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Motivation and Competitive Anxiety among Young Football Players

in Saudi Arabia: A Self-Determination Theory Approach

Mohammad Saad Aldosari

Program of Doctor of Philosophy in Health and Sports Psychology

Department of Basic, Developmental, and Educational Psychology

Faculty of Psychology

Universitat Autònoma de Barcelona

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Thesis Supervisors:

Dr. Yago Ramis, Dr. Saül Alcaraz, and Dr. Miquel Torregrossa

Abstract

The main aim of this thesis was to obtain a comprehensive understanding of young football players' motivation, competitive anxiety, the association between these two variables, and Basic Psychological Needs (BPN) satisfaction in the Saudi Arabian context based on the application of Self-determination Theory (SDT). The thesis consists of two studies.

The first study was aimed to provide valid and reliable instruments that could be used to measure motivational and emotional constructs within the Saudi context. The participants comprised 355 young male football players from Saudi Arabia, whose ages ranged between 16 and 20 years old. The findings revealed that both the Behavioral Regulation in Sports Questionnaire (BRSQ) and Sports Anxiety Scale-2 (SAS-2) had acceptable psychometric properties and showed evidence of validity in the Arabic versions.

The second study included two objectives. The first objective was to describe the motivation, BPN satisfaction, and competitive anxiety of young football players in Saudi Arabia. The sample size comprised 221 young male Saudi football players ranging in age between 16 and 20 years old. The Arabic versions of the BRSQ and SAS-2 were used in this study in addition to the BPN satisfaction questionnaire. The results showed that the players recognized the concepts of motivation based on SDT with a high and moderately-high levels of BPN satisfaction, regarding competitive anxiety, the findings showed a moderate level of worry and low levels of somatic anxiety and concentration disruption.

The second objective of the second study was to explore the relationship between motivation, BPN satisfaction, and competitive anxiety among young football players in

Saudi Arabia. According to the cluster analysis, and a multivariate analysis of variance (MANOVA), the results showed significant differences between three groups (i.e., a high self-determined group, a moderately controlled group, and an all high-regulation group) and some variables of this study. The moderately controlled group showed significantly higher means in competence satisfaction, while the all-regulation group showed significantly higher means in both somatic anxiety and concentration disruption.

Based on the findings, the evidence led to the conclusion that the Arabic versions of BRSQ and SAS-2 are valid for use in sports psychology research on an Arabic-speaking population. At a descriptive level, we identified behavioral regulations based on SDT and BPN satisfaction and competitive anxiety. On the relational level, the three derived clusters may be relevant in the context of young Saudi football. Thus, individuals with different motivational profiles might benefit the most from tailored intervention approaches.

Resumen

El objetivo principal de esta tesis fue obtener una comprensión integral de la motivación de los jóvenes jugadores de fútbol, la ansiedad competitiva, la asociación entre estas dos variables y la satisfacción de las necesidades psicológicas básicas en el contexto de Arabia Saudita basado en la aplicación de la teoría de la autodeterminación (SDT) La tesis consta de dos estudios.

El primer estudio tenía como objetivo proporcionar instrumentos válidos y confiables que podrían usarse para medir construcciones motivacionales y emocionales dentro del contexto saudí. Los participantes fueron 355 jóvenes jugadores de fútbol de Arabia Saudí, cuyas edades oscilaban entre 16 y 20 años. Los hallazgos revelaron que tanto del Cuestionario de Regulación Conductual en el Deporte (BRSQ) y la Escala de Ansiedad Competitiva (SAS-2) tenían propiedades psicométricas aceptables y mostraban evidencia de validez en las versiones árabes.

El segundo estudio incluyó dos objetivos. El primer objetivo fue describir la motivación, la satisfacción de las necesidades psicológicas básicas (BPN; por sus siglas en inglés) y la ansiedad competitiva de los jugadores de fútbol jóvenes en Arabia Saudí. El tamaño de la muestra comprendió 221 jugadores de fútbol saudí varones jóvenes con edades comprendidas entre 16 y 20 años. Las versiones árabes de BRSQ y SAS-2 se utilizaron en este estudio además del cuestionario de satisfacción de BPN. Los resultados mostraron que los jóvenes futbolistas saudís reconocieron los conceptos de motivación basados en SDT con un alto y moderadamente alto niveles de satisfacción de BPN, con

respecto a la ansiedad competitiva, los resultados mostraron un nivel moderado de preocupación y bajos niveles de ansiedad somática y desconcentración.

El segundo objetivo del segundo estudio fue explorar la relación entre la motivación, la satisfacción de las BPN y la ansiedad competitiva entre los jóvenes jugadores de fútbol en Arabia Saudí. De acuerdo con los resultados del análisis de clústers, y análisis de varianza multivariante (MANOVA), los resultados mostraron diferencias significativas entre los tres grupos (i.e., grupo de alta autodeterminación, grupo moderadamente controlado y grupo con todas las regulaciones altas) y algunas variables de este estudio. El grupo moderadamente controlado mostró medios significativamente más altos en satisfacción de la competencia, mientras que el grupo de todas las regulaciones altas mostró medios significativamente más altos en ansiedad somática y desconcentración.

Según los hallazgos, la evidencia llevó a la conclusión de que las versiones árabes del BRSQ y SAS-2 son válidas para su uso en la investigación de psicología deportiva en una población de habla árabe. En el nivel descriptivo, evaluamos las regulaciones de comportamiento y la satisfacción de las BPN basadas en la SDT, así como la ansiedad competitiva. En el nivel relacional, los tres grupos derivados pueden ser relevantes en el contexto del fútbol para jóvenes en Arabia Saudí. Así, las personas con diferentes perfiles de motivación podrían beneficiarse más de enfoques de intervención personalizados.

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Preface

My interest in pursuing a doctoral thesis on behavioral issues among young football players from a psychological perspective was based on various personal experiences (e.g., being a junior and senior football player, a football referee, and an athletic director of college students). Additionally, my interest in understanding the psychology of football players motivated me to conduct this thesis. I conducted this thesis to achieve a comprehensive understanding of motivation and competitive anxiety, which are crucial factors in young Saudi football players' pursuits to become professional football players. I utilized the self-determination theory (SDT; Deci & Ryan, 1985), which mainly addresses the quality of motivation provided by a specific environment and its impact on young athletes' intrinsic motivation (Ryan & Deci, 2017). Moreover, I was interested in determining how emotional states, such as competitive anxiety, affect youths' lives and their participation in football. In my experience as an athletics director, I noticed that many young players performed poorly during football games because of competitive anxiety, which dramatically affected their roles as team players.

Football is an important sport in the lives of some young people, particularly in Western countries such as the United Kingdom (Morris, Tod, & Eubank, 2017), Germany (Grossmann & Lames, 2015), and Spain (Chamorro, Torregrosa, Oliva, Calvo, & Leon, 2016). These countries have developed the game through research and special projects that allow children and youth to practice it safely and enjoyably in facilities designed for sports, which enables them to achieve their ambition of becoming professional football players (Gledhill, Harwood, & Forsdyke, 2017). In emerging countries in sports psychology, such

as Saudi Arabia, the research on psychological factors that may change the trajectory of a player's career is limited (Schinke, Papaioannou, & Schack 2016). However, the number of football clubs and academies in Saudi Arabia has increased significantly because of recent improvements in the sport's popularity (Alqattan, 2018). Although the environment has improved player performance because of enhanced competition, many institutions in charge of these athletes face numerous challenges, and they remain incapable of the maintaining training of young football players. More often than not, the reasons are related to the focus on performance and physical aspects while vital psychological elements are neglected (Williams & Reilly, 2000), which has resulted in unwanted outcomes of football talent programs in Saudi Arabia.

Nonetheless, it is essential to note that conducting research on sports psychology may be difficult because of the lack of assessment questionnaires and scales in the Arabic context. Moreover, few have been translated using the standards for the cultural adaptation of psychometric instruments (e.g., Bayyat, Almoghrabi, & Ay, 2016; Mnedla, Bragazzi, Chiorri, Elloumi, & Briki, 2018). The existing tools may not adequately fit the Saudi Arabian context because of cultural and language differences. Hence, in contrast to existing studies, this thesis is focused on the context of Saudi Arabian football to provide much-needed insights into the role of motivation based on SDT, Basic Psychological Needs (BPN) satisfaction and competitive anxiety in sports careers among young Saudi football players. Specifically, it provides the tools necessary to examine overall sports performance based on psychological elements.

Two studies based on quantitative methods were conducted for this thesis. In the first study, a methodological approach was used to provide valid and reliable instruments

for measuring motivational and emotional constructs within the Saudi context (i.e., the Behavioral Regulation in Sports Questionnaire (BRSQ) and the Sports Anxiety Scale-2 (SAS-2). The second study comprised two parts: (1) a descriptive analysis of motivation, BPN satisfaction, and competitive anxiety among young football players in Saudi Arabia; (2) an exploration of the relationship between motivation, BPN satisfaction, and competitive anxiety among young football players in Saudi Arabia based on behavioral regulations, which was based on a cluster analysis.

This thesis is organized as follows: first, a provides a general introduction is provided, which includes the main theoretical frameworks used in this thesis and previous research findings (i.e., chapter 1), followed by the data and concepts relevant to understanding the current state of research on the issue of motivation based on SDT and competitive anxiety. Second, in two separate studies (i.e., chapter 2 and chapter 3), the method content is organized according to the participants, the instruments used in the two studies, and the data analyses. The main results of both studies are summarized. Third, the discussion (i.e., chapter 4) reflects on how the results are related to other relevant fieldwork and the contribute of this research to the literature. The implications of the results of the thesis are discussed, limitations and future research directions are recommended. Finally, the conclusion (i.e., chapter 5) summarizes the objectives, results, and implications of this thesis.

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List of Abbreviations

BPN   Basic Psychological Needs

BRSQ   Behavioral Regulation in Sport Questionnaire

CFA   Confirmatory Factor Analysis

HNIEM   Hierarchical Model of Intrinsic and Extrinsic Motivation

RMSEA   Root Mean Square Error of Approximation

SAFF   Saudi Arabian Football Federation

SDT   Self-determination Theory

SAS-2   Sports Anxiety Scale-2

TLI   Tucker–Lewis Index

Chapter 1

Theoretical Background

Psychological factors affect the development of a young athlete's skill and the success gained through this skill, particularly in football (Gledhill, Harwood, & Forsdyke, 2017). Motivation and the satisfaction of Basic Psychological Needs (BPN) are crucial elements that determine whether athletes achieve success in their designated sport. These factors are particularly predictive of positive outcomes at the psychological level (Gillet, Berjot, Amoura, Vallerand, & Rosnet, 2012). Although the support of parents, coaches, and peers has a significant effect on a player's career, self-determined motivation is one of the primary determinants of success (Riley & Smith, 2011). However, it is important to note that being self-driven may induce competitive anxiety in athletes (Ponseti et al., 2019). Subsequently, high levels of anxiety could result in emotional and psychological distress to the extent that it impedes the execution of sports (Ramis, Torregrosa, Viladrich, & Cruz, 2017).

1.1 The Self-determination Theory

The self-determination theory (SDT; Deci & Ryan, 1985) has been used widely to study motivation in sports (Ryan & Deci, 2017). The SDT was developed to understand and explain motivation as a force that energizes performance, and it encompasses the apparent motives for the involvement an activity (Ryan & Deci, 2000). Based on SDT, Vallerand (1997, 2007) proposed a Hierarchical Model of Intrinsic and Extrinsic Motivation (HMIEM) that allows researchers to analyze and understand the determinants and the consequences associated with different forms of motivation. The model posits that different types of motivation (i.e., intrinsic, extrinsic, and amotivation) generate certain

outcomes based on three general factors: global, contextual, and situational. According to SDT theorists, motivational processes of behavioral regulation are stimulated when the three BPNs of autonomy, competence, and relatedness are met (Ryan & Deci, 2017). The following sections outline the theories concerning BPN satisfaction and related motivation forms.

BPN consists of some of the most significant constructs of SDT (Ryan & Deci, 2017). Among these needs, autonomy is the perception that one is the source of one's behavior, and the feeling of autonomy makes individuals perceive that their actions are self-initiated even when outside influences are present. Second, when the need for competence is fulfilled, one feels effective partaking in an activity and seeks tasks that adequately challenge one's capabilities. Finally, relatedness refers to the feeling that one can connect effectively at a social level. Relatedness occurs when one feels connected to others in one's social context, that one is being cared for and cares for others, and that one thinks that one fits in one's community (Ryan & Deci, 2017).

SDT can provide a comprehensive picture of the manner in which the three BPNs influence the motivation (as defined in the previous paragraph), satisfaction, and well-being of the athlete (Ryan & Deci, 2017), which is the main focus of the present research. Numerous studies have tested the theoretically predicted consequences of BPN satisfaction in the contexts of young athletes (e.g., Chamorro, Torregrosa, Oliva, Calvo, & Leon, 2016; Quested et al., 2013). Moreover, previous results have indicated a relationship between BPN satisfaction and the indicators of positive adjustment in sports.

According to SDT, the process of self-determination involves types of motivation (Ryan & Deci, 2017; Vansteenkiste, Ryan, & Deci, 2008). First, intrinsic motivation affects

participation, and it is often indicated when an individual participates in activities that generate pleasure (Ryan & Deci, 2017). Nonetheless, extrinsic motivation also plays a role in the decision-making process, whereby an athlete makes a choice based on anticipated consequences. Extrinsic motivation can be identified as a behavior that is dictated by foreseeable rewards that are not inherently related to the selected sport (Ryan & Deci, 2017).

According to organismic integration theory (Ryan & Deci, 2000), which is a sub-theory of SDT, extrinsic motivation can be classified into various forms of behavioral regulation based on the degree of autonomy it offers. The first, integrated regulation, is defined as the form of motivation where an individual has completely integrated a motivation within himself or herself. Integrated regulation is the most self-driven form of extrinsic motivation. The second identified regulation is a form of behavioral regulation that gives some autonomy to the individual. It refers to an athlete's choosing to act in a particular manner because its outcome is crucial, such as muscle development training sessions, which are not engaging but benefit performance. The third introjected regulation refers to the external contingencies that athletes have partially incorporated into their behavioral management. For instance, a player may participate in an activity because of guilt, anxiety, or shame. Finally, external regulation is a non-self-driven type of motivation that is based on anticipated rewards or punishment by others. An example is when athletes partake in training activities to obtain recognition from their coaches. In contrast, amotivation is an unregulated form of participation that leads an individual to make choices based on unknown motives under the impression that such decisions will have little incidence in the environment within which they are made. Overall, SDT presupposes that

the social environment is crucial in enabling or restricting self-determination based on the degree to which such a situation meets the needs of the participants (Ryan & Deci, 2017).

Previous studies based on SDT proposed a multidimensional conceptualization of motivation as autonomous motivation, controlled motivation, and amotivation, depending on the quality or the type of motivation (Lonsdale, Hodge, & Rose, 2009; Vallerand, 2007). According to previous studies (e.g., Lonsdale et al., 2009; Ryan and Connell, 1989; Vallerand, 2007), in highly self-determined or autonomous motivation, the regulation of the behavior that is perceived to be caused by self-interest can be particularly conducive to and predictive of positive outcomes at the psychological level (e.g., well-being, mental health, and performance). Hence, the factors underlying an athlete's motivation are critical in predicting his or her long-term psychological well-being (Deci & Ryan, 2017). In contrast, controlled motivation refers to the regulation of the behavior that is perceived to be externally driven in response to external pressures or demands and that might have negative outcomes (e.g., anxiety, depression, and low performance) (Appleton & Hill, 2012; Pelletier, Fortier, Vallerand, & Briere, 2001).

1.2 Motivation Assessment Through Self-determination Theory

The theoretical constructs presented in SDT have been an interesting topic of research on both sports and other life domains, such as job demands (Deci, Olafsen, & Ryan, 2017), teaching (Sun, Li, & Shen, 2017), and health (Patrick & Williams, 2012). Nonetheless, motivation may be difficult to measure because it is a latent rather than an observable variable. In the past, motivational assessments were often performed by either observing behavior or obtaining verbal reports from the participants in an activity (Clancy,

Herring, & Campbell, 2017). However, over time. various advanced methods of assessing motivation have been developed, among which the self-reported questionnaire is the most common method (Ryan & Deci, 2017). Examples include the Sports Motivation Scale by Pelletier et al. (1995), the Intrinsic Motivation Inventory by McAuley, Duncan, and Tammen (1989), the Situational Motivational Scale by Guay, Vallerand, and Blanchard (2000), and the Behavioral Regulation in Sports Questionnaire (BRSQ) by Lonsdale, Hodge, and Rose (2008).

Notably, the Behavioral Regulation in Sports Questionnaire (BRSQ) was established to measure the forms of behavioral regulation identified in SDT. The BRSQ contains six subscales: Intrinsic Motivation, Integrated Regulation, Identified Regulation, Introjected Regulation, External Regulation, and Amotivation. It is also important to note that because Lonsdale et al. (2008) questioned the psychometric properties of some of its components, the BRSQ was established to replace the Situational Motivational Scale (SMS). Previous studies (e.g., Londsdale et al., 2009; Ullrich-French & Cox, 2009) showed that it was important to measure some psychometric issues encountered in BRSQ to better clarify the instrument. The analysis of the data collected from athletes showed that the discriminant validity of the identified and integrated regulations was inconsistent. For instance, integrated regulation appeared more often in young and adult athletes (Vallerand, 1997). In addition, some results showed the lack of discrimination or the poor fit between the model and the data because they did not emerge as relevant reasons underlying achievement behaviors (Viladrich et al., 2013). Overall, the BRSQ could be limited because it was developed for use with competitive players; nonetheless, this focus may be a strength. Ultimately, it is a precise and flexible tool that simplifies and eases one-

dimensional and multi-aspect assessment through its many versions and subscales (Clancy et al., 2017).

1.3 Competitive Anxiety

As mentioned previously, intrinsic motivation is associated with positive consequences. At the same level of generality, extrinsic motivation is associated with negative consequences. Notably, individuals who have high levels of autonomy were found to be more likely to have higher levels of well-being and lower levels of ill-being indicators (e.g., anxiety). The opposite findings resulted when amotivation was a predictor of several ill-being indicators and lower levels of well-being in general (Vallerand, 2007).

Anxiety can be defined as a state of uneasiness accompanied by dysphoria, somatic signs, symptoms of worry, and a focus on possible failure or danger (Corman, 2003). In sports, anxiety is a well-researched topic, as it affects the overall performance levels of athletes (Grossbard, Cumming, Standage, Smith, & Smoll, 2007; Hackfort & Spielberger, 1989; Martens, Burton, Vealey, Bump, & Smith, 1990; Vealey, 1990). In the sports literature, anxiety is often linked to the perceived level of risk or competition, and it may be either cognitive or somatic (Martens et al., 1990).

One of the most identifiable theories of competitive anxiety is the multidimensional anxiety theory. In 1990, Martens et al. developed a theoretical explanation for competitive anxiety, which included two constituents, a cognitive aspect and a somatic aspect, each of which had distinct effects on performance. Moreover, they could be manipulated and analyzed individually instead of in combination. The cognitive aspects include the negative perception of one's ability, high expectations that one feels are unachievable, and the

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anticipation of negative consequences that may follow the failure to perform. The somatic component of multidimensional anxiety theory is linked to the actual psychological effects of being anxious, including increased automatic arousal, which generates adverse physiological outcomes, such as muscle tensions, heart palpitations, sweaty palms, nausea, and shortness of breath (Morris, Davis, & Hutchings, 1981; Morris, Harris, & Rovins, 1981).

Ramis et al. (2017) referred to competitive anxiety as context-specific distress that systematically appeared before or during competition; it should be considered a contextual ill-being indicator based on Vallerand's HMIEM. According to previous research, the outcomes of this specific type of competitive anxiety rely on an individual's knowledge of self and the capability of being aware of anxiety levels (Grossbard, Smith, Smoll & Cumming, 2009). Competitive anxiety refers in part to stress surrounding the numerous dimensions of participating in a competitive sport.

1.4 Competitive Anxiety Assessment

The Sport Anxiety Scale (SAS) was introduced by Smith, Smoll, and Schutz (1990) to measure multidimensional trait anxiety and individual differences in the cognitive and somatic anxiety experienced by athletes. It is one of the critical tools associated with psychological assessment in the sports field. Its theoretical underpinnings were based on the advances in anxiety research and the need to measure all its components. In particular, the original SAS was aimed at assessing distinct variances in somatic anxiety and two aspects of cognitive anxiety: worry and concentration disruption. Consequently, it was used in studies that examined the multidimensional competitive trait anxiety in sport (e.g.,

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Giacobbi & Weinberg, 2000; Jones, Smith & Holmes, 2004). However, Smith, Smoll, Cumming, and Grossbard (2006) subsequently developed the SAS-2, which had some variations in structure compared with the earlier version. For instance, instead of the previous three-factor structure, the new model included some deficiencies, such as issues of understanding when it was used to assess children rather than adults (Smith et al., 2006). However, the new scale improved the tool's performance because it could be used effectively to assess both adults and children.

In addition, the SAS-2 proved to be more reliable and have stronger validity than the original version. To test the new tool, Smith et al. (2006) adopted the ideology that perhaps children were limited by their lower capacity to identify self-perceived emotions, which led to difficulties in the recognition of some items on the scale that required subjective assessment. Consequently, with this notion in mind and using Confirmatory Factor Analysis (CFA) and Exploratory Factor Analysis (EFA), the researchers identified 30 new items, of which 15 were included in the final version. Moreover, other analyses indicated that a revised version of SAS should be refined for better use across all ages. The result was a new and revised SAS-2 with three subscales, each consisting of five items.

1.5 The Relationship between Motivation, BPN Satisfaction, and Competitive Anxiety

Researchers have studied the relationship between motivation, BPN satisfaction, and competitive anxiety (González, Tomás, Castillo, Duda, & Balaguer, 2017; Kolayiş & Çelik, 2017; Lonsdale et al., 2009; Ramis et al., 2017). For instance, in a study by Ramis et al. (2017), the authors hypothesized that the controlling style used by a coach affects

controlled motivation in athletes, which, in turn, indirectly affects perceived competitive anxiety. Additionally, the analysis revealed that although the coaching style affected motivation levels, it had a significant effect on competitive anxiety (Ramis et al., 2017). Conversely, Kolayiş and Çelik, (2017) determined that some types of motivation, including intrinsic motivation and external regulations, were predictive of competitive anxiety levels in athletes. Their results indicated that individuals with high levels of self-determination and low levels of anxiety may subsequently worry because of the pressure to perform. Correspondingly, Ponseti et al. (2019) found that high values of self-motivation and low anxiety associated with competition reinforced the conclusions of Gillet et al. (2012) based on motivation profiles determined by cluster analyses.

In their literature review, Gillet et al. (2012) found that high autonomous and controlled motivation levels may translate into enhanced competence satisfaction. While BPN satisfaction may result from a mixture of determinants, as identified by Chamorro et al. (2016), the above studies illustrated a possible link between this form of competence satisfaction and self-determination. Ultimately, because of the lack of research in the psychological field, these theoretical positions imply the need to identify and measure motivation, anxiety, and satisfaction in the Saudi context, which would further the future development of football in particular and sports in general.

1.6 Football and Sports Psychology in the Saudi Arabian Context

Football is one of the most traditional sports in Saudi Arabia, and it is now considered the national game (alqattan,2018). Saudi football teams have achieved recognition at regional (e.g., the Gulf Cup and the Arabic Cup), continental (e.g., the Asia

Cup and the West Asia Cup), and international levels (e.g., the World Cup and the Olympic Games). Currently, some football academies belong to official clubs (e.g., Al Ahli Club Football academy in Jeddah and Al-Hilal Club Football School in Riyadh). International club academies (e.g., Barça Academy, Juventus Academy, and Real Madrid Foundation Academy), some of which are private academies, also have a presence in the region.

In the last two years, the Ministry of Sports in Saudi Arabia has been interested in establishing a special program for talent development, and it sent nine football players to the Spanish league for six months before the 2018 World Cup. In addition, it decided to send 21 young players to Spain with one-year sports scholarships. In 2019, the Ministry of Education in Saudi Arabia also established a Saudi Schools Tournament (first version), in which more than 5,400 schools in different cities in Saudi Arabia are now participating.

According to Schinke et al. (2016), each national sports context brings its challenges and solutions in the field of sports psychology. Many of these are context-specific, yet they can offer new solutions (e.g., pertaining to athlete and sports motivation). Some contributions extend well-developed theories and methods to countries that do not identify the applications of sports psychology in their cultural contexts (Papaioannou, Schinke, & Schack, 2019).

In Saudi Arabia, some needs are based on psychological preparation according to the time dimension. These needs can be short-, medium-, or long-term, depending on the match requirements and the season. At the national level, full-time sports psychologists have conducted only a few experiments with youth or professional teams because of the lack of interest in this aspect of sports psychology, which is perhaps because of the lack of awareness of its importance. However, many measures have been taken to contribute to the

realization of the Saudi vision 2030, which includes the interest in fostering sports talents and elite-level sports to generate international achievements. Consequently, such moves may aid athletes in developing effective psychological mechanisms to better cope with sports life (e.g., motivation, competitive anxiety, and BPN satisfaction).

1.7 Purpose

General Objective

The main objective of this research is to obtain a comprehensive understanding of young football players' motivation, competitive anxiety, and the association between these two variables with basic psychological needs satisfaction in the Saudi Arabian context using a self-determination theory approach.

Specific Objectives

Study 1

1. The first aim is to provide valid and reliable instruments for measuring motivational and emotional constructs in the Saudi football context (i.e., BRSQ and SAS-2).

Study 2

2. The second aim is to describe the motivation, basic psychological needs satisfaction, and competitive anxiety among young football players in Saudi Arabia.

3. The third aim is to explore the relationship between motivation, basic psychological needs satisfaction, and competitive anxiety among young football players in Saudi Arabia based on behavioral regulations assessments derived from cluster analysis.

Chapter 2

Study 1

This chapter describes the methodological procedures and the results of the analysis conducted in Study 1. As previously discussed, the major objective of Study 1 was to provide valid and reliable instruments for measuring motivational and emotional constructs in the Saudi football context (i.e., BRSQ and SAS-2).

2.1 Methods

This section presents a description of the methodological procedure used in Study 1. The chapter is presented in four sections: (1) Participants, (2) Instruments, (3) Procedure, and (4) Data Analysis.

2.1.1 Participants

The participants were 355 male football players from Saudi Arabia. The mean age was 18.4 years (SD = 0.74, range: 16–20). The study assessed most of the players who competed in the high-level football league for youth, which is organized by SAFF and included 12 teams in the season 2017–2018.

2.1.2 Instruments

The Behavioral Regulations in Sports Questionnaire (BRSQ; Lonsdale et al., 2008) and the Spanish adaptation of BRSQ (Viladrich, Torregrosa, & Cruz, 2011) was culturally adapted, translated into Arabic, and it was designed to evaluate motivation in practicing football using the SDT approach. The stem was "I participate in football…." On each

subscale, four items measured intrinsic motivation (i.e., ...because of the positive feelings that I experience while playing my sport), identified regulation (i.e., …because it is a good way to learn things which could be useful to me in my life), introjected regulation (i.e., …because I would feel guilty if I quit), external regulations (i.e., …to satisfy people who want me to play), and amotivation (i.e., …but I question why I continue). All BRSQ items were assessed on a 7-point Likert scale (1= Not at all true, 4= Somewhat true, 7= Very true).

The Sports Anxiety Scale-2 (SAS-2; Smith et al., 2006) and the Spanish adaptation of SAS-2 by Ramis et al. (2010) was translated into Arabic to measure the emotional constructs. This 15-item questionnaire is used to assess the degree competitive trait anxiety experienced by athletes before or during competitions. The scale includes three factors with items following the stem, "Before or while I compete in sports…." On each subscale, five items measured somatic anxiety (i.e., my body feels tense), worry (i.e., I worry that I will play badly), and concentration disruption (i.e., It is hard to concentrate on the game). The SAS-2 items were assessed on a 4-point Likert scale (1 = not at all to 4 = very much).

2.1.3 Procedure

In the process of adaptation, the original BRSQ and SAS-2 in English and the adaptation in Spanish were translated into Arabic following the criteria of measurement adaptation proposed by Hambleton (2005). For the translation of the content to be understandable in the environment under study, it was necessary to pay attention to the psychological and cultural aspects and then examine the statistical elements to achieve the required equivalence between translations. The process of adaptation also incorporated linguistic and semantic preparation, which allows a text intended for a specific language

and culture to be used in a second language and culture (American Educational Research Association [AERA], American Psychological Association [APA], and National Council on Measurement in Education [NCME], 2014). The literal translation could not be considered an adaptation because bilingual or trilingual tests in both versions should be comparable if there is no possibility for them to be equivalent (Hambleton, 2005). Therefore, the steps shown in Figure 1 must be followed:
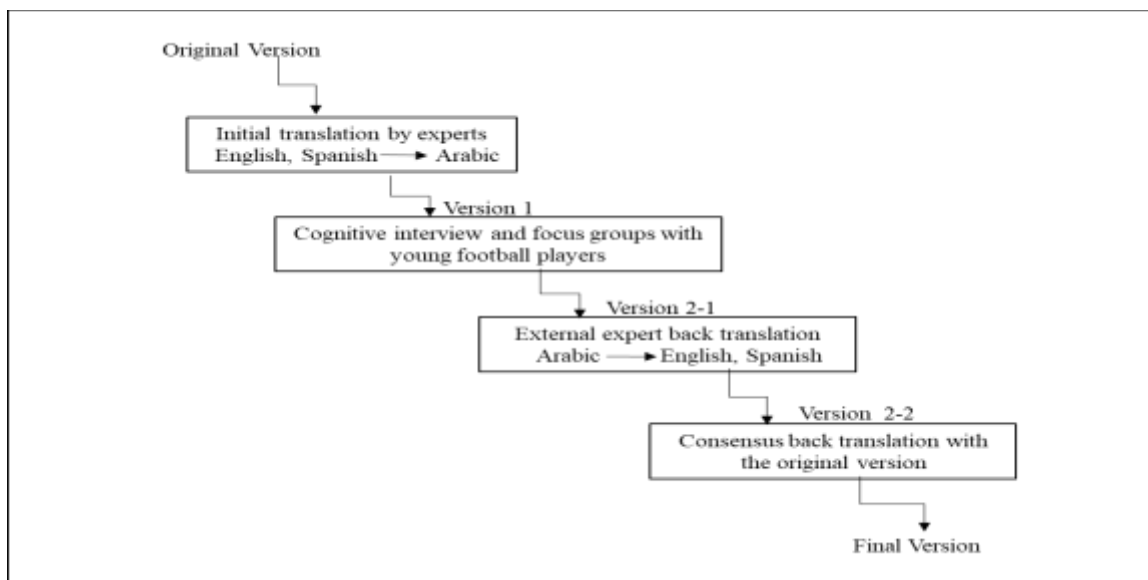
Figure 1. Adaptation process followed in Study 1 to develop the Arabic versions.

Note. Diagram of the translation and adaptation process carried out in the BRSQ and SAS-2 validations (adapted from Ramis, 2012).

Translation (original version). The items in the BRSQ and SAS-2 were translated from English into Arabic and then from Spanish into Arabic by two experts who were highly skilled in the English, Spanish, and Arabic vocabulary that is characteristic of the questionnaires. The translation was then sent to an external linguistic expert in Arabic to check the grammar and structure. Upon achieving unanimous agreement among the experts

that the resulting format was comparable to the original version, the questionnaire's format was prepared.

Cognitive interviews and focus groups (version 1). The next step was an interview using the pilot version of the questionnaires. The total number of participants in the pilot study was 24 young male football players: 12 in each focus group. An individual interview based on a cognitive interviewing process (Hambleton, 2005) was administered to each football player. The researcher conducted individual cognitive interviews with each player. Moreover, the sports psychologist, who was part of the elite high league football team in one of Saudi's official clubs, conducted the individual cognitive interviews with each player. Then the researcher and the sports psychologist administered two different focus groups with the players. The participants were asked to share any doubts that had arisen, and notes were taken of both these and the proposed modifications that were generated in the discussion between the players and the researcher in the first focus group or sport psychologist in the second focus group.

Slight modifications resulted from the cognitive interviews and the focus groups. For example, in the BRSQ item "because I would feel guilty if I quit," we wanted to ensure that the participants understood the meaning of the word "guilty." A similar item was "Because it allows me to live in a way that is true to my values…" in explaining whether their values were "moral values" or "moral standards," such as companionship, effort, and respect for others...." In the SAS-2, in the item "my stomach feels upset," an explanation of the word "upset" was necessary because the two words mean the same thing in Arabic (i.e., stomach), such as "my stomach feels upset" and "I feel tense in my stomach."

Back translation (version 2-1). The third step was the back-translation. When the versions of the BRSQ and SAS-2 had been developed, they were sent to an external expert in Arabic, English, and Spanish who performed a back translation of the Arabic version into English and Spanish. By comparing the back-translated version with the original version of the questionnaires (Version 2-2), we confirmed that the meaning of the items was the same, and there were no visible changes of particular relevance. Hence, we determined that our translated version was consistent with the original, and it was ready to be administered (i.e., the final version).

Administration. The last step was the administration of the instruments to the target population. To collect the data from Saudi youth players, the researchers requested the collaboration of the clubs through contacting the Ministry of Sports in Saudi Arabia and the SAFF. We received agreement from the coordinators of the clubs, who were contacted by phone, and the study and its objectives were explained. When they had agreed to participate, the dates were determined for the researcher to visit all clubs within a short period in different cities in Saudi Arabia. Twelve clubs were visited and surveyed within the period of one month. All participants were informed about the confidentiality of the data, and they agreed to complete the questionnaires and collaborate voluntarily with the researcher. Ethical approval for the study was obtained from researcher's ethics committee in accordance with ethical principles. Permission to participate in the study was obtained from the players and the clubs by asking them to sign the informed consent form.

2.1.4 Data Analysis

The data collected in this study were cleaned, screened, and analyzed through a preparatory analysis in which the calculation of descriptive statistics and estimation of the

internal consistency and the relationships of the scales with the external variables were completed using SPSS version 20. In the initial analysis of the data, we studied the characteristics of the missing data, the normality of the distribution of responses, and the possible presence of atypical cases, as indicated by Cook's distance (Cook, 1977). The analysis of the internal structure of the questionnaires was developed using the Mplus program (Muthén & Muthén, 1998–2012). The data analyses used were the following: (1) descriptive analysis, (2) reliability analysis of the subscales of the BRSQ and SAS-2, (3) confirmatory factor analysis (CFA), and (4) correlations between the subscales of BRSQ and SAS-2.

To study the internal structure, we used CFA. Because there were a small number of missing values, we considered it acceptable to treat them using pairwise deletion (Muthén & Muthén, 1998–2012). The goodness-of-fit indices were as follows: the Comparative Fit Index (CFI), the Tucker–Lewis Index (TLI), and the root mean square error of approximation (RMSEA). All the measurement models were estimated using the weighted least squares means and variance adjusted (WLSMV) estimator. The WLSMV is adequate for the analysis of categorical data (Muthén & Muthén, 2012). In a CFA with quantitative indicators, the CFI and TLI values > .90 and RMSEA < .08 are considered indicators of acceptable fit. CFI and TLI ≥ .95 and RMSEA ≤ .06 are considered indicators of a good fit (Kline, 2016). As a rule of thumb, the factor loadings are freely estimated values ≥ |.30| (Kline, 2016). The cut-off criterion is 0.40 (Brown, 2006).

2.2 Results

The results of the statistical analysis showed the validity of the BRSQ and SAS-2 that had been adapted and translated into Arabic to study the Saudi male football players.

2.2.1 Descriptive Results

As shown in Table 1, the subscale distributions of means in BRSQ showed high values in intrinsic motivation, integrated regulation and identified regulation, intermediate values in external and introjected regulations, and low values in amotivation. Cronbach's alpha showed that the BRSQ factors were as follows: intrinsic motivation = .61, integrated regulation = .41 identified regulation = .77, introjected regulation = .72, external regulation = .64, and amotivation = .82. In the BRSQ, the alpha coefficient of reliability values indicated that the elements possessed good values in amotivation, acceptable values in identification and introjected internal consistency, and intermediate values in intrinsic motivation and external regulation.

Table 1

Descriptive Statistics, Internal Reliability, and Correlations of BRSQ and SAS-2

Variable	*M*	*SD*	α	r	Rank
Intrinsic Motivation	6.41	0.83	0.61	.33	1 - 7
Integrated Regulation	6.15	0.80	0.41	.15	1 - 7
Identified Regulation	6.27	0.96	0.77	.47	1 - 7
Introjected Regulation	3.80	1.58	0.72	.31	1 - 7
External Regulation	3.64	1.54	0.64	.34	1 - 7
Amotivation	2.21	1.54	0.82	.54	1 - 7
Somatic Anxiety	1.49	0.45	0.69	.32	1 - 4
Worry	2.06	0.77	0.82	.49	1 - 4
Concentration Disruption	1,62	0.57	0.77	.41	1 - 4

Note. M = mean; *SD* = standard deviation; α:Cronbach's alpha; *r*:inter item mean correlations

As shown in Table 1, the means of the subscales in SAS-2 indicated low values in somatic and concentration disruption and high values in worry. Cronbach's alpha showed that the SAS-2 coefficients as follows: somatic = .69, worry = .82, and concentration disruption = .77. In the SAS-2, the alpha coefficient of reliability values indicated that the elements possessed good values in worry and acceptable values in somatic and concentration disruption.

2.2.2 Confirmatory Factor Analysis and Factor Loadings in BRSQ

In a CFA with quantitative indicators, CFI and TLI values > .90 and RMSEA < .08 are considered indicators of acceptable fit (Marsh, Hau, & Wen, 2004). In the present study as shown in Table 2, based on the satisfactory fit indexes ($\chi2$ = 911.996, CFI = .838, TLI = .812, RMSEA = .094, CI 90% = .088–.101), the results had poor fit indexes for CFA with six-factors of BRSQ because integrated regulation had the smallest factor loadings in the BRSQ analysis, as shown in Table 2. In contrast, the results of the CFA showed satisfactory fit indexes with five factors in the BRSQ analyses (Table 2).

Table 2

Confirmatory Factor Analysis of BRSQ and SAS-2

Model	$\chi2$	df	CFI	TLI	RMSEA	90%CI RMSEA
BRSQ six-factor	911.996	237	.838	.812	.094	[.088–.101]
BRSQ five-factor	426.287*	142	.921	.905	.079	[.071–.088]
SAS-2 three-factor	222.114*	86	.966	.959	.070	[.059–.082]

Note. df = degrees of freedom; CFI = comparative fit index; TLI = Tucker–Lewis Index; RMSEA = root mean square error of approximation; 90%CI = 90% confidence interval; BRSQ five-factor (without integrated regulation and without item BRSQ14).

As shown in Table 2, based on the satisfactory fit indexes (χ^2 = 426.287, CFI = .921, TLI = .905, RMSEA = .079, CI 90% = .071–.088), the results of the CFA indicate that the BRSQ five-factor model had an acceptable fit. The correlations between intrinsic motivation and identified regulation and between amotivation and introjected regulation and external regulation were moderately-high (see Figure 2). Furthermore, the correlation between introjected regulation and external regulation was also high.

The BRSQ five-factor model with 20 items did not fit the data well, and one problematic item was found. We decided to eliminate it and start all reliability and validity tests using the 19-item model (Table 2). The factor loadings did not exhibit a sizable change. However, the integrated regulation subscale could have been inappropriate for the factor analysis because of the lack of experience of the young football players regarding the sense of integration (Vallerand & Rousseau, 2001). Thus, this factor was removed from subsequent analyses.
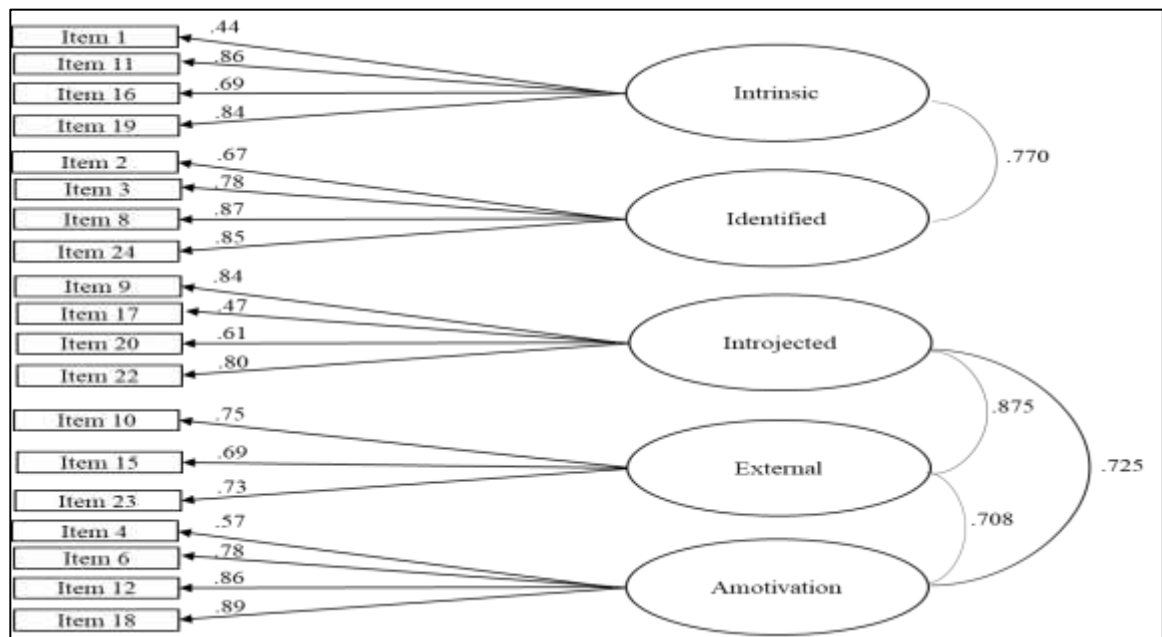
Figure 2. Factor loadings and subscale correlations for BRSQ version adapted to Arabic.

All five-factor BRSQ items (see Figure 2) showed factor loadings higher than .44 on their intended factors. Another finding of interest was the external regulation factor, which generally showed the lowest factor loadings in this context. The factor loadings were fairly good considering that all items were above the cut-off criterion (.40) (Brown, 2006). However, the modification indexes suggested that item 14 tapped external regulations, which contributed largely to this factor. However, it was loaded on other autonomous regulation factors. Therefore, we decided to remove item 14 from subsequent analyses to obtain validation. Moreover, in the six-factor model, the integrated items that were supposed to be part of the same factor acted differently. Using the modification indices, we found that the measurement of the six-factor model of BRSQ was problematic. This inspection, combined with the CFA and factor loadings, suggested that the integrated regulation items may not have measured what they were meant to measure because the participants did not have relevant reasons for self-determination (Ullrich-French & Cox, 2009). Thus, this factor was removed from subsequent analyses.

2.2.3 Confirmatory Factor Analysis and Factor Loadings in SAS-2 items

The SAS-2 model fit the data well (see Table 2). All the items in the SAS-2 (see Figure 3) showed factor loadings higher than .56 on their intended factors. In addition, the concentration disruption factor showed the lowest factor loadings in the context. Considering that all items were above the cut-off criteria, all factor loadings were fairly good (.40; Brown, 2006). The three-factor model of SAS-2 (see Table 2) showed good fit indexes ($\chi2$= 222.114 CFI = .966, TLI = .959, RMSEA = .070, CI 90% = .059–.082). Similar to the findings of most research on SAS-2 (Grossbard, et al., 2009; Martens, 1977), the factor correlations were moderately-high between somatic and worry and between

worry and concentration disruption, whereas the correlation between somatic and concentration disruption was high.
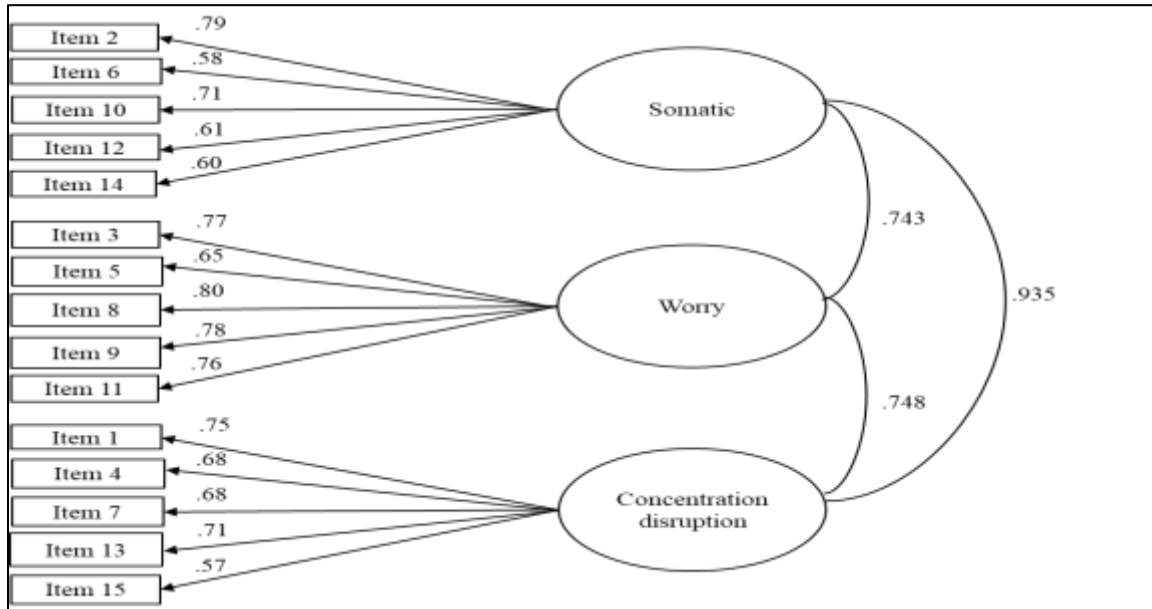
Figure 3. Factor loadings and subscale correlations for the SAS-2 version adapted to Arabic.

Chapter 3

Study 2

This chapter describes the methodological procedures and the results of Study 2. As mentioned previously, Study 2 comprises two parts: the descriptive analysis of motivation, BPN satisfaction, and competitive anxiety among young football players in Saudi Arabia; and the exploration of the relationship between motivation, BPN satisfaction, and competitive anxiety among young football players in Saudi Arabia based on behavioral regulation achieved using a cluster analysis.

3.1 Methods

The methods used in Study 2 are divided into four sections: (1) Participants, (2) Instruments, (3) Data collection and (4) Data analysis.

3.1.1 Participants

The sample comprised 221 young male Saudi football players with a mean age of 18.08 years ($SD = 1.21$, age range:16-20). The study included a sample of 12 teams that participated in the high-level football league for youth in the season 2018–2019. The selection of football players was based on their participation in physical preparation and their individual score sheets in the football league. About 30% of the players had already participated in Study 1 based on the SAFF classification of categories of age groups in the junior under-17 years and senior level under-19 years.

3.1.2 Instruments

As in Study 1, in Study 2 the Arabic adaptation of the BRSQ (Lonsdale et al., 2008) was designed to evaluate motivation in practicing sports. As in Study 1, the Arabic version of the SAS-2 (Smith et al., 2006) was applied in Study 2.

The Arabic version of BPN satisfaction was measured using the following: (1) autonomy satisfaction scale by Standage, Duda, and Ntoumanis (2005); (2) competence satisfaction by McAuley, Duncan, and Tammen (1989); and (3) relatedness satisfaction by Richer and Vallerand (1998). Following the stem, "In football…," five items measured autonomy satisfaction (i.e., I can decide which activities I want to practice), five items measured relatedness satisfaction (i.e., I feel understood), and six items measured competence satisfaction (i.e., I think I am pretty good at football). All instruments were assessed on a 7-point Likert scale (1= Not at all true, 4= Somewhat true, 7= Very true)..

3.1.3 Data Collection

To arrange the scheduled collection of data from the Saudi youth players who participated in Study 2, the collaboration of the clubs was requested by contacting their athletic managers. The dates were determined for the researcher to travel to all clubs within a period of one month. The questionnaires, which took 15 to 20 minutes to complete, were conducted in the clubs before the training sessions. All participants were informed about the confidentiality of the data, and they agreed to respond to the instruments and participate voluntarily in Study 2. Ethical approval was obtained from the research ethics committee of the researcher's institution.

3.1.4 Data Analysis

The data were structured, screened, and analyzed through a preliminary analysis, and a control for outliers was conducted to identify extreme cases. Subsequently, the data

analysis included the calculation of descriptive statistics, the estimation of the internal consistency, a two-step cluster analysis, and a test of the relationships between the clusters and external variables. All analyses were conducted using SPSS version 20.

The data analysis was conducted as follows: (1) descriptive analysis of each variable (i.e., means and standard deviations) in the subscales of motivation, competitive anxiety, and BPN satisfaction; (2) a hierarchical cluster analysis to classify the participants according to their behavioral regulation. The number of clusters was determined using the agglomeration schedule coefficient and the dendrogram to identify the most appropriate cluster solution. The cluster analysis differed in the levels of variables used as indicators, which was according to the mean scores of each regulation, and amotivation was included in all clusters (Aldenderfer & Blashfield, 1984); (3) K-means clustering was applied to maximize within-cluster similarity and between-cluster differences (Clatworthy, Buick, Hankins, Weinman, & Horne, 2005); (4) a MANOVA was performed to determine whether significant differences in their behavior regulation scores existed between the cluster groups; (5) individual ANOVAs were applied to determine variables having statistically significant differences between clusters to identify which clusters differed from each other in behavioral regulation, competitive anxiety, and BPN satisfaction.

Table 3.

Descriptive statistics, Cronbach's Alpha Coefficients and Correlations between the Factors in Study 1

Measure	*M*	*SD*	Rank	1	2	3	4	5	6	7	8	9	10	11
1 IM	6.29	1.01	1 - 7	.70										
2 IDR	6.20	0.94	1 - 7	.533**	.70									
3 ITR	3.53	1.52	1 - 7	.041	.148*	.62								
4 EXR	3.66	1.41	1 - 7	.170*	.209**	.521**	.62							
5 AM	2.26	1.56	1 - 7	-.127	-.130	.434**	.460**	.84						
6 AS	5.24	1.26	1 - 7	.487**	.426**	.180**	.259**	.054	.76					
7 CS	6.05	1.01	1 - 7	.453**	.422**	.075	.075	-.189**	.424**	.84				
8 RS	5.65	1.25	1 - 7	.328**	.379**	.071	.189**	.031	.303**	.459**	.82			
9 SA	1.45	0.58	1 - 4	-.172*	-.092	.150*	.166*	.265**	-.068	-.144*	-.205**	.80		
10 W	2.02	0.80	1 - 4	-.017	-.003	.203**	.166*	.132	-.009	-.396**	-.235**	.571**	.85	
11 CD	1.59	0.64	1 - 4	-.150*	-.151*	.166*	.163*	.349**	-.044	.424**	-.220**	.716**	.557**	.81

Note. IM = intrinsic motivation; IDR = identified regulation; ITR = introjected regulation; EXR = external regulation; AM = amotivation; AS = autonomy satisfaction; CS = competence satisfaction; RS = relatedness satisfaction; SA = somatic anxiety; W = worry; CD = concentration disruption. *M*: mean; *SD*: standard deviation; The alpha coefficient for each scale is presented in italics on the diagonal. ** p <, 05; ** p <001*

3.2 Results

This section presents the results of statistical analysis that was conducted to determine the differences between the variables in Study 2 and summarizes the main outcomes of the cluster analysis.

3.2.1 Preliminary Analysis and Descriptive Statistics

The means are presented in Table 3. The participants showed high values in the potential range in intrinsic motivation and identified regulation, intermediate values in external and introjected regulations above the central value, and low values in amotivation. The reliability coefficients of intrinsic motivation and identified regulation were .70, and amotivation was greater than .70 (see Table 3), indicating acceptable internal consistency. The reliability coefficients of introjected regulation and external regulation were .62. These values are considered slightly low (Green & Yang, 2009). In terms of competitive anxiety, the results showed relatively moderate values in worry and low values in somatic anxiety and concentration disruption. The results of Cronbach's alpha coefficient of reliability showed low values in competitive anxiety factors, indicating that all factors showed high values. Finally, the means of BPN satisfaction showed high values in autonomy, competence, and relatedness satisfaction. Regarding Cronbach's alpha coefficient of reliability, the values of BPN satisfaction factors revealed that the elements possessed adequate internal consistency.

The correlations between the factors of motivation and BPN satisfaction and competitive anxiety are presented in Table 3. For example, there was a moderate

correlation between intrinsic motivation and autonomy satisfaction as well as competence satisfaction. There was a low correlation between introjected and external regulation and amotivation with somatic anxiety and concentration disruption. As expected, intrinsic motivation, identified regulation, and introjected regulation were positively related to all factors of BPN satisfaction but negatively related to amotivation. According to the results presented in Table 3, the proximal factors close to each other on the self-determination continuum showed higher correlations than the distal factors did.

3.2.2 Cluster Analysis

Hierarchical cluster analysis (Ward's linkage method with squared Euclidean distance measure). The cluster analysis followed the recommendations of Clatworthy et al. (2005). First, the scores of intrinsic motivation, identified regulation, introjected regulation, external regulation, and amotivation were included in the hierarchical cluster analysis. Regarding the solution of the hierarchical cluster analysis, two, three, and four-cluster solutions seemed suitable. The inspection of the agglomeration coefficients obtained from the hierarchical analysis and genograms, revealed that the three-cluster solution was the best discriminant. We used Ward's linkage method (Ward, 1963) with squared Euclidean distance as a similarity measure to determine the appropriate number of clusters. We suggest that a three-cluster solution was the most appropriate although the clusters did not indicated differences between self-determined motivations. The post-hoc examination of the three-cluster solution indicated that it was theoretically sound and more parsimonious than the two- or four-cluster solutions. Furthermore, the three-cluster solution added a cluster that was similar to a cluster of 72 cases.

K-means cluster. Next, a cluster analysis of k-means was conducted. Specifically, three-cluster solutions were carried out to determine the pattern of motivation profiles in each cluster. In these analyses, we used the extracted initial cluster centers from the hierarchical cluster analysis as non-random starting points in the k-means clustering procedure. The final centroids in the k-means analysis led us to discard the two-cluster solution because it was not able to identify a difference between the scores for self-determined motivation. The difference was not significant in intrinsic motivation and identified regulation.

3.2.3 Descriptive Statistics of Motivational Profiles

The three-cluster solution was also supported by the results of the analyses indicating good agreement between Ward's method and K-means clustering. In the next step, the characteristics of each group were described (see Figure 4).
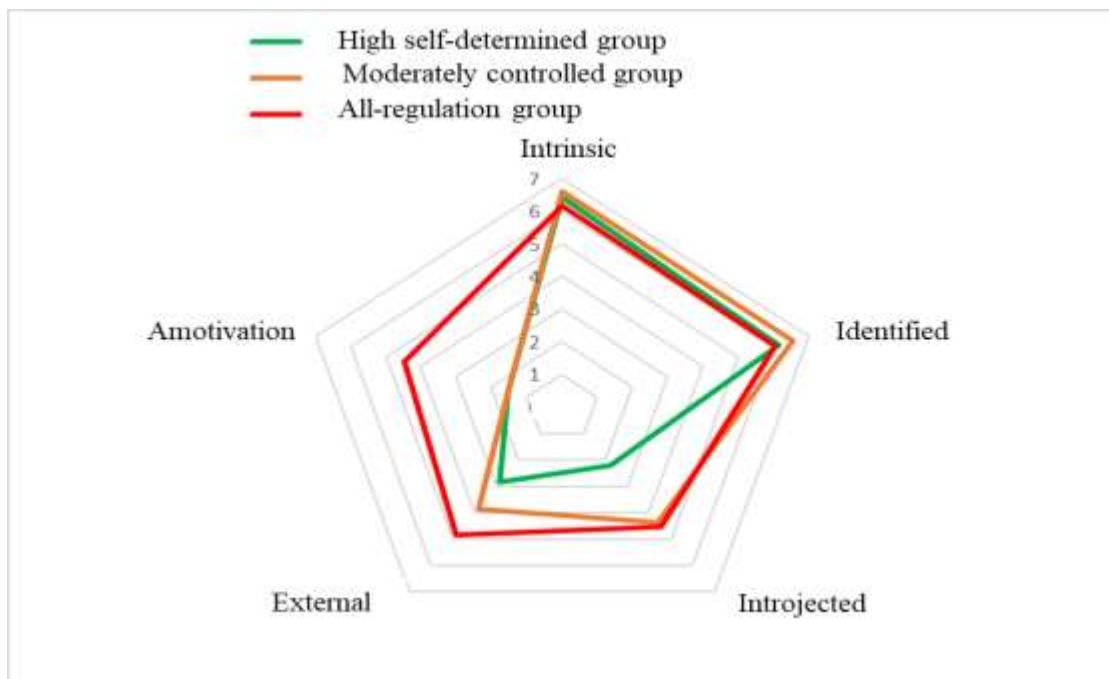
Figure 4. Behavior regulation subscales as a function of cluster analysis.

The first cluster included 43% of the sample ($n = 91$) and was labeled the "self-determined group" (see Figure 4). This group included football players characterized by high levels of self-determination (i.e., intrinsic motivation and identified regulation) and low levels of controlled motivation (i.e., introjected regulation and external regulation) and amotivation. The second group was labeled the "moderately controlled group" which represented 33% of the sample ($n = 70$). The players in this group showed high levels of self-determined motivation, moderate levels of controlled motivation, and low levels of amotivation. Finally, the participants in the third group represented 24% of the sample ($n = 50$) and included football players who displayed high levels of all autonomous and controlled motivation and amotivation compared with the other groups. Thus, this group was labeled the "all-regulation group".

3.2.4 The Differences between Groups of All Variables in The Study

The means and standard deviations in the behavior regulation subscales for the three groups are shown in Table 4, which represents each motivational behavior regulation, BPN satisfaction, and competitive anxiety. A MANOVA was conducted to determine whether significant differences existed between the cluster groups in their motivation scores. The results showed significant differences in the clustering variables (Pillai's trace $= 0.948$; $p < .001$) between the groups. In summary, the pattern of significant differences between the cluster groups supports the interpretation of the three-cluster solution.

Table 4.

Descriptive Statistics of the Study Variables as a Function of Clusters

Variables	High Self-Determined (n = 91) M (SD)	Moderately Controlled (n = 70) M (SD)	All-Regulation (n = 50) M (SD)	F	p
Autonomy Satisfaction	5.14 (1.23)	5.49 (1.17)	5.48 (1.06)	2.22	.111
Competence Satisfaction	6.01 (1.01)	6.39 (.66)	5.89 (1.04)	5.25	.006
Relatedness Satisfaction	5.64 (1.21)	5.73 (1.24)	5.77 (1.07)	.21	.804
Somatic Anxiety	1.36 (.47)	1.40 (.53)	1.62 (.72)	3.59	.029
Worry	1.88 (.68)	2.15 (.88)	2.08 (.86)	2.32	.100
Concentration Disruption	1.46 (.52)	1.50 (.64)	1.91 (.70)	9.51	.001

Note. M: mean; *SD*: standard deviation. ** p <, 05; ** p <001*

A MANOVA was conducted to determine whether the three cluster groups were related to basic psychological needs satisfaction and competitive anxiety. The procedure was carried out using the previous variables. Then individual ANOVAs were conducted using the variables containing statistically significant differences between the clusters (Pillai's trace = 0.372; $p < .001$). Because the MANOVA was $p < .05$, we analyzed the individual ANOVAs that showed significant differences in the variables of competence satisfaction and somatic anxiety as well as concentration disruption. The results of the ANOVA using the cluster as the between-subject factor and somatic anxiety as the dependent variable revealed no differences among the clusters: F (3, 59) = .31, p = .046. In concentration disruption, F (9, 51) = .37, p = .00. In competence satisfaction, F (5, 25) = .84, p = .06. Table 4 shows the results of the MANOVA using the Bonferroni post-hoc test to compare the groups.

Frist, the moderately controlled group ($M = 6.39$, $SD = .66$), F (5,179) = 4,396, $p <$ .001) showed significantly higher means in competence satisfaction compared with the high self-determined group ($M = 6.01$, $SD = 1.01$) and the all-regulation group ($M = 5.89$, $SD = 1.04$). Second, the all-regulation group ($M = 1.62$, SD = .72), F (3,516) = 1,120, $p <$ .001) showed significantly higher means in somatic anxiety compared with the high self-determined group ($M = 1.36$; $SD = .47$) and the moderately controlled group ($M = 1.40$, SD = .53). Third, the all-regulation group ($M = 1.91$, $SD = .70$,), F (9,545) = 3,545, $p < .001$) showed significantly higher means in concentration disruption than the moderately controlled group ($M = 1.50$, $SD = .64$) and high self-determination group ($M = 1.46$, $SD =$ .52). No significant differences were found in autonomy, relatedness satisfaction, and competitive anxiety.

Chapter 4

Discussion

The main objective of this research was to obtain a comprehensive understanding of young football players' motivation and competitive anxiety, the association between these two variables, and the basic psychological needs satisfaction in the context of Saudi Arabia using the SDT approach (Deci & Ryan, 1985). Study 1 addressed the methodological objective of providing valid and reliable instruments to measure motivational and emotional constructs within the Saudi context (i.e., BRSQ and SAS-2). The results of using each instrument revealed that the findings were valid enough to indicate that the BRSQ and the SAS-2 are appropriate for application in research on socio-cultural factors in the context of Saudi Arabia.

Study 2 included two objectives. The first objective was to describe motivation, BPN satisfaction, and competitive anxiety among young football players in Saudi Arabia. The results showed that the players recognized the concepts of motivation based on SDT. The results showed high values in intrinsic motivation and identified regulation, intermediate values in external and introjected regulations above the central value, and low values in amotivation. The results also identified a high level of BPN satisfaction (i.e., autonomy, competence, and relatedness). Regarding competitive anxiety, the young Saudi football players who participated in this study showed moderate levels of worry and low levels of somatic anxiety and concentration disruption.

The second objective of Study 2, (i.e., the third objective of this thesis) was to conduct a cluster analysis based on behavioral regulation to explore the relationship between behavioral regulation, BPN satisfaction, and competitive anxiety among young football players in Saudi Arabia. The players were classified according to three motivational profiles (i.e., a high self-determined group, a moderately controlled group, and an all high-regulation group) to which a cluster analysis was applied. The results of the cluster analysis were based on SDT, and they revealed differences in competence satisfaction in the moderately controlled group and somatic anxiety and concentration disruption in the all high-regulation group. No significant differences were found between groups regarding the other three variables: autonomy, relatedness satisfaction, and worry in competitive anxiety.

4.1 Psychometric Properties of Arabic Versions of BRSQ and SAS-2 in the Saudi Context

Based on the results of the data analysis, we found it appropriate to provide supporting evidence for the BRSQ and SAS-2 validity as prescribed by the Standards for Educational and Psychological Testing (American Educational Research Association [AERA], American Psychological Association [APA], and National Council on Measurement in Education [NCME], 2014). To relate the results to the Arabic version, the results of the CFA analysis generally showed satisfactory indices in both the BRSQ and the SAS-2, which validated our use of these instruments in study 1. Previous research also supported the validity of the BRSQ in Portuguese (Monteiro, Moutai, & Cid, 2018) and Spanish (Viladrich et al., 2011) as well as the validity of the SAS-2 in Spanish, Portuguese, and Flemish (Ramis,Torregrosa, Viladrich, & Cruz, 2010; Ramis, Viladrich, Sousa, &

Jannes, 2015), Malaysian (Hashim, Shaharuddin, Hamidan, & Grove, 2017), and Korean (Cho, Choi, Eklund, & Paek, 2018).

4.1.1 Validation of the BRSQ in the Saudi Context

The descriptive results revealed higher mean values for the most autonomous types of motivation (i.e., intrinsic motivation and identified regulation), which suggests that the players considered these types of motivation to be more in line with their participation motives.

Regarding the reliability of the BRSQ, the identified, introjected, and amotivation factors displayed good values in composite reliability. The results in the reliability analysis in our study 1 showed minor problems in the factors of intrinsic motivation and external regulation. The results of the reliability between the items were acceptable. High loads were shown in the expected factor and Cronbach's alpha values, which exceeded the five subscales or were at the limit of the criteria for use (Nunnally, 1978) despite the small number of items that constituted each subscale. However, the alpha failed to be an adequate predictor of reliability in scales with only a few items, such as the those used in our study. However, according to Schmitt (1996), when a scale presents other desirable psychometric properties, a low alpha coefficient may not be a major obstacle to its use (Alcaraz, Viladrich, Torregrosa & Ramis, 2015).

In Londsdale et al. (2008), the authors began the BRSQ validation using a preliminary version of the questionnaire, and the initial model included five factors and 20 items. In this study, the integrated factor of the BRSQ was not used because it was assumed that the players would describe the items regarding one form of regulation or another. Moreover, integrated regulation items did not emerge as essential reasons for self-

determination in some previous studies (Ullrich-French & Cox, 2009). The original questionnaire (BRSQ; Lonsdale et al., 2008) was validated without an integrated factor, and the initial model explored five factors and 20 items. Furthermore, the distribution of the scores recorded using these scales indicated that the young people had stronger intrinsic motivation compared with extrinsic motivation, and they were motivated by types of regulation that included the attribute of internal causality.

Using CFA, we identified five factors: intrinsic motivation, identified, introjected, and external regulations, and amotivation. The reason was that all but one of the items utilizing these concepts relied on coherent content factors. We assumed that it was necessary to analyze each of the five factors separately by eliminating those showing weakness, which resulted in low factor-indicated cross-loadings. We retained only the factors that guaranteed the evaluation of the underlying constructs, thus reducing the number of items on the questionnaire ($n = 19$) and obtaining excellent adjustment values for the model. All previously published factor analyses of BRSQ have been CFA-based. Moreover, all have displayed acceptable fit indexes and good factor interpretability (Lonsdale et al., 2008; Monteiro et al., 2018; Viladrich et al., 2011).

4.1.2 Validation of the SAS-2 in the Saudi Context

The descriptive results revealed higher mean values for worry, indicating that this factor of competitive anxiety was regarded by the participants as the most frequent negative effect. In terms of reliability of SAS-2, all three factors displayed good values in composite reliability. The CFA showed that the three competitive anxiety factors were the highest in the models proposed in this study. Furthermore, all the items in the SAS-2 converged on their respective factors with loadings > .50. This result can be considered evidence of

convergent validity in the subscales (Chen, 2007; Kline, 2016). The results of this study are in line with those reported in several previous studies that used different versions of the SAS-2: the original version (Smith et al., 2006); the Spanish, Portuguese, and Flemish versions (Ramis et al., 2010; Ramis et al., 2015); the Malaysian version (Hashim et al., 2017); and the Korean version (Cho et al., 2018).

4.2 Motivation, BPN, and Competitive Anxiety among Young Saudi Football Players

Regarding the theoretical model, the results provided evidence of the satisfactory reliability of the Arabic versions of the BRSQ and SAS-2 scales. Considering that competitive anxiety is commonplace among athletes, and it affects both their performance and their well-being (Martens et al., 1990), it would be interesting to determine the effectiveness of the SAS-2 in assessing novice athletes and athletes at more advanced levels of competition as well as to continue reevaluating its properties.

According to the different forms of motivation, our results are in line with those of previous studies (e.g., Kolayiş & Çelik, 2017; Ponseti et al., 2019). Specifically, we found higher mean values for the most self-determined (i.e., intrinsic motivation and identified regulation) types of motivation compared with controlled motivation (i.e., introjected regulation and external regulation) and amotivation, which suggests that the participants considered these types of motivation to be more crucial in playing football. This result was expected because of the number of participants and clubs that participated in the study. Regarding BPN satisfaction, the young Saudi football players were found to have high levels of autonomy, competence, and relatedness satisfaction. With regard to the practical application of these factors, these players could be compared with elite youth. Previous

studies (e.g., Adie, Duda & Ntoumanis, 2012; Chamorro et al., 2016) reported high levels of satisfaction of the BPN of competence and relatedness satisfaction and moderate levels of autonomy satisfaction in young football players. The reason could be that young Saudi football players value choice and decision-making, which highlights their need for autonomy in sustaining their feelings of positivity.

Regarding the descriptive results for competitive anxiety, previous research (e.g., Grossbard et al., 2009; Ramis et al., 2017) reported generally low scores among young athletes. We found that young Saudi football players scored relatively higher in worry than in somatic anxiety and concentration disruption. Compared with competitive anxiety factors, the scores in worry were above the mid-range, suggesting that worry constitutes the highest level of competitive anxiety among football players. In relation to the age categories, most participants were at the beginning of the senior level, the result indicates their anticipation of potential negative consequences of competition.

4.3 Relationship between Motivation, BPN, and Competitive Anxiety among Young Saudi Football Players

According to our results, the three combinations of the various forms of motivation (i.e., high self-determined, moderately controlled, and all-regulation) were used to determine their patterns of importance. Previous research identified different clusters of motivation, highlighting the role of the SDT in the measurement of the variables of BPN satisfaction and competitive anxiety (Chamorro et al., 2016; Gillet et al., 2012). Our findings suggest that it is important to investigate the combined effects of self-determined and controlled motivation to better understand the effects of the quality of motivation and BPN on Saudi football players using the SDT approach as well as identifying competitive

anxiety as a contextual indicator of ill-being. These findings are aligned with Gillet et al. (2012), who suggested that the combination of self-determined and controlled motivation predicts high levels of motivation, which is often translated into the satisfaction of BPN, and it may determine the competitive anxiety levels of young Saudi football players (Gillet, Vallerand, & Paty, 2013). Players who were assessed as highly self-determined were more internally motivated compared with the other two groups (i.e., moderately controlled and all-regulation) of players based on the validated instruments. This finding is consistent with the results of other studies on self-determination and motivation, (e.g., Gillet et al., 2012).

Regarding competence levels, our findings revealed that higher levels of BPN satisfaction were noted in the moderately controlled group, followed by the highly self-determined group. The level of competence satisfaction was probably higher in the moderately controlled group because the athletes in this group might have slightly lower expectations compared with the highly self-determined group; thus, their performance was possibly evaluated less strictly (Gillet et al., 2012). Another factor may have been that the athletes in the highly self-determined group placed high demands on themselves to prove their level of competence; thus, the evaluation was based on potential performance (i.e., an ideal scenario) rather than actual performance (i.e., on-the-pitch reality). This result might also be related to competitiveness, in which decreased BPN satisfaction has been found to motivate improvement (Ullrich-French & Cox, 2009).

Players' perceived levels of concentration disruption during competition is another aspect of BPN competence satisfaction (Chamorro et al., 2016). Because of the pressure to excel and the inherent value placed on each score in football (i.e., positive and negative), a single lapse in concentration could significantly alter the outcome of each competition. The

analysis of the self-reported responses revealed that the all-regulation high group was more prone to concentration disruption compared with the other two groups. This finding could have been the result of a lower level of motivation or a sense that the level of overall competence was not high enough to merit full-time attention to the game. In the highly self-determined group, it is possible that admitting to lapses in concentration could have been perceived internally or externally as a decreased level of competence (Ponseti et al., 2019).

Regarding competitive anxiety, the young Saudi football players who were highly self-determined indicated less somatic anxiety compared to the all-regulation group, but the moderately controlled group was just slightly higher than the other two groups. This finding that the high self-determined group was less prone to these sensations may have been due to higher levels of confidence in their skills, competence, or competitiveness, which limited the experience of these feelings because they were perceived as forms of weakness or as granting an advantage to opponents (Kolayiş & Çelik, 2017). Accordingly, the all high-regulations group showed enhanced somatic anxiety and concentration disruption levels, indicating that their heightened state of controlled regulation and motivation may induce anxiety. The lower levels of somatic anxiety and concentration disruption observed in the self-determined group further reinforced the view that less controlled regulation prevents athletes' competitive anxiety (Ramis et al., 2017).

4.4 Implications

Regarding the objective of validating the BRSQ and the SAS-2, the results showed that these two instruments could be applicable in the Arabic context, which was indicated by the good-fitting indices based on the CFA. Furthermore, both the analytic approach used

in our study and our results indicate the need for a fresh interpretation of the findings of previous studies in this area, which have relied on the traditional use of CFA to improve Arabic studies by comparing the psychological variables in different cultures (e.g., Bayyat et al., 2016; Mnedla et al., 2018). It is also important to highlight that the BRSQ and the SAS-2 are now available as an Arabic instrument that assesses the five types of motivation underlying the SDT (Deci & Ryan, 2008). In addition, the three factors of competitive anxiety as a contextual indicator of ill-being (Martens, 1977) in the sports context serve to fill a research gap in previous studies on sports psychology that has so far existed.

One implication of our findings pertains to the effect of descriptive objectives on maintaining the quality of the motivation for continuing to foster young talent in a sports career. By using instruments in motivational and emotional constructs in the Saudi context, coaches will be able to better understand how athletes regulate their behavior. This understanding will provide coaches with the means to tailor their interventions to the requirements and limitations of each group (i.e., individual or team sports). Regarding the relevance of this research, coaches and instructors of young players could use the results of this study to adapt their approach to each player (Alcaraz et al., 2015; Ramis et al., 2017). In our sample, personal concerns about competence and anxiety appeared to take precedence over relatedness, which could be defined as teamwork or individual interventions. Regarding players who show limited competence, the focus should be on maximizing their connection to the game and determining what they can do well. In players with high levels of BPN competence satisfaction, coaches and instructors could focus on helping these players to find positive aspects of all their performances in order to overcome the tendency to be self-critical. Lastly, although football is decidedly a team sport, it is

played by individuals with unique characteristics. Approaching all players in the same way could be much less productive than establishing personalized approaches that address both variables.

Regarding the final objective, we investigated the relationship between motivation, competitive anxiety, and BPN satisfaction. The goal of this objective was to help sports psychologists and coaches develop exercises and to provide a clear comprehension of the mental variables to improve the well-being of Saudi football players. In Saudi Arabia, a competitive sports environment is expected, especially one that attributes importance to behavioral regulation and its relationship to BPN satisfaction and competitive anxiety, which is associated with better adaptive motivational profiles. Cluster analysis is more useful in differentiating between individuals' motivations than categorizing them as high or low self-determined (Gillet et al., 2012). The differences in motivation profiles among the cluster groups were related to competence satisfaction and somatic anxiety. The concentration disruption showed that relative levels of self-determination provided information that differed from the motivation profile approach, which identified unique combinations of motivation regulation and its relationship to BPN satisfaction and competitive anxiety (Ullrich-French & Cox, 2009).

4.5 Limitations and Future Research

The objective of study 1 in this thesis was to validate the BRSQ and SAS-2 in the Saudi Arabian cultural context. This objective was achieved, as both instruments showed translational consistency and validity. However, additional studies will be needed to replicate the reliability of the results of the present study and to strengthen the validity of each instrument in the cultural context. We also recommend that future studies address the

limitations of this thesis, which include invariance across age groups and different sports. The results of such future studies would contribute to developing sports in achieving Saudi Vision 2030. These studies could validate the questionnaires using different psychological variables to reduce the gap between sports and research and to improve national sports projects in the future.

In our research, all the participants were male, which may not have been representative of the population of female athletes in Saudi Arabia. Additionally, despite the use of SDT, cross-cultural comparisons may not be possible because of the divergent socio-cultural values regarding individuality and relatedness, among others (Ramiz et al., 2015; Monteiro et al., 2018). Although further research could help in creating a general framework of motivation, BPN competence and relatedness satisfaction, the reliance on self-reported assessments may be socially or culturally influenced, thus reducing the insights provided by the application of SDT. It is important to encourage players to be self-determined and self-regulated, thus contributing to the development of intrinsic motivation, the motivational climate, and the role of coaches and peers (Torregrosa, Sousa, Viladrich & Villamarín, 2008; Torregrosa, Viladrich, Ramis, Azócar, Latinjak, & Cruz, 2011). We recommend conducting further research on sports psychology to gain a comprehensive understanding of the psychological variables in individual and team sports, including female athletes, to highlight the challenging psychological issues that affect young players in Saudi Arabia who wish to continue their careers in sports.

Chapter 5

Conclusions

This thesis had the aim to obtain a comprehensive understanding of young football players' motivation, competitive anxiety, and the association between these two variables with basic psychological needs satisfaction in the Saudi Arabian context using a self-determination theory approach. Within this purpose, we set three specific objectives: (1) provide valid and reliable instruments for measuring motivational and emotional constructs in the Saudi football context (i.e., BRSQ and SAS-2); (2) describe the motivation, basic psychological needs satisfaction, and competitive anxiety among young football players in Saudi Arabia; and (3) explore the relationship between motivation, basic psychological needs satisfaction, and competitive anxiety among young football players in Saudi Arabia based on behavioral regulations assessment derived from cluster analysis. Altogether, our research lead us to the following conclusions:

- Regarding the methodological level, the Arabic versions of BRSQ and SAS-2 had acceptable psychometric properties and therefore these questionnaires are validated and now available to be administered to assess the behavioral regulations and competitive anxiety of young Saudi football players.

- At a descriptive level, our research provides initial support for the importance of self-determination theory in the Saudi context. Specifically, the young Saudi football players showed high values in intrinsic motivation and identified regulation, values slightly above the midpoint of the scale in external and introjected regulations, and low values in amotivation, along

with high and moderately high levels of satisfaction of the three basic psychological needs. According to the tenets of self-determination theory, the satisfaction of these three psychological needs and the experience of self-determined motivation would suggest that our participants were having well-being and optimal functioning in their Saudi football teams. Regarding competitive anxiety, players experienced moderate levels of worry and low levels of somatic anxiety and concentration disruption, which is in line with previous literature of competitive anxiety.

- At the relational level, based on the results of this research, we conclude that young Saudi football players grouped in three different motivational profiles: a self-determined motivation profile, a moderately controlled motivation profile, and an all-regulations profile. These groups differed significantly with respect to the types of motivation and some variables of this study. Specifically, the moderately controlled group showed significantly higher means in the satisfaction of competence, while the all-regulations group showed significantly higher means in both somatic anxiety and concentration disruption. Our research indicates that the combination of high self-determined and moderately controlled motivation might be associated with high BPN satisfaction and low competitive anxiety.

- Finally, regarding the applied level, the motivational profiles identified in our research are a starting point to develop future tailored psychological interventions aimed at increasing the quality of the motivation and managing the competitive anxiety of young Saudi football players.

References

Adie, J. W., Duda J. L., & Ntoumanis, N. (2012). Perceived coach-autonomy support, basic need satisfaction and the well-and ill-being of elite youth soccer players: a longitudinal investigation. *Psychology of Sport and Exercise, 13*, 51–59. doi.org/10.1016/j.psychsport.2011.07.008

Alcaraz, S., Viladrich, C., Torregrosa, M., & Ramis, Y. (2015). Club and players' pressures on the motivation, vitality and stress of development coaches. *International Journal of Sports Science and Coaching, 10*, 365-378. doi.org/10.1260/1747-9541.10.2-3.365

Aldenderfer, M. S., & Blashfield, R. K. (1984). *Cluster analysis*. Beverly Hills, CA: Sage.

Alqattan, A. (2018, March 05). Is it time for screening Saudi football academies ?. Asharq Al-awsat, pp.14342. Retrieved from https://aawsat.com/node/1193981

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (1999). *Standards for educational and psychological testing.* Washington, D.C.: American Educational Research Association.

Appleton, P. R., & Hill, A. P. (2012). Perfectionism and athlete burnout in junior elite athletes: the mediating role of motivation regulations. *Journal of Clinical Sport Psychology, 6*, 129–145. doi.org/10.1123/jcsp.6.2.129

Bayyat, M. M., Almoghrabi, A. H., & Ay, K. M. (2016). Preliminary Validation of an
    Arabic Version of the Sport Motivation Scale (SMS-28). *Asian Social Science, 12*,
    186-196. doi. org/10.5539/ass.v12n7p186

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. New York, NY:
    The Gilford Press.

Chamorro, J. L., Torregrosa, M., Oliva, D. S., Calvo, T. G., & Leon, B. (2016). Future
    achievements, passion, and motivation in the transition from junior-to-senior sport
    in Spanish young elite football players. *The Spanish Journal of Psychology, 19*, 1-
    12. doi.org/10.1017/sjp.2016.71

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement
    invariance. *Structural Equation Modeling: A Multidisciplinary Journal, 14*, 464-
    504. doi.org/10.1080/10705510701301834

Cho, S., Choi, H., Eklund, R. C., & Paek, I. (2018). Validation and Reliability of the Korean
    Version of the Sport Anxiety Scale-2. *Journal of Human Kinetics, 61*, 217-225. doi.
    org/10.1515/hukin-2017-0138

Clancy, R. B., Herring, M. P., & Campbell, M. J. (2017). Motivation Measures in Sport: A
    Critical Review and Bibliometric Analysis. *Frontiers in Psychology, 8*, 348.
    doi.org/10.3389/fpsyg.2017.00348

Clatworthy, J., Buick, D., Hankins, M., Weinman, J., & Horne, R. (2005). The use and
    reporting of cluster analysis in health psychology: A review. *British Journal of
    Health Psychology, 10*, 329-358. doi.org/10.1348/135910705X25697

Cook, R. D. (1977). Detection of influential observation in linear regression. *Technometrics, 19*, 15-18. doi.org/10.1080/00401706.1977.10489493

Corman, A, M. (2003). *Dictionary of psychology.* Oxford, UK: Oxford University Press.

Deci, E. L., Olafsen, A. H., & Ryan, R. M. (2017). Self-determination theory in work organizations: The state of a science. *Annual Review of Organizational Psychology and Organizational Behavior, 4*, 19-43. doi.org/10.1146/annurev-orgpsych-032516-113108

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior.* New York, NY: Plenum.

Giacobbi, P. R., & Weinberg, R. S. (2000). An examination of coping in sport: Individual trait anxiety differences and situational consistency. *The Sport Psychologist, 14*, 42-62. doi.org/10.1123/tsp.14.1.42

Gillet, N., Berjot S., Vallerand R. J., Amoura S., & Rosnet, E. (2012). Examining the motivation-performance relationship in competitive sport: A cluster-analytic approach. *International Journal of Sport Psychology, 43*, 79–102.

Gillet, N., Vallerand R. J., & Paty, B. (2013). Situational motivational profiles and performance with elite performers. *Journal of Applied Social Psychology, 43,* 1200–1210. doi.org/10.1111/jasp.12083

Gledhill, A., Harwood, C., & Forsdyke, D. (2017). Psychosocial factors associated with talent development in football: A systematic review. *Psychology of Sport and Exercise, 31*, 93-112. doi.org/10.1016/j.psychsport.2017.04.002

González, L., Tomás, I., Castillo, I., Duda, J. L., & Balaguer, I. (2017). A test of basic psychological needs theory in young soccer players: time-lagged design at the individual and team levels. *Scandinavian Journal of Medicine & Science in Sports, 27*, 1511-1522. doi.org/10.1111/sms.12778

Green, S. B., & Yang Y. (2009). Commentary on coefficient alpha: A cautionary tale. *Psychometrika, 74*, 121-135.

Grossbard, J. R., Cumming, S. P., Standage, M., Smith, R. E., & Smoll, F. L. (2007). Social desirability and relations between goal orientations and competitive trait anxiety in young athletes. *Psychology of Sport and Exercise, 8*, 491-505. doi.org/10.1016/j.psychsport.2006.07.009

Grossbard, J.R., Smith, R.E., Smoll, F.L., & Cumming, S.P. (2009). Competitive Anxiety in young athletes: Differentiating somatic anxiety, worry and concentration disruption. *Anxiety, Stress and Coping, 22*, 153-166. doi.org/10.1080/10615800802020643

Grossmann, B., & Lames, M. (2015). From talent to professional football–youthism in German football. *International Journal of Sports Science & Coaching, 10*, 1103-1113. doi.org/10.1260/1747-9541.10.6.1103

Guay, F., Vallerand, R. J., & Blanchard, C. (2000). On the assessment of situational intrinsic and extrinsic motivation: The Situational Motivation Scale (SIMS). *Motivation and Emotion, 24*, 175-213.

Hackfort, D., & Spielberger, C. D. (1989). *Anxiety in sports: An international perspective*. The Series in health psychology and behavioral medicine. New York, NY: Hemisphere Pub. Corp.

Hambleton, R.K. (2005). Issues, designs and technical guidelines for adapting tests into multiple languages and cultures. In R.K. Hambleton, P.F. Merenda and C.D. Spielberger (Eds.): *Adapting educational and psychological tests for cross-cultural assessment* (pp. 3-38). Mahwah, NJ: Lawrence Erlbaum Associates.

Hashim, H. A., Shaharuddin, S. S., Hamidan, S., & Grove, J. R. (2017). A multisample analysis of psychometric properties for the Malaysian adapted Sport Anxiety Scale-2 among youth athletes. *Psychological Reports, 120*, 141-157. doi.org/10.1177/0033294116685868

Jones, K. A., Smith, N. C., & Holmes, P. S. (2004). Anxiety symptom interpretation and performance predictions in high-anxious, low-anxious and repressor sport performers. *Anxiety, Stress & Coping, 17*, 187-199. doi.org/10.1080/10615800410001710870

Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). New York, NY: Guilford Press.

Kolayiş, H., & Çelik, N. (2017). Examination of motivation, anxiety and imagery levels of footballers from different leagues. *Revista de Psicología del Deporte, 26*, 23-27.

Lonsdale, C., Hodge, K., & Rose, E. A. (2008). The Behavioral Regulation in Sport Questionnaire (BRSQ): Instrument Development and Initial Validity Evidence.

Journal of Sport and Exercise Psychology, 30, 323-355. doi.org/10.1123/jsep.30.3.323

Lonsdale, C., Hodge, K., & Rose, E. (2009). Athlete burnout in elite sport: A self-determination perspective. *Journal of Sports Sciences, 27*, 785-795. doi.org/10.1080/02640410902929366

Marsh, H. W., Hau, K.-T., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis-testing approaches to setting cutoff values for fit indexes and dangers in over generalizing Hu and Bentler's(1999) findings. *Structural Equation Modeling, 11*, 320–341.

Martens, R. (1977). *Sport Competition Anxiety Test*. Champaign, IL: Human Kinetics.

Martens, R., Burton, D., Vealey, R. Bump, L., & Smith, D. (1990). *Competitive Anxiety in Sport*. Champaign, IL: Human Kinetics.

McAuley, E., Duncan, T., & Tammen, V. V. (1989). Psychometric properties of the Intrinsic Motivation Inventory in a competitive sport setting: A confirmatory factor analysis. *Research Quarterly for Exercise and Sport, 60*, 48-58. doi.org/10.1080/02701367.1989.10607413

Mnedla, S., Bragazzi, N. I., Chiorri, C., Elloumi, A., & Briki, W. (2018). Validation of the Arabic-Tunisian Version of the French Competitive State Anxiety Inventory-2 Revised (CSAI-2R): insights from an exploratory factor analysis. *Acta Medica Mediterranea, 34*, 377-382.

Monteiro, D., Moutão, J. M., & Cid, L. (2018). Validation of the Behavioural Regulation in Sport Questionnaire in Portuguese athletes. *Revista de Psicología del Deporte, 27*, 145-153.

Morris, L. W., Davis, M. A., & Hutchings, C. H. (1981). Cognitive and emotional components of anxiety: Literature review and a revised worry–emotionality scale. *Journal of Educational Psychology, 73*, 541-555. doi.org/10.1037/0022-0663.73.4.541

Morris, L. W., Harris, E. W., & Rovins, D. S. (1981). Interactive effects of generalized and situational expectancies on the arousal of cognitive and emotional components of social anxiety. *Journal of Research in Personality*, *15*, 302-311. doi.org/10.1016/0092-6566(81)90028-3

Morris, R., Tod, D., & Eubank, M. (2017). From youth team to first team: An investigation into the transition experiences of young professional athletes in soccer. *International Journal of Sport and Exercise Psychology, 15*, 523-539. doi.org/10.1080/1612197X.2016.1152992

Muthén, L. K., & Muthén, B. O. (1998–2012). *Mplus user's guide* (7th ed.). Los Angeles, CA: Author.

Nunnally, J.C. (1978). *Psychometric theory* (2nd ed.). New York, NY: McGraw-Hill

Papaioannou, A. G., Schinke, R. J., & Schack, T. (2019). Sport psychology in emerging countries, special section 2: Introduction. *International Journal of Sport and Exercise Psychology, 17*, 1-4. doi.org/10.1080/1612197X.2019.1575071

Patrick, H., & Williams, G. C. (2012). Self-determination theory: its application to health behavior and complementarity with motivational interviewing. *International Journal of Behavioral Nutrition and Physical Activity, 9*, 18.

Pelletier, L. G., Fortier, M. S., Vallerand, R. J., & Briere, N. M. (2001). Associations among perceived autonomy support, forms of self-regulation, and persistence: A prospective study. *Motivation and Emotion, 25*, 279-306.

Pelletier, L. G., Tuson, K. M., Fortier, M. S., Vallerand, R. J., Briere, N. M., & Blais, M. R. (1995). Toward a new measure of intrinsic motivation, extrinsic motivation, and amotivation in sports: The Sport Motivation Scale (SMS). *Journal of Sport and Exercise Psychology, 17*, 35-53. doi.org/10.1123/jsep.17.1.35

Ponseti, F. J., Almeida, P. L., Lameiras, J., Martins, B., Olmedilla, A., López-Walle, J., ... & Garcia-Mas, A. (2019). Self-Determined Motivation and Competitive Anxiety in Athletes/Students: A Probabilistic Study Using Bayesian Networks. *Frontiers in Psychology, 10*. doi.org/10.3389/fpsyg.2019.01947

Quested, E., Ntoumanis, N., Viladrich, C., Haug, E., Ommundsen, Y., Van Hoye, A., & Duda, J. L. (2013). Intentions to drop-out of youth soccer: A test of the basic needs theory among European youth from five countries. *International Journal of Sport and Exercise Psychology, 11*, 395-407. doi.org/10.1080/1612197X.2013.830431

Ramis, Y. (2012). *La Ansiedad Competitiva en el Deporte de Iniciación: Un Enfoque desde la Teoría de la Autodeterminación* (Doctoral dissertation). Universitat Autònoma de Barcelona. Retrieved from https://hdl.handle.net/10803/117664

Ramis, Y., Torregrosa, M., Viladrich, C., & Cruz, J. (2010). Adaptation and validation of the Spanish version of the Sport Anxiety Scale SAS-2 for young athletes. *Psicothema, 22*, 1004-1009.

Ramis, Y., Torregrosa, M., Viladrich, C., & Cruz, J. (2017). The effect of coaches' controlling style on the competitive anxiety of young athletes. *Frontiers in Psychology, 8*, 572. doi.org/10.3389/fpsyg.2017.00572

Ramis, Y., Viladrich, C., Sousa, C., & Jannes, C. (2015). Exploring the factorial structure of the Sport Anxiety Scale-2: Invariance across language, gender, age and type of sport. *Psicothema, 27*, 174-181. doi.org/10.7334/psicothema2014.263

Richer, S. F., & Vallerand, R. J. (1998). Constructiòn et validation de lÈchelle du sentiment d'appartenancesociale [Construction and validation of the perceived relatedness scale]. *Revue Européenne de Psychologie Appliquée, 48*, 129–137.

Riley, A., & Smith, A. L. (2011). Perceived coach-athlete and peer relationships of young athletes and self-determined motivation for sport. *International Journal of Sport Psychology, 42*, 115-133.

Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology, 57*, 749-761. doi.org/10.1037/0022-3514.57.5.749

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54-67. doi.org/10.1006/ceps.1999.1020

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness.* New York, NY: Guilford Publications.

Schinke, R. J., Papaioannou, A. G., & Schack, T. (2016). Sport psychology in emerging countries: An introduction. *International Journal of Sport and Exercise Psychology, 14*, 103-109. doi.org/10.1080/1612197X.2016.1155828

Schmitt, N. (1996). Uses and Abuses of Coefficient Alpha. *Psychological Assessment, 8*, 350-353. doi.org/10.1037/1040-3590.8.4.350

Smith, R. E., Smoll, F. L., Cumming, S. P., & Grossbard, J. R. (2006). Measurement of Multidimensional Sport Performance Anxiety in Children and Adults: The Sport Anxiety Scale-2. *Journal of Sport and Exercise Psychology, 28*, 479-501. doi.org/10.1123/jsep.28.4.479

Smith, R. E., Smoll, F. L., & Schutz, R.W. (1990). Measurement and correlates of sport-specific cognitive and somatic trait-anxiety: The Sport Anxiety Scale. *Anxiety Research, 2*, 263-280. doi.org/10.1080/08917779008248733

Standage, M., Duda J. L., & Ntoumanis, N. (2005). A test of self-determination theory in school physical education. *British Journal of Educational Psychology, 75*, 411–433. doi.org/10.1348/000709904X22359

Sun, H., Li, W., & Shen, B. (2017). Learning in physical education: A self-determination theory perspective. *Journal of Teaching in Physical Education, 36*, 277-291. doi.org/10.1123/jtpe.2017-0067

Torregrosa, M., Sousa, C., Viladrich, C., & Villamarín, F. (2008). El clima motivacional y el estilo de comunicación del entrenador como predictores del compromiso en futbolistas jóvenes. *Psicothema, 20*, 254–259.

Torregrosa, M., Viladrich, C., Ramis, Y., Azócar, F., Latinjak, A. T., & Cruz, J. (2011). Efectos en la percepción del clima motivacional generado por los entrenadores y compañeros sobre la diversión y el compromiso. Diferencias en función de género. *Revista de Psicologia del Deporte, 20*, 243–255.

Ullrich-French, S., & Cox, A. (2009). Using cluster analysis to examine the combinations of motivation regulations of physical education students. *Journal of Sport and Exercise Psychology, 31*, 358-379. doi.org/10.1123/jsep.31.3.358

Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. *Advances in Experimental Social Psychology, 29*, 271-360.doi.org/10.1016/S0065-2601(08)60019-2

Vallerand, R. J. (2007). A hierarchical model of intrinsic and extrinsic motivation for sport and physical activity. In M.S. Hagger, & L.D. Chatzisaraintis (Eds.), *Intrinsic motivation and self-determination in exercise and sport* (pp.255-279). Champaign, IL: Human Kinetics.

Vallerand, R. & Rousseau, F. (2001). Intrinsic and extrinsic motivation in sport and exercise. In R. Singer, A. Hausenblas & M. Christopher (Eds.), *Handbook of sport psychology* (pp. 389-416). New York, NY: Wiley.

Vansteenkiste, M., Ryan, R., & Deci, E. (2008). Self-determination theory and the explanatory role of psychological needs in human well-being. In L. Bruni, F. Comim, & M. Pugno (Eds.), *Capabilities and happiness* (pp. 187-223). Oxford, UK: Oxford University Press.

Vealey, R. S. (1990). Advancements in competitive anxiety research: Use of the Sport Competition Anxiety Test and the Competitive State Anxiety Inventory-2 (CSAI-2). *Anxiety Research, 2*, 243-261.doi.org/10.1080/08917779008248732

Viladrich, C., Appleton, P. R., Quested, E., Duda, J. L., Alcaraz, S., Heuzé, J. P., & et al. (2013). Measurement invariance of the Behavioural Regulation in Sport Questionnaire when completed by young athletes across five European countries. *International Journal of Sport and Exercise Psychology, 11*, 384-394. doi.org/10.1080/1612197X.2013.830434

Viladrich, C., Torregrosa, M., & Cruz, J. (2011). Psychometric quality supporting the Spanish adaptation of the behavioral regulation in sport questionnaire. *Psicothema, 23*, 786–794.

Ward, J. H. (1963). Hierarchical Grouping to Optimize an Objective Function. *Journal of the American Statistical Association, 58*, 236–244. doi.org/10.2307/2282967

Williams, A. M., & Reilly, T. (2000). Talent identification and development in soccer. *Journal of Sports Sciences, 18*, 657-667. doi.org/10.1080/02640410050120041

The Arabic version of the Behavioral Regulation Sport Questionnaire (BRSQ)

صحيح تماماً		ليس صحيحاً ولا خاطئاً		غير صحيح تماماً			أمارس كرة القدم ...	م
7	6	5	4	3	2	1	لأنني استمتع بها.	1
7	6	5	4	3	2	1	لأنها تعتبر جزء مني.	2
7	6	5	4	3	2	1	لأنها فرصة لأصبح الشخص الذي أتمناه.	3
7	6	5	4	3	2	1	لأنني سأشعر بالخجل إن تركتها.	4
7	6	5	4	3	2	1	على الرغم من أنني لا أعرف لماذا أفعل ذلك.	5
7	6	5	4	3	2	1	لأنني أشعر أنني سأفشل إن تركتها.	6
7	6	5	4	3	2	1	على الرغم من أنني أتساءل ما الفائدة منها.	7
7	6	5	4	3	2	1	لأن ما أقوم به في هذه الرياضة هو تعبير صريح عني.	8
7	6	5	4	3	2	1	لأنها بالنسبة لي رياضة تمنحني فوائد هامة.	9
7	6	5	4	3	2	1	لأنه إذا لم أفعل هذا فلن يرضى عني الآخرون.	10
7	6	5	4	3	2	1	لأنها تعجبني.	11
7	6	5	4	3	2	1	لأنني أجد نفسي مضطراً للاستمرار فيها.	12
7	6	5	4	3	2	1	على الرغم من أنني أتساءل لماذا ما زلت مستمراً فيها.	13
7	6	5	4	3	2	1	لأنني أشعر بتحفيز من قبل الآخرين للاستمرار في القيام بذلك.	14
7	6	5	4	3	2	1	لأن الآخرين يلحّون عليّ أن أفعل ذلك.	15
7	6	5	4	3	2	1	لأنها مسلية.	16
7	6	5	4	3	2	1	لأنها تعلمني الانضباط الذاتي.	17
7	6	5	4	3	2	1	لأنني أشعر أني مذنب.	18
7	6	5	4	3	2	1	لأنني أجدها رائعة.	19

صحيح تماماً		ليس صحيحاً ولا خاطئاً		غير صحيح تماماً			أمارس كرة القدم ...	م
7	6	5	4	3	2	1	لأني أقدر فوائد هذه الرياضة.	20
7	6	5	4	3	2	1	على الرغم من أنني أتساءل لماذا أقوم بذلك.	21
7	6	5	4	3	2	1	لأنها وسيلة جيدة لتعلّم أشياء يمكن أن تفدني في حياتي.	22
7	6	5	4	3	2	1	لإرضاء الناس الذين يرغبون في أن أمارسها.	23
7	6	5	4	3	2	1	لأنها تتيح لي أن أعيش وفقا لقيمي (على سبيل المثال التعايش مع المجهود والمنافسة والرفاق...).	24

Note. We recommend excluding the integrated regulation subscale and the item 14 in external regulation, when administrating Arabic version of BRSQ. Key of the questionnaire: Intrinsic motivation (1, 11, 16, 19); Integrated regulation (2, 3, 8, 24); Identified regulation (9, 17, 20, 22); External regulations (10, 14, 15, 23); Introjected regulation; (4, 6, 12, 18); Amotivation (5, 7, 13, 21).

Appendix 2.

The Arabic version of the Sport Anxiety Scale-2 (SAS-2)

كثيراً	بنسبة متوسطة	قليلاً	لا	قبل أو أثناء اللعب...	م
4	3	2	1	أشعر بصعوبة في التركيز على المباراة.	1
4	3	2	1	أشعر بتوتر في جسدي.	2
4	3	2	1	أشعر بالقلق ألا ألعب بشكل جيد.	3
4	3	2	1	أجد صعوبة في التركيز على ما يفترض عليَّ القيام به.	4
4	3	2	1	أشعر بالقلق أنني قد أخيب آمال الآخرين (الزملاء والمدربين وأولياء الأمور، وما إلى ذلك).	5
4	3	2	1	أشعر بالاضطراب في بطني.	6
4	3	2	1	أفقد التركيز في المباراة.	7
4	3	2	1	أشعر بالقلق أن لا أقوم بكل ما يمكن القيام به.	8
4	3	2	1	أشعر بالقلق من أن ألعب بشكل سيء.	9
4	3	2	1	أشعر بعضلاتي ترتجف.	10
4	3	2	1	أشعر بالقلق من "الخطأ أو الفشل " خلال المباراة.	11
4	3	2	1	أشعر بالاضطراب في معدتي.	12
4	3	2	1	لا أستطيع أن أفكر بوضوح خلال المباراة.	13
4	3	2	1	أشعر بتوتر في عضلاتي لأنني عصبي.	14
4	3	2	1	أجد صعوبة في التركيز على ما يطلبه مني مدربي.	15

Note. Key of the scale: Somatic anxiety: 2, 6, 10, 12, 14; Worry: 3, 5, 8, 9, 11;

Concentration disruption: 1, 4, 7, 13, 15.

Appendix 3.

The Arabic version of the Basic Psychological Needs (BPN) satisfaction questionnaires

صحيح تماما		ليس صحيحاً ولا خاطئاً		غير صحيح تماماً			في كرة القدم...	م
7	6	5	4	3	2	1	أستطيع أن أقرر أي أنشطة سوف أتدرب عليها.	1
7	6	5	4	3	2	1	يمكنني أن أقدم رأيي حول المهارات التي سوف أتدرب عليها.	2
7	6	5	4	3	2	1	أشارك لأنني أحب ذلك.	3
7	6	5	4	3	2	1	أشعر بنوع من حرية التصرف.	4
7	6	5	4	3	2	1	لديّ القدرة على اختيار ما أريد.	5
7	6	5	4	3	2	1	أعتقد أنني جيد جدا.	6
7	6	5	4	3	2	1	أشعر بالرضا عن ما يمكنني القيام به.	7
7	6	5	4	3	2	1	أعتقد أنني ماهرٌ جداً.	8
7	6	5	4	3	2	1	أستطيع تطبيق المهارات بعد أن أمارسها لفترة من الوقت.	9
7	6	5	4	3	2	1	أعتقد أنني أقوم بها بطريقة جيدة مقارنة بلاعبين آخرين.	10
7	6	5	4	3	2	1	أستطيع أن العب جيداً.	11
صحيح تماماً		ليس صحيحاً ولا خاطئاً		غير صحيح تماماً			في كرة القدم أشعر أنني...	
7	6	5	4	3	2	1	مـدعـوم.	12
7	6	5	4	3	2	1	مفهـوم.	13
7	6	5	4	3	2	1	مـسمـوع.	14
7	6	5	4	3	2	1	مُقـدَّر.	15
7	6	5	4	3	2	1	واثـق.	16

Note. Key of the questionnaire: Autonomy satisfaction: 1, 2, 3, 4, 5; Competence

satisfaction: 6, 7, 8, 9, 10, 11; Relatedness satisfaction: 12, 13, 14, 15, 16.