factors	0.449	0.116	3.870	.000

Confirmatory Factor Analysis was conducted on GHQ-12 using the maximum likelihood estimation with robust standard errors (MLR) method. Results are displayed in Table 8 above. A 2-factor structure was tested with items 1,3, 4 loading on Factor 1(Social dysfunction) and items 5,6,7, 8, 9, & 10 loading on factor 2 (Dysphoria). Three items namely items 2, 11, and 12 were discarded because they did not significantly load on any of the two factors. The 2-factor solution is consistent with finding by (Cheung, 2002; Doi & Minowa, 2003; Gelaye et al., 2015). The results show a good model fit for the two-factor structure. The Root Mean Square Error of Approximation (RMSEA) estimate was 0.04 with 90% Confidence Interval (CI) between .004 - .072, CFI = .95, TLI = . 92 and Standardized Root Mean Square Residual (SRMR) = .04. all

items loaded well onto their target factors. All items loaded well onto their target factors and omega coefficients are also acceptable (.59 & .69 respectively).

Descriptive analyses including means, standard deviations, skewness, kurtosis, were run on all dependent measures. These results are summarized in Table 9 below.

Table 9
Mean, standard deviation and skewness of the study variables.

Variable	n	M	SD	Skewness	Kurtosis
Commitment	243	5.70	1.11	-1.52	2.66
Closeness	243	6.26	.81	-3.42	17.5
Complementarity	242	6.10	.94	-2.40	8.28
Psychological skills	256	3.81	.44	-.11	.37
Coping function	255	3.87	.66	-.62	.45
Social dysfunction	252	2.23	.76	-1.10	.61
Dysphoria	252	2.08	.60	-.84	.47

Table 10 illustrates independent samples t-test results. There was a significant mean difference in the psychological skills of male and female adolescent athletes from Botswana ($t(253) = 2.23, p = .03$). There was also a significant difference in coping function of male and female adolescent athletes ($t(252) = 3.08, p = .002$). Male and female adolescent athletes showed another significant difference in social dysfunction ($t(249) = 2.28, p = .02$).

Table 10
Mean differences between male and female adolescent athletes.

	t	df	P-Value	Mean Difference	95% CI LB	UB
Com	-.37	240	.72	-.05	-.34	.23
Close	-.59	240	.55	-.06	-.27	.14
Comp	-.22	239	.83	-.23	-.27	.21
PS	2.23	253	.03	.12	.01	.23
CF	3.08	252	.002	.25	.09	.42
SD	2.28	249	.02	.22	.03	.41
Dys	1.12	249	.27	.09	-.07	.24

Pearson correlations were conducted on the study variables and on the dimensions of these variables. Results showed that coach-athlete relationship was positively and significantly correlated with mental health ($r = .25, p < .01$), and coping function ($r = .27, p < .01$). However, coach-athlete relationship was not correlated with psychological skills. Additionally, correlation analyses revealed that coping function was positively and significantly correlated with both mental health ($r = .26, p < .01$) and psychological skills ($r = .39, p < .01$). However, psychological skills and mental health were not correlated.

Further correlation analyses showed that the dimensions of coach-athlete relationship and mental health were positively and significantly correlated. All dimensions of coach-athlete relationship were positively and significantly correlated with dysphoria. Commitment was positively and significantly correlated with dysphoria ($r = .14, p < .05$), closeness and dysphoria ($r = .20, p < .01$) and complementarity and dysphoria ($r = .16, p < .05$). However, only commitment was positively and significantly correlated with social dysfunction ($r = .14, p < .05$). All the dimensions of coach-athlete relationship and coping function were positively and significantly correlated. Commitment was significantly correlated with problem-focused coping ($r = .15, p < .05$), emotion-focused coping ($r = .25, p < .01$) and avoidance-focused coping ($r = .16, p < .05$). Closeness showed significant correlation with problem-focused coping ($r = .13, p < .05$), emotion-focused coping ($r = .21, p < .05$) and avoidance-focused coping ($r = .17, p < .05$). Complementarity was also significantly correlated with problem-focused coping ($r = .14, p < .05$), emotion-focused coping ($r = .26, p < .05$) and avoidance-focused coping ($r = .22, p < .05$). Table 11 illustrates the results of correlation analyses.

Table 11

Correlations between dimensions of coping function and psychological skills.

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1.Commitment	243	5.70	1.11	-						
2.Closeness	243	6.26	.81	.67**	-					
3.Complementarity	242	6.10	.94	.59**	.66**	-				
4.Psyc Skills	256	3.81	.44	.30	.01	.10	-			
5.Coping function	243	3.87	.66	.23**	.22**	.26**	.36**	-		
6.Social Dys	240	2.23	.76	.14*	.12	.11	-.09	.09	-	
7.Dysphoria	239	2.08	.60	.14*	.20**	.16*	.10	.28**	.25**	-

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

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

The first hypothesis stated that coach-athlete relationship, psychological skills, and coping function predict mental health of adolescent athletes. Results of regression analyses showed that coach-athlete relationship and psychological skills did not predict mental health in adolescent athletes. However, coping function predicted dysphoria in adolescent athletes ($\beta = .23$, $t = 3.64$, $p = .000$). Results of regression analyses are illustrated in Table 12 below. The results partially support the first hypothesis.

Table 12

Regressions of dysphoria on coach-athlete relationship, coping function, and psychological skills.

Variable	<i>B</i>	<i>SE</i>	<i>t</i>	95% <i>CI</i>
Commitment	-.02	.05	-.24	[-.10 .08]
Closeness	.15	.07	1.74	[-.02 .26]
Complementarity	.005	.05	.06	[-.10 .11]
Psychosocial Skills	.000	.09	.001	[-.18 .18]
Coping Function	.25	.06	3.64	[.10 .35]

The second hypothesis stated that the relationship between coach-athlete relationship and mental health is mediated by psychological skills and coping function of adolescent athletes. Mediation analyses were conducted to test for the relationship between the coach-athlete relationship and mental health which was hypothesized to be mediated by psychological skills and coping function. Results are presented in Tables 13 and 14 below. The first indirect effect of

complementarity on social dysfunction through psychological skills was statistically significant ($\beta = -.0024$, 95% CI [-0.070, -0.002]). The second indirect effect of complementarity on social dysfunction through psychological skills to coping function was also statistically significant ($\beta = 0.004$, 95% CI [0.000, 0.018]).

Table 13
Effects of coach-athlete relationship on social dysfunction.

<i>Effects</i>	<i>Estimate</i>	<i>SE</i>	<i>95% LB</i>	<i>95%UB</i>
<i>Effects on commitment on social dysfunction</i>				
Direct effect	0.018	0.064	-0.112	0.142
Total Indirect effect	0.004	0.007	-0.007	0.026
Total effect	0.023	0.064	-0.112	0.145
Indirect effect 1 PS→SD	0.005	0.009	-0.009	0.028
Indirect effect 2 PS→CF→SD	-0.001	0.001	-0.007	0.001
<i>Effects of closeness on social dysfunction</i>				
Direct effect	0.061	0.079	-0.102	0.232
Total Indirect effect	0.010	0.012	-0.010	0.047
Total effect	0.071	0.080	-0.090	0.243
Indirect effect 1 PS→SD	0.012	0.014	-0.013	0.051
Indirect effect 2 PS→CF→SD	-0.002	0.003	-0.016	0.001
<i>Effects of complementarity on social dysfunction</i>				
Direct effect	0.069	0.064	-0.068	0.193
Total Indirect effect	-0.020	0.014	-0.063	-0.001
Total effect	0.050	0.064	-0.087	0.172
Indirect effect 1 PS→SD	-0.024	0.016	-0.070	-0.002
Indirect effect 2 PS→CF→SD	0.004	0.003	0.000	0.018

Table 14

Table showing the effects of coach-athlete relationship on dysphoria.

Effects	Estimate	SE	LB	UB (95% CI)
<i>Effects of Commitment on Dysphoria</i>				
Direct effect	-0.009	0.052	-0.108	0.095
Total Indirect effect	-0.001	0.002	-0.014	0.002
Total effect	-0.010	0.052	-0.108	0.095
Indirect effect 1 PS→Dys	0.001	0.002	-0.004	0.011
Indirect effect 2 PS→CF→Dys	-0.002	0.002	-0.008	0.003
<i>Effects of Closeness on Dysphoria</i>				
Direct effect	0.061	0.083	-0.095	0.241
Total Indirect effect	-0.002	0.005	-0.028	0.004
Total effect	0.064	0.082	-0.098	0.240
Indirect effect 1 PS→Dys	0.001	0.004	-0.006	0.022
Indirect effect 2 PS→CF→Dys	-0.003	.005	-0.019	0.004
<i>Effects of Complementarity on Dysphoria</i>				
Direct effect	0.059	0.058	-0.057	0.173
Total Indirect effect	0.005	0.008	-0.007	0.032
Total effect	0.064	0.058	-0.054	0.177
Indirect effect 1 PS→Dys	-0.002	0.007	-0.025	0.013
Indirect effect 2 PS→CF→Dys	0.007	0.005	0.001	0.023

Neither commitment nor closeness had statistically significant direct or indirect effects on dysphoria. However, complementarity had statistically significant indirect effect on dysphoria. The second indirect effect of complementarity on dysphoria via psychological skills to coping function was statistically significant ($\beta=0.007$, 95% CI [0.001, 0.023]). The total indirect effect of complementarity on social dysfunction was statistically significant ($\beta= -0.020$, 95% CI [-0.063, -0.001]). These results partially support the second hypothesis which stated that the relationship between coach-athlete relationship and mental health is mediated by psychological skills and coping function of adolescent athletes.

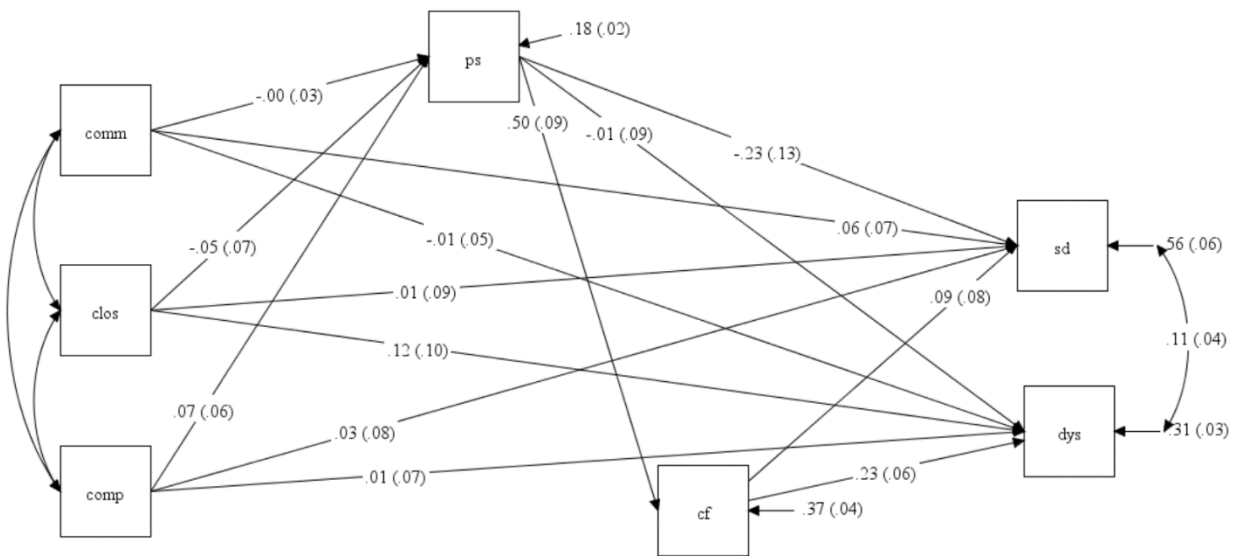


Figure 5: The mediation model.

Discussion

This study aimed at achieving two main purposes. The first purpose of this study was to test the hypothesis that coach-athlete relationships, psychological skills, and coping function predict mental health of adolescent athletes. The study found none of the three dimensions of coach-athlete relationship namely commitment, closeness, and complementarity predicted mental health. However, coping function significantly predicted mental health proving partial support for the hypothesis. The results pertaining to coach-athlete relationship not predicting mental health differ from the findings by Powers et al. (2020), and Simons, and Bird (2022). It is not clear why this study's findings were different from the two previous studies. This could probably be explained by differences in cultural context of youth sport, whereby in Botswana athletes must rely a lot on their individual resilience to cope because social-emotional support systems within sports and coaching environments may be minimal compared to the US where previous studies were carried out. There could also be a difference in the strength of coach-athlete

relationships bonds between American and Botswana sports contexts. It is evident from the literature that high school sports in America are highly competitive and stressful requiring more investment in coach-athlete relationships, cooperation, training time and financial investments. Botswana high school sports are mainly run by volunteer teachers as coaches hence the depth of coach-athlete relationships may not equate to the American counterparts. The difference in the strength of coach-athlete relationships and the intensity of a competitive sporting culture could account for the latter failing to predict mental health in a sample of adolescent student athletes from Botswana.

The finding that coping function predicted mental health is consistent with the study by Dailey (2022) who found coping function in combination with stress and resilience predicted mental health in a sample of collegiate athletes. This finding is also partially inconsistent with the study by Da Silva et al. (2020) who revealed that both coach-athlete relationships and coping predicted stress and anxiety under-20 Brazilian soccer players. The finding implies that empowering adolescent athletes with coping resources and strategies improves their mental health and wellbeing while preventing the development of psychological stress. Conversely deficiency of coping resources and strategies in adolescent athletes would lead to poor mental health. This finding may have significant implications regarding how coaches, sports psychologists and sports managers invest in providing social supports systems and coping resources to adolescent athletes to support their mental health and wellbeing. The finding could also imply that mental health status reflects less of coach-athlete relationships and conflicts but more of athletes coping resources or less thereof.

The second purpose of the study was to test the hypothesis that the relationship between coach-athlete relationships and mental health is mediated by psychological skills and coping

function of adolescent athletes. This study found that the first indirect effect of complementarity on social dysfunction through psychological skills was statistically significant. The study also found that the second indirect effect of complementarity on social dysfunction through psychological skills to coping function was also statistically significant. Overall, the total indirect effect of complementarity on social dysfunction was statistically significant. These results partially support the second hypothesis which was that the relationship between coach-athlete relationship and mental health is mediated by psychological skills and coping function of adolescent athletes. These findings are consistent with the study by Cao et al. (2022) who found a partial mediation role of coping strategies in the relationship between childhood maltreatment and mental health in a sample Chinese college student. Arslan (2017) and Sue et al. (2022) also found that coping mediated the relationship between childhood maltreatment and mental health. These previous study findings are partially consistent with this study finding that coping function mediated the effect of coach-athlete relationship and mental health.

This study finding provides a potential intervention that could be used to prevent the development of psychological distress such as dysphoria and social dysfunction in adolescent athletes. This finding entails a holistic approach that includes an investment in the promotion of complementarity coach-athlete relationships, psychological skills, and coping resources and strategies. The interplay among these variables significantly and indirectly affects dysphoria in adolescent athletes. Quality complementary coach-athlete relationships coupled with adequate psychological skills and coping strategies in adolescent athletes would lead to thriving and sound mental health whereas the lack thereof could be symptomatic of dysphoria or some psychological distress.

Coaches, sports psychologists, team managers, and athletic directors should invest in building socially supportive climates, safe psychological environments, cooperative and collaborative relationships, autonomy support coach behaviors, psychological skills training, and coping resources. The study findings show that variables individually and interactively have significant indirect effects on mental health of adolescent athletes.

Implications

There are valuable lessons to draw from both the insignificant and the significant results. Regarding insignificant results, further research is suggested as the finding that coach-athlete relationship dimensions of commitment and closeness did not predict mental health. This finding is inconsistent with the few studies that have examined this relationship. Therefore, the finding on these two dimensions is treated with caution, and therefore not conclusive. The finding that coping function predicted mental health and is consistent with the study by Dailey (2022) is profound. However, one study in support of this finding is not very convincing. Nevertheless, the finding implies that providing adolescent athletes with reasonable coping resources and skills will help improve their mental health. The take home message is that parents, sports administrators, sports psychologists, and coaches should invest in providing coping resources to adolescent athletes as a preventive measure against psychological distress, and mental health. Therefore, sports institutions and parents should ensure that their adolescent athletes have access to the right personnel, and that coaches possess the requisite skills to impart to athletes. Equipping adolescent athletes with coping skills is synonymous with preventing mental distress.

Limitations

The data for this study was collected mid-2021 in various public secondary schools in Botswana. During that time the country was still under COVID-19 restrictions. Sports

competitions were suspended. The responses from participants may not accurately represent the true emotional, behavioral, and psychological states that are elicited during competition. The respondents might have perceived their coaches more favorably as they were under no competition and training pressure. Their scores on mental health may be the result of academic and social pressures but not necessarily from stress related to coach-athlete relationship, and sports.

Research that examined the relationship between coach-athlete relationship and mental health is recent as 2020 (Powers et al., 2020). There is limited extant literature to refer to for comparisons, and for more insights on these variables. Research on high school and college student-athletes' mental health is scanty (Lentz et al. 2018). As a result, there were limited sources to learn from nor compare with my findings.

Conclusion

High quality coach-athlete relationship is essential for adolescent and young athletes' mental health and wellbeing. Complementarity, which refers to the extent to which coach and athlete behaviors are in tandem has a significant effect on adolescent athletes' mental health. Coach education should entail content on building thriving and effective relationships with athletes. Coach behaviors which seek to build rapport and mutual respect serve as a buffer against psychological distress and are a step towards promoting good mental health of adolescent athletes. Providing adolescent athletes with coping resources helps them become resilient and thriving in stressful competitive sports contexts. Synergistic promotion of complementary coach behaviors and upskilling adolescent athletes with coping skills will have substantial effect on the mental health of the coach-athlete dyad.

Suggestions for Future Research

Future research should target the adolescent and youth athletes' mental health as this area is the least studied. Despite the lack of research in the adolescent and youth athletes' mental health, their involvement in organized youth sports, high school and college sports is very high. This development implies that this population may be highly susceptible to mental health challenges unchecked. Studying this population should be a priority because this is a highly stressed group that is juggling academics, social and coach relationships, transitions, and sports stress at the same time. The most ideal time for data collection would be during competitions or immediately post competition if the aim is to capture the real nuances in coach-athlete relationships and its relationship with psychological distress in athletes. Special attention should be paid to covariates such as sport, and age and how they interact with coach-athlete relationships and mental health. Future studies should consider using mixed methods and incorporating both athletes' and coaches' perceptions about their relationships, and their consequences. Future studies should consider conducting prospective cohort studies to track participants over time to see the emerging patterns and gain valuable lessons from this highly unresearched population. Therefore, future research should target this population in various states, countries, and regions.

Future research utilizing the GHQ-12 questionnaire should recruit larger samples that will be adequate to conduct confirmatory factor analysis as the confirmation of the construct validity of this instrument is necessary and numerous studies yield various factor-solutions depending on scoring methods, populations and cultures being studied, and wording of the items. The factor-structure of this GHQ-12 has not conclusively been determined and efforts in this

direction should be continued to help clarify whether the instruments is unidimensional, bidimensional or multidimensional.

Future studies should explore multiple mediators of the relationship between coach-athlete relationship and mental health. The more mediators of this relationship are known, the more alternative interventions would be available to sports psychologists and coaches to help enhance their skill set in providing coach-athlete conflict resolution, and mitigating athlete mental health, and coping resources.

CHAPTER FOUR:

GENERAL DISCUSSION

This chapter presents a comprehensive synthesis and discussions of both studies 1 and 2. The purpose of study 1 was to test whether coach-athlete relationships, coping function, and psychological skills predict mental health in young adult athletes from the Greater Lansing area of Michigan State in the US. The first purpose of Study 2 was to test whether coach-athlete relationships, coping function, and psychological skills predicted mental health of adolescent athletes from Botswana. The second purpose was to test whether psychological skills and coping function mediated the relationships between coach-athlete relationship and mental health of adolescent athletes.

Preliminary analyses included descriptive statistics, independent t test and correlation analyses which provided an overview of the data and the relationship between the study variables. The Pearson correlation analyses showed that all the three dimensions of coach-athlete relationships namely: commitment, closeness, and complementarity were positively and significantly associated with dysphoria. This finding, although significant was expected to be in the negative direction. Correlations between coach-athlete relationship and mental health were inconsistent with literature (Powers et al., 2020; Simon & Bird, 2022). A positive correlation between commitment, closeness, complementarity with dysphoria is implausible. These seemingly spurious correlations would warrant careful examination in future studies. Problem-focused coping was significantly and negatively correlated with loss of confidence, a dimension of mental health. This finding is also implausible as it implies that more problem-focused coping strategy in young adult athletes is associated with their loss of confidence. Even though this relationship is significant, it fails short of logic underlying this relationship. This could be due to

how questions are posed in the questionnaires and /or how respondents interpreted and responded to the respective questions. Emotion-focused coping was also significantly and negatively associated with loss of confidence whilst self-confidence, a dimension of psychological skills was significantly and negatively correlated with loss of confidence. These findings are plausible as they are projected in a negative direction.

In Study 2 correlation analyses showed that all dimensions of coach-athlete relationship were positively and significantly correlated with dysphoria. However, only commitment was positively and significantly correlated with social dysfunction. Even though these correlations are significant, their direction is implausible as negatively worded items in the GHQ-12 questionnaire were reverse coded to offset the bias that could arise from negatively worded statements. Poor comprehension of some items in the questionnaires could account for these implausible correlations. All the dimensions of the coach-athlete relationship and coping function were positively and significantly correlated. Commitment was significantly correlated with problem-focused coping, emotion-focused coping, and avoidance-focused coping. The correlation between commitment and problem-focused coping is more plausible than that between emotion-focused and avoidance-focused coping. The latter two correlations' positive directions fall short of logic as they fail to meaningfully explain their relationships. Different coping strategies have different effects on mental health (Suet al., 2022). Adaptive coping strategies such as problem-focused coping would help athletes thrive and maintain good mental health. Research has shown that adaptive coping strategies are negatively correlated with indicators of mental distress such as depression, suicide ideation and generalized anxiety disorder (Anshel et al., 2009; Su et al., 2022). Future studies should pay closer attention to the

level of participants 'understanding of the items in the questionnaires as some implausible correlations could be a sign of lack of comprehension.

Independent samples t-test showed that there was significant difference in mental health between female and male athletes, females showing higher scores than males when controlling for age. This finding is consistent with literature (Afifi, 2007; Emslie et al., 2002; Needham & Hill, 2010; Powers et al. 2020; Schaal et al., 2011; Storch et al., 2005; Wolanin et al., 2016).

Comparisons between male and female young adult athletes showed that there was a significant difference in emotion-focused coping between male and female athletes. Female athletes in Study 1 showed higher emotion-focused coping strategies than their male counterparts. This finding means that young adult female athletes think and worry a lot more about their current problems than their male counterparts. This translates to use of ineffective coping strategy by female athletes compared to their male peers. In Study 2 it was found that male adolescent athletes presented with more social dysfunction than their female peers. The study also found that male adolescent athletes showed more psychological skills than their female peers. Male adolescent athletes also showed better coping strategies than their female counterparts. This finding has implication for practice as it implies that coaches, team managers and sports psychologists should empower female athletes with more effective coping strategies than the ineffective emotion-focused coping which is prevalent in them.

Multiple linear regression analyses were conducted for Study 1 and found that complementarity, self-confidence, and avoidance coping significantly predicted dysphoria. This finding partially supports previous research by Su et al. (2020) who found coping to be a predictor of mental health in adult Canadians. These findings mean that positive complementary coach athlete relationships would predict good mental health whereas lack of complementarity or

conflicts between coaches and athletes would predict dysphoria. Avoidance-focused coping predicted dysphoria (mental health). This finding implies that maladaptive coping strategy in young adult athletes would predict psychological distress. The finding that self-confidence significantly predicted dysphoria is plausible. On a continuum high self-confidence would predict good mental health whilst low self-confidence would predict dysphoria in young adult athletes. These findings imply that coaches, team managers, and sports psychologists should invest in offering coach education and training programs that enhance cooperative coach-athlete relationships, instilling self-confidence in athletes and offering more adaptive coping resources to promote athlete mental health. In Study 2 regression analyses showed that coach-athlete relationship and psychological skills did not predict mental health in adolescent athletes. However, coping function predicted dysphoria in adolescent athletes. These results suggest that mental health of adolescent athletes from Botswana is not significantly affected by coach-athlete relationships and psychological skills compared to young adult athletes from the US. However, the mental health of both athletes from the US and Botswana are significantly affected by coping resources and strategies available to them.

In Study 1 mediation analyses showed that psychological skills did not mediate the relationship between coach-athlete relationship and mental health. Due to a smaller sample size for Study 1, Study 2 was conducted to further test the mediational role of psychological skills and coping function in the relationship between coach-athlete relationships and mental health. It was found in Study 2 that psychological skills indirectly mediated the relationship between complementary coach-athlete relationship and social dysfunction in adolescent athletes. Study 2 also found that psychological skills and coping function jointly and indirectly mediated the relationship between complementary coach-athlete relationships and social dysfunction. This

finding partially supports previous studies which found that coping strategies mediated the relationship between mental health and domestic violence in lower social class African Americans (Mitchell et al., 2020), mental and stressful life events in the United Kingdom residents during the COVID-19 lockdowns (Rettie & Daniels, 2020). This study finding's implication for practice is that coaches, team managers and team sport and individual sport psychologists should promote complementary coach-athlete relationships, impart competence in psychological skills and provide social supports systems and mental health coping resources which jointly enhance mental health. These findings are consistent with the research by Powers et al. (2020) and Sullivan et al. (2020) who found that positive coach behaviors such as giving athletes' social support mitigated against depressive symptoms and improved mental health. Hammen (2005) also found a relationship between provision of social support and good mental health in college athletes. Similarly, Lentz et al. (2018) emphasized the significance of social support not only in promoting good mental health but also in enhancing the quality of coach-athlete relationships. Wenzel et al. (2002) also found that social support has protective effects against stress and therefore mitigates poor mental health.

This study has at least three limitations. The first limitation was the online method of data collection for Study 1. This method did not avail the researcher or research assistants to assist respondents better understand the statements or questions presented in the questionnaires. Several correlations were implausible as they went in the unexpected directions. These implausible correlations could be due to differences in individual responses due to lack of comprehension of the questions by the respondents (Gnambs & Staufenbiel, 2018). The second limitation was that for Study 1 no reverse coding was done to negatively worded items on all the questionnaires whilst negatively worded items were reverse coded for GHQ-12 questionnaires

only in Study 2. Future studies should endeavor to reverse code all negatively worded items across all the questionnaires to reduce response bias and ensure consistency and hopefully reduce implausible associations between variables (Hankins, 2008).

This study provides insights on the predictors of mental health of adolescent athletes and young adult athletes in Botswana and the US, respectively. The study found that coping function was a common predictor of mental health for both US and Botswana athletes. This finding is consistent with literature (Arslan, 2017; Su et al., 2020). However, complementarity, and self-confidence significantly predicted dysphoria in the US young adult athletes suggesting a difference with adolescent athletes from Botswana. This finding is consistent with research by Powers et al. (2020) and Silva et al. (2021) who found coach-athlete relationships to significantly predict mental health in athletes. Lastly, to the knowledge of the researcher, this is the first study to shed light on the mediators of the relationship between coach-athlete relationships and mental health. This study found that psychological skills and coping functions are indirect mediators of the relationship between coach-athlete complementarity and dysphoria, and social dysfunction in adolescent athletes. These findings are significant in recognizing variables that are critical to promoting good mental health of adolescent athletes, albeit indirectly. Future studies should explore the role of social support and faith (spirituality) as mediators in the relationship between coach-athlete relations and mental health of athletes. Mitchell et al. (2020) found that spirituality of faith and social support mediated the relationship between domestic violence and mental health in lower social class African American women. The mediational roles of these variables should be tested in the relationship between coach-athlete relations and mental health. Recognizing all key mediators in the relationship between coach-athlete relations and mental health would constitute interventions in promoting the mental health and wellbeing of athletes.

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APPENDIX A:

CHILD ASSENT FORM

The Role of Coach-Athlete Relationship on Mental Health, Coping and Psychological Skills of Adolescent Athletes in Botswana

Person leading the study: Kapule David Mabuta

Hi, I am **David Mabuta** from Michigan State University. I am trying to learn something about your relationship with your coach, how it affects your feelings, thoughts, performance and overall sport experience. Don't worry about whether your responses are wrong or right. There are no right and wrong answers. I am only interested in your individual experiences. Just answer the questions to the best of your ability. I would like you to help me with this research. You do not have to do it, if you do not want to. Nobody will be upset with you if you decide you would rather do something else. Does this sound like it would be something you would like to do?

Why I am doing this research?

You are being asked to participate because I believe the information you will provide will help me gather information about how young people like you feel about your coach, how your coach helps you deal with preparations and competition. I would also like to know if you experience stress as an athlete, how you experience it and how you handle stress. I would like to know how you feel about your coach's expectations, actions and communication. I would also like to know the kinds of activities that you do to work around stress as an athlete.

What will happen during the study?

I would like your parents to allow you to participate and in addition I still need you to agree as well. If you decide to participate in the research, you will need to complete a set of questions that will be issued to you by members of my research team.

Are there Risks and Benefits?

There is no direct benefit of taking part in the study. I and my research team would appreciate your time and effort spent on the study. There is a risk of confidential information getting known. To protect you, and make sure this doesn't happen, any personal information you provide will be kept in a safe place and will not be included in the computer file. There is also the potential risk of exposure to COVID-19 during the process of filling out questionnaires. To protect you, we will observe all the COVID-19 guidelines such as wearing face masks, maintaining social distance, sanitizing and isolation during the period of the study.

Who will be told the things we learn about you in this study?

Your name will not be in any report of the results of this study, but the information that you and others provide will be used to identify the benefits of coach-athlete relationship and mental health. This information may be published in research articles.

What if you or your parents do not want you to be in this study?

You can only participate if both you and your parents agree for you to be in the study. Nobody will be upset if you do not want to be in the study. It is your decision. If you decide to be in the study, and later change your mind that is okay too. You can stop being in the study anytime you like. You have the right not to answer any questions you are not comfortable about.

What if you have any questions about the study?

If you have any questions or concerns about the study, or want to report an injury, you can either tell your parents or have them talk to me. For further information or inquiries contact:

Mrs. Dimpho Ralefala

Tel: 3552911

Email: ORD@ub.ac.bw

Documentation of Assent

If you sign your name on this page, it means that you agree to take part in this research study. You may change your mind at any time.

Would you like to participate in the study? If Yes write your name or sign below. If No leave it blank.

Yes ____ Write your name or Sign here _____ Today's Date: _____

Guardian/ Parent's Name or Signature _____

Today's Date _____

APPENDIX B:

RESEARCH PARTICIPANT INFORMATION AND CONSENT FORM

Dear Participant,

You are being asked to participate in a research study. Researchers are required to provide a consent form to inform you about the research study, to convey that participation is voluntary, to explain risks and benefits of participation including why you might or might not want to participate, and to empower you to make an informed decision. You should feel free to discuss and ask the researchers any questions you may have.

Study Title: The Role of Coach-Athlete Relationships on Mental Health, Coping and Psychological Skills of Adolescent Athletes in Botswana

Researcher and Title: Kapule David Mabuta, M.Ed. and Leapetswe Malete. Ph.D.

Department and Institution: Department of Kinesiology, Michigan State University

Contact Information: 308 West Circle Drive, East Lansing, MI 48824; Kapule David Mabuta—mabutaka@msu.edu

Sponsor: Dr. Leapetswe Malete (maletele@msu.edu)

PURPOSE OF RESEARCH

The purpose of this research is to understand the role of coach-athlete relationship on the mental health and coping strategies of adolescent athletes. Additionally, the study will measure the psychological skills profiles of adolescent athletes to assess the level of need for psychological skills training that would enable them function and cope optimally. Findings from this study will shed light on the nature of coach-athlete relationships and how they affect athletes' wellbeing including mental health and coping abilities. The findings will also provide understanding of the level of need for psychological skills training including justification for coaches to provide such training or engage sport psychologists to provide the training. The findings will also reveal the relationship between variables in the study such as coach-athlete relationship and mental health and coping ability. The study will highlight the relationship among coach-athlete relationship and psychological skills profiles, relationship between mental health and psychological skills profiles of athletes. The study will further explore whether the relationship between coach-athlete relationship and mental health, if it does exist, test whether is mediated by psychological skills.

WHAT YOU WILL BE ASKED TO DO

After you agree with this informed consent form you will be asked to complete several questions, on the following pages. Please answer all questions, within the survey, as honestly as possible. You will be asked to respond to questions about your demographic information, your relationship with your coach, your stress, anxiety and depression levels, coping strategies and your knowledge of psychological skills. Every question can be answered directly on your questionnaire. Completion of the survey should take approximately 30 minutes. You are free to skip or decline answering any question.

POTENTIAL BENEFITS

There are no immediate benefits for participating in the current study. However, your participation will help to improve the understanding of the type and quality of coach-athlete relationships, adolescent athletes' psychological skills level, their coping abilities with stress and their mental health and well-being. Psychological skills and mental health are essential to optimal athletic performance and good health.

POTENTIAL RISKS

There is a risk of confidential information getting known. To protect you, and make sure this doesn't happen, any personal information you provide will be kept in a safe place and will not be included in the computer file. There is also the potential risk of exposure to COVID-19 during the process of filling out questionnaires. To protect you, we will observe all the COVID-19 guidelines such as wearing face masks, maintaining social distance, sanitizing and isolation during the period of the study.

PRIVACY AND CONFIDENTIALITY

The results of this study may be published or presented at professional meetings, but the identities of all research participants will not be known or published as part of data dissemination. The survey will be anonymous. Participants' names and other personal information will not be collected. Each participant will be assigned a code number which will be used as an identifier in the data set. In addition, the data collected will be kept in a password protected computer and only the researchers in this study and the Human Research Protection Program (HRPP) will have access to the research data.

YOUR RIGHTS TO PARTICIPATE, SAY NO, OR WITHDRAW

You have the right to say no to participate in the research. You can stop at any time after it has already started. There will be no consequences if you stop and you will not be criticized. You will not lose any benefits that you normally receive.

COSTS AND COMPENSATION FOR BEING IN THE STUDY

There is no financial compensation associated with participation in this study. The researchers would be very grateful for your participation and will be willing to share the findings of this study on request.

CONTACT INFORMATION

If you have concerns or questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact:

Name: Mrs. Dimpho Ralefala

Tel: 3552911

Email: ORD@ub.ac.bw

Name: Kapule David Mabuta

Address: 308 W Circle Dr, East Lansing, MI 48824
Email: mabutaka@msu.edu
Phone: (517) 775 4078

Name: Dr Leapetswe Malete
Address: 308 West Circle Dr. East Lansing, MI 48824
Email: maletele@msu.edu
Phone: (517) 353-0892

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research Protection Program at 517-355-2180, Fax 517-432-4503, or e-mail irb@msu.edu or regular mail at 4000 Collins Rd, Suite 136, Lansing, MI 48910.

DOCUMENTATION OF INFORMED CONSENT.

Your signature below means that you voluntarily agree to participate in this research study.

Signature

Date

You will be given a copy of this form to keep.

APPENDIX C:

DEMOGRAPHIC QUESTIONNAIRE

Directions: Please fill in the blanks, tick or circle as may be necessary. Please answer all questions truthfully. This information is being collected for research purposes only. Your information will be kept confidential and will not be shared in any way by the researcher.

Personal Information

1. Please indicate your gender: M F
2. What is your age? _____
3. Name of your school _____
4. Level in secondary school
 - a) Form 4 _____
 - b) Form 5 _____
5. What is your primary?

_____Badminton

_____Basketball

_____Boxing

_____Football/Soccer

_____Karate

_____Netball

_____Softball

_____Squash

_____Swimming

_____Table Tennis

_____Track & Field

_____Volleyball

6. Do you play your sport at club level, in addition to school sports?

a) Yes

b) No

7. How long have you played your primary sport(s)?

a) Less than 1 year

b) 1 to 2 years

c) More than 3 years

8. Do you have a coach for your primary sport?

a) Yes

b) No

9. For how long have you had your coach?

a) Less than 1 year

b) 1 to 2 years

c) More than 3 years

10. Have you sustained an injury from sports?

a) Yes

b) No

APPENDIX D:

THE 11-ITEM COACH-ATHLETE RELATIONSHIP QUESTIONNAIRE (CART-Q)

Directions: This questionnaire assesses the type and quality of relationship between you and your coach. Circle the answer that best reflects the type of relationship you have with your coach. The responses range from 1 “Strongly disagree”, 2 “Disagree”, 3 “Somewhat disagree”, 4 “Neither disagree or agree”, 5 “Somewhat agree”, 6 “Agree” to 7 “Strongly agree”.

		Strongly Disagree	Disagree	Somewhat disagree	Neither disagree nor agree	Somewhat agree	Agree	Strongly agree
1	I feel close to my coach	1	2	3	4	5	6	7
2	I feel committed to my coach	1	2	3	4	5	6	7
3	I feel that my sport career is promising with my coach	1	2	3	4	5	6	7
4	I like my coach	1	2	3	4	5	6	7
5	I trust my coach	1	2	3	4	5	6	7

6	I respect my coach	1	2	3	4	5	6	7
7	I feel appreciation for the sacrifices my coach has experienced to improve his performance	1	2	3	4	5	6	7
8	When I am coached by my coach, I feel at ease	1	2	3	4	5	6	7
9	When I am coached by my coach, I feel responsive to his efforts	1	2	3	4	5	6	7
10	When I am coached by my coach, I am ready to do my best	1	2	3	4	5	6	7
11	When I am coached by my coach, I adopt a friendly stance	1	2	3	4	5	6	7

APPENDIX E:

THE 12-ITEM GENERAL HEALTH QUESTIONNAIRE (GHQ-12)

Directions: This questionnaire assesses your mental or psychological health. Circle the appropriate response that best reflects your experiences and feelings in recent weeks. Your responses range from 0 “not at all”, 1 “seldom”, 2 “Usual” and 3 “more than usual”.

Not at all Seldom Usual More than usual

1	Have you lost sleep over worry in the past weeks?	0	1	2	3
2	Have you been constantly under strain in the past weeks?	0	1	2	3
3	Have you been feeling unhappy or depressed recently?	0	1	2	3
4	Have you recently felt you couldn't overcome your difficulties ?	0	1	2	3
5	Have you been able to concentrate on whatever you are doing?	0	1	2	3
6	Have you been able to play useful part in things in the past weeks?	0	1	2	3
7	Have you been capable of making decisions that you needed to make?	0	1	2	3
8	Have you been able to face up to problems that you encountered?	0	1	2	3
9	Do you enjoy day-to-day activities?	0	1	2	3
10	Are you reasonably happy?	0	1	2	3
11	Are you losing confidence in yourself?	0	1	2	3

12 Are you thinking of yourself as worthless?

0

1

2

3

APPENDIX F:

THE 18-ITEM COPING FUNCTION QUESTIONNAIRE (CFQ)

Directions: This questionnaire assesses your coping strategy in terms of whether your strategy is problem-focused, emotion-focused or avoidance. Circle responses that best reflect your coping strategies. Responses range from 1 “Not at all”, 2 “a little”, 3 “somewhat”, 4 “Quite a bit” and 5 “very much”.

		Not at all	A little	Somewhat	Quite a bit	Very much
1	I tried to find a way to change the situation	1	2	3	4	5
2	I stayed in the situation and tried to control my emotions to better deal with the situation	1	2	3	4	5
3	I worked hard to try to change the situation	1	2	3	4	5
4	I tried to change how I thought about the situation so it didn't seem so stressful	1	2	3	4	5
5	I tried to get out of the situation as soon as I could to reduce the stress	1	2	3	4	5
6	I used strategies to change the situation in order to deal with stress	1	2	3	4	5
7	I tried to view the situation in a way that made it seem less stressful	1	2	3	4	5
8	I tried to leave or avoid the situation to get away from the problem or reduce the stress	1	2	3	4	5

9	I did my best to change the situation	1	2	3	4	5
10	I tried to use different strategies that would help me control my emotions	1	2	3	4	5
11	I looked for ways to solve the problem or change the situation	1	2	3	4	5
12	I tried to get out of the situation to get away from the stress	1	2	3	4	5
13	I stayed in the situation and tried to change it	1	2	3	4	5
14	I worked through my emotions in order to feel better	1	2	3	4	5
15	I tried to get away from the situation to reduce the stress	1	2	3	4	5
16	I tried to find ways to control my emotions	1	2	3	4	5
17	I tried to relax so that I could keep my emotions under control	1	2	3	4	5
18	In order to reduce the stress I tried to get myself of the situation	1	2	3	4	5

APPENDIX G:

THE 18-ITEM PSYCHOLOGICAL SKILLS INVENTORY FOR SPORTS – YOUTH VERSION

Directions: This questionnaire assesses different psychological skills variables such as self-confidence, motivation, anxiety management and concentration. Circle the number that best reflects your psychological skill. Responses range from 1 “Strongly Disagree” to 5 “Strongly Agree”.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
1	I am very motivated to do well in my sport	1	2	3	4	5
2	I want to train hard to belong to the top in my sport	1	2	3	4	5
3	I want to succeed in my sport	1	2	3	4	5
4	In most competitions, I go in confident that I will do well	1	2	3	4	5
5	I can remain confident even through one of my poorer performances	1	2	3	4	5
6	I have faith in myself	1	2	3	4	5
7	I am often panic-struck during those last few moments before I begin my performance	1	2	3	4	5
8	Before a meet, I worry if I will do well	1	2	3	4	5

9	Before important meets, I feel intense anxiety	1	2	3	4	5
10	I often “rehearse” my performance in my head before I perform	1	2	3	4	5
11	When I mentally practice my performance, I “see” myself performing just like I was watching a videotape.	1	2	3	4	5
12	I prepare for a meet by making mental representations of my performance	1	2	3	4	5
13	I think team spirit is very important	1	2	3	4	5
14	When my team loses, I feel badly - no matter how well I did as an individual	1	2	3	4	5
15	If my team mates don’t exert themselves to the utmost, I get angry	1	2	3	4	5
16	I often have trouble concentrating during my performance	1	2	3	4	5
17	At the beginning of my performance, I have trouble forgetting things I was doing before	1	2	3	4	5
18	During my performance, others distract me	1	2	3	4	5

APPENDIX H:

RESOURCES AND ESTIMATED COSTS

Table 15

Resources and estimated costs.

Item Required	Cost (P)
Printing	1800.00
Pencils	150.00
Transport (northern schools)	1200.00
Accommodation (northern schools)	1000.00
Meals	800.00
Airtime	200.00
Transport (southern schools)	600.00
Meals	300.00
Airtime	200.00
Research Assistants payments	1740.00
Total	P7990 .00/\$600

APPENDIX I:

PROJECT TIMELINE

Table 16
Project timeline.

Date	Task
11/26/2021	Proposal defense
05/27/2022	IRB approval – MSU Study ID 00006767
06/10/2022 – 08/31/2022	Data collection
09/07/2022 09/30/2022	Data management and organization
10/01/2022 to date	Data analysis
12/01/2022	First draft dissertation
01/20/2023	Dissertation defense
05/05/2023	Graduation

APPENDIX J:

STUDY APPROVAL

**MICHIGAN STATE
UNIVERSITY**

Initial Study APPROVAL Revised Common Rule

May 27, 2022

To: Leapetswe Malete

Re: **MSU Study ID:** STUDY00006767
IRB: Biomedical and Health Institutional Review Board
Principal Investigator: Leapetswe Malete
Category: Expedited 7
Submission: Initial Study STUDY00006767
Submission Approval Date: 5/27/2022
Effective Date: 5/27/2022
Study Expiration Date: None; however modification and closure submissions are required (see below).

Title: The Role of Coach-athlete Relationship on Mental Health, Coping and Psychological Skills of Adolescent Athletes in Botswana



**Office of
Regulatory Affairs
Human Research
Protection Program**

4000 Collins Road
Suite 136
Lansing, MI 48930

517-355-2280
Fax: 517-432-4503
Email: hrp@msu.edu
www.hrp.msu.edu

This submission has been approved by the Michigan State University (MSU) BIRB. The submission was reviewed by the Institutional Review Board (IRB) through the Non-Committee Review procedure. The IRB has found that this study protects the rights and welfare of human subjects and meets the requirements of MSU's Federal Wide Assurance (FWA00004556) and the federal regulations for the protection of human subjects in research (e.g., 2018 45 CFR 46, 21 CFR 50, 56, other applicable regulations).

How to Access Final Documents

To access the study's final materials, including those approved by the IRB such as consent forms, recruitment materials, and the approved protocol, if applicable, please log into the Click™ Research Compliance System, open the study's workspace, and view the "Documents" tab. To obtain consent form(s) stamped with the IRB watermark, select the "Final" PDF version of your consent form(s) as applicable in the "Documents" tab. Please note that the consent form(s) stamped with the IRB watermark must typically be used.

Expiration of IRB Approval: The IRB approval for this study does not have an expiration date. Therefore, continuing review submissions to extend an approval period for this study are not required. **Modification and closure submissions are still required (see below).**

Modifications: Any proposed change or modification with certain limited exceptions discussed below must be reviewed and approved by the IRB prior to implementation of the change. Please submit a Modification request to have the changes reviewed.

MSU is an affirmative action,
equal-opportunity employer.



MICHIGAN STATE UNIVERSITY

OFFICIAL ACADEMIC TRANSCRIPT
ISSUED TO STUDENT

MABUTA, KAPULE DAVID

PRINTED: 10/22/2022
PAGE: 01 OF 01

UIC: 2647914163
STUDENT ID: 155586990

COURSE	TITLE	CRS GRD	I EH	COURSE	TITLE	CRS GRD	I EH
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GRADUATE RECORD

UNIVERSITY OF BOTSWANA
MASTER OF ARTS 10/01/2016

PROGRAM: DOCTORATE IN EDUCATION
08/29/2018 ACTIVE IN PROGRAM
KINESIOLOGY

FALL SEMESTER 2018

08/29/2018 - 12/14/2018							
CEP 932	QUANT METH IN ED RES I	3.00	2.0				
KIN 840	PSYCHOSOC ASPECT PHYS ACTVY	3.00	4.0				
KIN 860	GROWTH AND MOTOR BEHAVIOR	3.00	4.0				
TERM TOTALS	9.00	TERM GPA	3.333				
CUM TOTALS	9.00	CUM GPA	3.333				

SPRING SEMESTER 2019

01/07/2019 - 05/03/2019							
KIN 862	NEURAL BASIS OF HUMAN MOVEMENT	3.00	3.0				
KIN 940	ISSUES PSYCHOSOC PHYS ACT	3.00	4.0				
KIN 960	ISSUES IN MOTOR BEHAVIOR	3.00	3.5				
TERM TOTALS	9.00	TERM GPA	3.500				
CUM TOTALS	18.00	CUM GPA	3.416				

FALL SEMESTER 2019

08/28/2019 - 12/13/2019							
CEP 930	EDUCATIONAL INQUIRY	3.00	4.0				
KIN 871	RESEARCH METHODS KINESIOLOGY	3.00	3.5				
KIN 941	MOTIV PROCESSES IN SPORT/EXER	3.00	2.5				
TERM TOTALS	9.00	TERM GPA	3.333				
CUM TOTALS	27.00	CUM GPA	3.388				

SPRING SEMESTER 2020

AS THE NOVEL CORONAVIRUS PANDEMIC REQUIRED SIGNIFICANT CHANGES TO INSTRUCTION, S-SATISFACTORY AND NS-NOT SATISFACTORY GRADES WERE MADE AVAILABLE TO UNDERGRADUATE AND GRADUATE STUDENTS.

01/06/2020 - 05/01/2020							
CEP 933	QUANTITATIVE METH IN ED RES II	3.00	3.5				
KIN 810	METABOLIC RESPONSES EXERCISE	3.00	3.5				
KIN 870	PHYSICAL ACTIVITY & WELL-BEING	3.00	3.0				
TERM TOTALS	9.00	TERM GPA	3.333				
CUM TOTALS	36.00	CUM GPA	3.375				

FALL SEMESTER 2020

AS THE NOVEL CORONAVIRUS PANDEMIC REQUIRED SIGNIFICANT CHANGES TO INSTRUCTION, S-SATISFACTORY AND NS-NOT SATISFACTORY GRADES WERE MADE AVAILABLE TO UNDERGRADUATE AND GRADUATE STUDENTS.

09/02/2020 - 12/18/2020							
CEP 903	COGN DEVEL ACROSS THE LIFESPAN	3.00	3.5				
KIN 995	RESEARCH PRACTICUM KINESIOLOGY	3.00	3.5				
TE 931	INTRO QUALITATIVE METH ED RES	3.00	4.0				
TERM TOTALS	9.00	TERM GPA	3.666				
CUM TOTALS	45.00	CUM GPA	3.433				

SPRING SEMESTER 2021
AS THE NOVEL CORONAVIRUS PANDEMIC REQUIRED SIGNIFICANT CHANGES TO INSTRUCTION, S-SATISFACTORY AND NS-NOT SATISFACTORY GRADES WERE MADE AVAILABLE TO UNDERGRADUATE AND GRADUATE STUDENTS.

01/11/2021 - 04/30/2021							
CEP 905	CULTURAL PERSP LEARN & DEVEL	3.00	4.0				
CEP 910	MOTIVATION & LEARNING	3.00	3.5				
KIN 940	ISSUES PSYCHOSOC PHYS ACT	3.00	3.5				
TERM TOTALS	9.00	TERM GPA	3.666				
CUM TOTALS	54.00	CUM GPA	3.472				

FALL SEMESTER 2021

09/01/2021 - 12/17/2021							
KIN 999	DOCTORAL DISSERTATION RESEARCH	9.00	P				
TERM TOTALS	9.00	TERM GPA	N/A				
CUM TOTALS	63.00	CUM GPA	3.472				

SPRING SEMESTER 2022

01/10/2022 - 05/06/2022							
KIN 999	DOCTORAL DISSERTATION RESEARCH	9.00	P				
TERM TOTALS	9.00	TERM GPA	N/A				
CUM TOTALS	72.00	CUM GPA	3.472				

FALL SEMESTER 2022

08/31/2022 - 12/16/2022							
KIN 999	DOCTORAL DISSERTATION RESEARCH	5.00	***				
TERM TOTALS	N/A	TERM GPA	N/A				
CUM TOTALS	72.00	CUM GPA	3.472				

NON-COURSE MILESTONES

COMPREHENSIVE EXAMINATION
STATUS: NOT COMPLETED

FINAL EXAMINATION
STATUS: NOT COMPLETED

COMPREHENSIVE EXAMINATION
STATUS: COMPLETED
DATE COMPLETED: 11/01/2021

DISSERTATION DIRECTOR
STATUS: NOT COMPLETED

END OF GRADUATE RECORD

----- NO ENTRIES BELOW THIS LINE-----



Steven J. Shablin
University Registrar

Provided Solely For:

Kapule Mabuta
16 CRESCENT RD APT 1618I
EAST LANSING, MI 48823