



BSc in Psychology
Department of Psychology

**Sport-Related Performance Anxiety: Associations Between
Performance Anxiety and Sport Participation in Adolescent
Dual Career Athletes in Iceland**

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Foreword

Submitted in partial fulfilment of the requirements of the BSc Psychology degree, Reykjavik University, this thesis is presented in the style of an article for submission to a peer-reviewed journal.

This thesis was completed in the Spring of 2021 and may therefore have been significantly impacted by the COVID-19 pandemic. The thesis and its findings should be viewed in light of that.

Abstract

Organized sports demonstrate a more positive influence on youths' well-being than any other type of physical activity. With increasing age and competence, the sports environment may change and become more demanding of an athlete's ability resulting in a level of anxiety that can debilitate athletic performance. The objective of the study was to examine sport-related performance anxiety in dual career athletes in an upper secondary school in Iceland and potential differences by type of sport, genders, and parental support. A sample of 77 athletes (64 males and 13 females) aged between 16 and 19 years participated in the study, representing both individual and team sports. A self-report questionnaire including the Sport Anxiety Scale-2 (SAS-2) was used to assess three distinct aspects of anxiety (somatic anxiety, worry, and concentration disruption). Athletes in individual sports reported higher levels of sport anxiety than athletes in team sports based on the scores of SAS-2. No differences in sport anxiety were found between genders. In addition, correlation between scores of sport anxiety and parental support was non-significant. The findings suggest that anxiety differs in athletes depending on their type of sport.

Keywords: sport anxiety, performance, type of sport, gender, parental support

Útdráttur

Skipulögð íþróttastarfsemi hefur sýnt jákvæðari áhrif á ungmenni en nokkur önnur líkamleg hreyfing. Með hækkandi aldri og aukinni getu, hefur íþrótttaumhverfið tilhneigingu til að reynast kröfuharðara á frammistöðu íþróttafólks. Afleiðingar þess geta aukið kvíða íþróttafólks og hamlað frammistöðu. Markmið rannsóknarinnar var að kanna íþróttatengdan frammistöðukvíða meðal nema á afrekssviði í framhaldsskóla á Íslandi og hvort munur væri til staðar milli tegund íþróttar, kynja og stuðnings foreldra. Úrtakið samanstóð af 77 íþróttaiðkendum (64 körlum og 13 konum) á aldrinum 16 til 19 ára, bæði einstaklings- og liðsíþróttafólki. Sjálfsmatskvarði sem innihélt meðal annars Sport Anxiety Scale-2 (SAS-2) var notaður til að meta þrjá ólíka þætti kvíða (líkamlegan kvíða, áhyggjur og einbeitingartruflanir). Íþróttafólk í einstaklingsíþróttum sýndu hærri stig íþróttakvíða en íþróttafólk í liðsíþróttum byggt á skorum SAS-2. Enginn munur á íþróttakvíða var til staðar milli kynja. Auk þess var engin fylgni til staðar milli stiga SAS-2 og stuðnings foreldra. Niðurstöður benda til þess að kvíði er mismikill hjá íþróttafólki eftir tegund íþróttar.

Lykilord: Íþróttatengdur kvíði, frammistaða, tegund íþróttar, kyn, stuðningur foreldra

Sport-Related Performance Anxiety: Associations Between Performance Anxiety and Sport Participation in Adolescent Dual Career Athletes in Iceland

Organized sports demonstrate a more positive influence on youth's well-being than any other type of physical activity (Eime et al., 2013) by reducing symptoms of depression, increasing self-esteem, and improving social abilities to name a few (Sabiston et al., 2016; Vella et al., 2017). As athletes grow older and enter adolescent years, the sports environment may evolve and become more demanding of an athletes' ability and performance (Ryba et al., 2016). This can be accompanied by anxiety that is often helpful in competing situations but in some cases can debilitate athletic performance (Patel et al., 2010). Thus, despite the benefits of engaging in organized sports, the participation rate of athletes starts to drastically decline in late childhood and continues to do so with age (Zimmermann-Sloutskis et al., 2010). Furthermore, it is noteworthy to mention that the median age of onset for anxiety disorders is 11 years (Kessler et al., 2005).

The anxiety response consists of two distinct components, somatic and cognitive (Smith et al., 1998). Symptoms of somatic anxiety are physiological expressions of anxiety including sweating, abdominal pain, and fatigue whereas cognitive anxiety are psychological expressions of anxiety such as negative thoughts of performance, worry, and lack of concentration (Woodman & Hardy, 2003).

Sport-related performance anxiety is characterized by sensing competitive sport situations or athletic performances as threatening and as a result, feelings of state anxiety will follow (Smith et al., 1990). State anxiety refers to a right here and now feeling of uneasiness and strain that can weaken motor performance, attentional processes, and cognitive functions (Woodman & Hardy, 2001). When an individual suffers from trait anxiety it stems from a personality trait that tends to exhibit higher levels of arousal in various situations. Hence,

individuals measured with high levels of trait anxiety experience more state anxiety in sport context than others (Smith et al., 1998).

According to the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013), performance anxiety sites under social anxiety disorder and is referred to as performance only social anxiety disorder. Research has implied that performance anxiety can have a significant impact on performance, enjoyment of sport participation, and physical well-being among individuals in all age groups (Scanlan et al., 2005; Scanlan & Lewthwaite, 1986; Smith et al., 1998). Moreover, association has been demonstrated between performance anxiety and avoidance of organized sports, athletic burnout, and sport attrition in a group of young athletes (Gould et al., 1982; Gould et al., 1996; Orlick & Botterill, 1975).

Estimating the prevalence of sport-related performance anxiety and mental disorders in general within the sport setting has been difficult due to the discrepancy in severity, definitions, and evaluation techniques implemented in the research studies (Patel et al., 2010). However, findings of a narrative systematic review suggested that the prevalence of mental disorders among high-level athletes was comparable to the general population or approximately between 6% and 20% (Patel et al., 2010; Rice et al., 2016).

The Association Between Sport-Related Performance Anxiety and Type of Sport

The extent of research that have examined participation within various types of sports suggest that team athletes are more likely to experience positive social and psychological effects than individual athletes (Dimech & Seiler, 2011; Pluhar et al., 2019; Vella et al., 2017). More specifically, a higher proportion of athletes in individual sports have reported symptoms of anxiety than athletes in team sports.

A cross-sectional research study carried out by Pluhar et al. (2019) examined psychological differences of 756 athletes ranging from 6 to 18 years. The study's aim was to

determine the proportion of athletes with mental health illnesses and whether athlete motivations for playing, differed in individual sports and team sports. Results indicated that a higher percentage of athletes in individual sports (13%) struggled with anxiety or depression, compared to athletes in team sports (7%). Genders were equally distributed in team sports whereas most athletes in individual sports were females (74%). Most athletes training year-round and participating in one sport only, were individual sport athletes. Furthermore, individual sport athletes manifested higher levels of goal-orientations compared to team sport athletes who were more likely to play for reasons of enjoyment.

The limitations of Pluhar and colleagues' (2019) study concern the sample consisting of mostly white athletes under the age of 18 years, making it difficult to generalize the results for athletes in general, including a variety in race and age. Signs of anxiety or depression were in addition, self-reported by participants and not confirmed by a medical file or a professional evaluation. Several measures were conducted in the study, a great strength over others, where a questionnaire along with assessments such as performance and biomechanical gave more detailed results than an independent measurement would.

Considering the characteristics of sports, team sport athletes can count on their teammates for support after mistakes, whereas individual sport athletes experience their failures inwards because they are solely responsible for their outcome. This way of internalizing failure can increase anxiety and produce a sense of shame or guilt (Nixdorf et al., 2013; 2016).

Individual sports such as gymnastics, figure skating, and dance, where judges measure success by giving out points for performance, are associated with the highest level of anxiety in high-level athletes (Schaal et al., 2011). Team sports are more likely to evoke external stress due to the outcome of a competition, poor team spirit, or communication difficulties with coaches. Individual sport athletes nonetheless arouse anxiety within because of the

pressure and demands that they set themselves and experience from others in the surrounding environment (Boone & Leadbeater, 2006; Hanrahan & Cerin, 2009; Nixdorf et al., 2016).

Gender Differences in Sport-Related Performance Anxiety

A substantial amount of research studies has indicated that female athletes demonstrate higher levels of anxiety than male athletes (Abrahamsen et al., 2008; Correia & Rosado, 2019; Dias et al., 2010; Sattar & Hussain, 2019; Schaal et al., 2011). The reason for these differences remains controversial, although Schaal and colleagues (2011) have suggested that social stigma may play a factor, leading some athletes and namely male athletes to deny their state of health to avoid presenting vulnerability and signs of weaknesses.

An epidemiological study conducted by Schaal and colleagues (2011) examined psychological health of 2,067 high-level athletes aged 12 to 35 years in France, based on gender and type of sport. The study was the first one to analyse the prevalence of major types of mental illnesses among high-level athletes nationwide. The data of the study was gathered from results of psychological evaluations that are carried out by specialists, physicians, and psychologists, for high-level athletes every year in France. A total of 17% of the participants showed signs of disorders and associations with related disturbances where general anxiety disorder (GAD) was the most common mental illness among the athletes. Great gender difference appeared when anxiety disorders were compared; female athletes were 56% more likely to have struggled with an anxiety disorder throughout their lifetime than male athletes. Participants played 36 sports overall and they were categorized into seven types: aesthetic, contact/combat, high risk, aiming and fine motor skill, racing, racquet, and team ball sports. Female athletes in aesthetic sports displayed significantly higher rates of GAD (39%) compared to female athletes in other sports (10%). The disparity of GAD applied to male athletes in aesthetic sports as well (17% vs. 7%).

The number of participants in Schaal et al.'s (2011) study provided meaningful results along with thorough evaluations conducted by specialists. It was, however, difficult for researchers to be confident of the prevalence of mental illnesses among genders due to the social stigma that individuals face, especially males. Moreover, the high-level athletes may not have been keen on disclosing how they felt or showing signs of weaknesses when consulting with a professional.

Further research has also examined differences by gender and type of sport in sport anxiety, using the revised Sport Anxiety Scale (SAS-2; Smith et al., 2006) and its three dimensions of trait anxiety: (1) worry, (2) somatic anxiety, and (3) concentration disruption. Correia & Rosado (2019) explored if differences were present between 601 Portuguese athletes aged 12 to 47 years in relation to SAS-2. Results revealed that both female and individual athletes displayed significant higher levels of general sport anxiety than male and team athletes. In relation to the dimensions of SAS-2, both female and individual athletes manifested significant higher levels of somatic anxiety and concentration disruption compared to male and team athletes. Limitations of the study regard the proportion of genders, where males were in the vast majority, and the large age range of participants. The study presented evidence of anxiety in the sport setting along with providing useful information for mentors such as coaches, who engage with athletes on a regular basis.

Effects of Parental Support on Sport-Related Performance Anxiety

A considerable empirical evidence suggests that the influence of parents and coaches could impact the psychosocial well-being of young athletes (Horn & Horn, 2007). The role of these mentors is different, depending on the athlete's age; parents play a more important influential role before teenage years and coaches and peers become more effective in adolescent years (Horn & Horn, 2007).

Collins and Barber (2005) explored the positive and negative influences of parents on their high-level adolescent athletes ($N = 416$) in relation with the components of the Expectancy-Value model (Eccles & Harold, 1991; Fredricks & Eccles, 2004). The model describes how achievement beliefs and behaviours are affected by social influences, particularly parental expectancies and importance of success in Collins and Barber's study (2005). The components of the Expectancy-Value model as well as the influence of parents were explored in relation with the variables, importance of success, expectancy of success, goal orientation, and competitive anxiety. Results indicated that athletes that perceived their parents to have expectations of success demonstrated higher confidence. The athletes who perceived their parents to place greater importance of success exhibited increasing competitive anxiety. In respect of goal orientation, the athletes that possessed task orientation exhibited higher confidence. Those who obtained ego orientation, however, manifested increasing anxiety.

Bois et al. (2009) examined the influence of parents on pre-competitive anxiety among athletes in tennis and basketball. Participants were 341 in total and ranged from 9 to 18 years. Parenting practices such as directive behaviours and pressure, were associated with increased anxiety among male and female tennis players, but not basketball players of both genders. Praise and understanding were associated with decreased anxiety of female tennis players only.

Due to lack of research regarding the importance of support from parents, O'Rourke et al. (2014) conducted the first research study which quantitatively compared the influence of parents and coaches on 238 young athletes' psychosocial outcomes: performance anxiety, self-esteem, and intrinsic-extrinsic motivation. High-level swimmer athletes answered a questionnaire at the end of their 32-week competitive sporting season. Results revealed that the three variables, performance anxiety, self-esteem, and intrinsic-extrinsic motivation were

predicted of both coach- and parent-initiated motivational climates. The parent-initiated motivational climate, however, was a more significant predictor of the variables self-esteem and intrinsic-extrinsic motivation. The study suggested that the role of parents was more influential than the coach's role.

The prior studies regarding athletes' parental support in their sport share a similar limitation where causal relations between parents influences and the variables were not present, suggesting that causality should be examined further along with additional variables (Bois et al., 2009; Collins & Barber, 2005; O'rourke et al., 2014). The strength of the research findings demonstrate the impactful role parents play and how their perceptions can affect the athletes' belief and performance.

Current Study

The purpose of the current study was to examine if differences in sport-related performance anxiety were present between gender and type of sport. In addition, association between sport-related performance anxiety and sport related parental support were examined. Former studies have demonstrated that performance anxiety is prevalent within the sport setting where it can play a crucial factor on performance and mental and physical well-being (Scanlan et al., 2005; Smith et al., 1998). With increased research on the subject, this psychological condition would receive the enhanced recognition it deserves.

To the researcher's knowledge, the estimate of sport-related performance anxiety among students in an upper secondary school who are promoted the pursuit of an educational or occupational path in parallel with their sporting career, or more specifically dual career athletes in Iceland, has yet to be studied. Through evaluation of former studies, three hypotheses were established. First, athletes in individual sports will report higher levels of sport anxiety than athletes in team sports. Second, female athletes will report higher levels of sport anxiety than male athletes. Third, athletes with perception of high parental support in

their sport will report lower levels of sport anxiety than athletes with perception of less or no parental support in their sport.

Method

Participants

Dual career athletes in an upper secondary school, ranging in age from 16 to 19 years were invited to participate in the study. In all, there were 131 students invited to participate in the study by sending an informed consent form with one week's notice. Eventually 77 students ($N = 77$) participated by answering a web-based questionnaire, yielding a total response rate of 58.8%. No rewards were received for participation. Participants were chosen with a convenience sample and consisted of 13 female athletes (16.9%) and 64 male athletes (83.1%).

Measures

Demographic Information

Data on ten demographic questions were collected. Participants were initially offered to state their name if they wanted to receive results from the questionnaire in the future. In addition, they were asked to assert their age (1 = *17 years or younger* and 2 = *18 years or older*), gender (1 = *male*, 2 = *female*, and 3 = *other*), and the type of sport they played (1 = *individual sport* and 2 = *team sport*). Moreover, they were asked what age group they competed with (1 = *youth team and peer group*, 2 = *team of adults*, and 3 = *other*).

Participants were also asked to respond to the statement "My parents/guardians support me in my sport" on a 5-point Likert scale (1 = *strongly agree* and 5 = *strongly disagree*), at what age they started playing organized sports (1 = *6 years or younger* and 4 = *14 years or older*), and how many hours they practiced or played on a regular basis each week (1 = *0-5 hours* and 5 = *20 hours or more*). Finally, participants were asked if they had sought help from a

sport psychologist, psychologist, or a mental coach to improve their performance in their sport (1 = *yes* and 2 = *no*) and whether they were interested in doing so (1 = *yes* and 2 = *no*).

While the current study explored associations between sport anxiety and type of sport, gender, and parental support with the use of The Sport Anxiety Scale-2 (SAS-2; Smith et al., 2006), it was also a part of a larger research study examining psychological skills of athletes. The questionnaire therefore composed of a total of 132 questions or ten demographic questions and six question scales: TOPS, SAS-2, SMTQ, TEOSQ, The Passion Scale and Grit-S.

Sport Anxiety

The Sport Anxiety Scale 2 is a 15-item self-report scale used to measure cognitive and somatic anxiety relating to sport performance (SAS-2; Smith et al., 2006). The inventory distinguishes between somatic anxiety and two aspects of cognitive anxiety or worry and concentration disruption. The scale has three sub-scales; somatic anxiety, worry, and concentration disruption, which are composed of five items each. The items were responded with the stem “Before or while I compete” (e.g., “My body feels tense”, “I worry that I will let others down”, “I lose focus on the game”). Participants responded to each item on a 4-point scale (1 = *Not at all* and 4 = *Very much*), with a higher score indicating greater anxiety. Potential total scores of SAS-2 are 15 to 60 and 5 to 20 in each sub-scale. SAS-2 demonstrated a satisfactory convergent validity in a study of former and current athletes, where it correlated substantially with measures of anxiety sensitivity ($r = .50, p < .003$) and fear of negative evaluation ($r = .48, p < .003$) as well as demonstrating high internal consistency (Cronbach’s $\alpha = .95$; Madrigal et al., 2018). The internal consistency has appeared acceptable (Cronbach’s $\alpha = .82$) in the Icelandic translation of SAS-2 (Kristjánsdóttir et al., 2018). The psychometric properties of the Icelandic version of SAS-2

questionnaire have yet to be demonstrated. However, the scale's internal consistency was high in the current study as well (Cronbach's $\alpha = .90$).

Procedure

An informed consent form, along with information about the questionnaire, was sent by an email to dual career athletes in an upper secondary school on the 9th of October 2020. Participants 18 years of age and older were qualified to sign their own informed consent form whereas participants 17 years of age and younger were required to sign their own consent as well as receive a written permission from a parent or a legal guardian. Due to COVID-19 restrictions, participants were all located in their homes while the study took place. The data collection procedure took place the 19th of October 2020. First, participants received an introduction of the study and instructions through the teleconferencing equipment Teams and then answered the web-based questionnaire, which was programmed in the survey software QuestionPro (n.d.). The participants were split by age in two groups and participated two hours apart in the day, 16-year-old students participated at 09:15 a.m. and students 17 years or older, at 11:15 a.m. The Teams meeting began with introduction of the researcher and the purpose of the study. Participants were informed that the study's aim was to measure the athletes' psychological skills and would take around 25 minutes to complete. Moreover, the purpose of informed consent was addressed, and participants were made clear that answers were anonymous, and results would not be traced back to them. Finally, participants were notified that they had the right to quit participation at any time.

Information on the front page of the web-based questionnaire stated that the study was a collaboration project between Reykjavik University and an upper secondary school. Participants were also encouraged to respond to items with sincerity and were made clear that there were no right or wrong answers. No harm was expected from participation in the study.

Data Analysis

All analyses were conducted using SPSS (26th edition). The current study examined three independent variables: type of sport, gender, and parental support in sports. The dependent variable was sport-related performance anxiety (SAS-2). Descriptive analyses were conducted to examine the demographic characteristics of the sample. The frequency of total scores and scores of sub-scales in SAS-2 were conducted and range, mean score, and standard deviation calculated for each scale. Cronbach's alpha (α) was analysed to demonstrate the internal consistency of SAS-2. Independent samples *t*-tests were conducted to test the hypotheses: 1) that athletes in individual sports would report higher levels of sport anxiety than athletes in team sports; 2) that female athletes would report higher levels of sport anxiety than male athletes. Effect sizes of the differences were estimated by using Cohen's *d* where values of 0.2, 0.5, and 0.8 are considered of small, medium, and large effects (Cohen, 1988). Spearman's rank correlation coefficient was conducted to test the third hypothesis; that athletes with perception of high parental support in their sport would report lower levels of sport anxiety than athletes with perception of less or no support from their parents in their sport. Participants who either did not answer any questions or single questions in the questionnaire were seven in total and were not included when analysing data.

Results

A number of 77 participants answered the SAS-2 questionnaire (male = 64, female = 13). There were 55 (71%) participants who were 17 years or younger and the remaining 22 (29%) participants were 18 years or older. Most participants (71%) played team sports (male = 44, female = 11) whereas others (29%) practiced individual sports (male = 20, female = 2). The distribution of answers to the statement "My parents/guardians support me in my sport" is shown in Table 1. Distribution of scores in SAS-2 is presented in Figure 1. Total scores in SAS-2 ranged from 15 to 45, with an average score of 25.38 ($SD = 6.99$). The three sub-scales, somatic anxiety ranged from 5 to 16, with an average score of 8.87 ($SD = 2.74$), worry

ranged from 5 to 20, with an average score of 9.65 ($SD = 3.51$), and concentration disruption ranged from 5 to 15, with an average score of 6.86 ($SD = 2.29$). Among participants, 17 (22%) had sought help from a sport psychologist, psychologist, or a mental coach to improve their performance in their sport, while 60 (78%) had not. Conversely, 61 participants (79%) had interest in doing so in the future while 16 (21%) did not have interest.

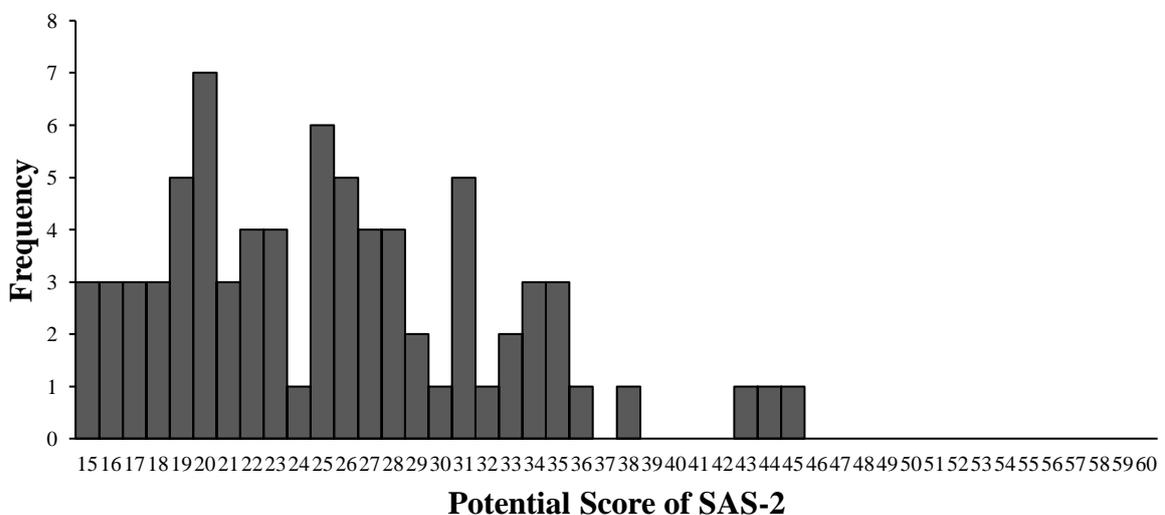
Table 1

How Much do You Agree or Disagree With the Following Statement: My Parents/Guardians Support me in my Sport

	<i>n</i>	%
Strongly agree	61	79.2%
Agree	13	16.9%
Neither agree nor disagree	1	1.3%
Disagree	1	1.3%
Strongly disagree	1	1.3%

Figure 1

Distribution of Scores in SAS-2



An independent samples *t*-test demonstrated that participants in individual sports reported higher levels of somatic anxiety than athletes in team sports (see Table 2). However, differences in the other sub-scales; worry and concentration disruption, were non-significant. Overall, participants in individual sports reported significantly more symptoms of sport anxiety (total score) than participants in team sports and therefore the first hypothesis, that athletes in individual sports would report higher levels of sport anxiety than athletes in team sports, was supported.

Table 2

*Frequency, Means, Standard Deviations, and Results of Independent Samples *t*-tests and Cohen's *d* Effect Sizes of Mean Difference of SAS-2 Between Type of Sport for Each Sub-Scale*

SAS-2	Individual sports		Team sports		<i>t</i> (<i>df</i>)	<i>p</i>	<i>d</i>
	<i>n</i>	<i>M</i> (<i>SD</i>)	<i>n</i>	<i>M</i> (<i>SD</i>)			
Somatic anxiety (5-20)	22	10.77(2.78)	55	8.11(2.34)	4.28(75)	<.001	1.04
Worry (5-20)	22	10.64(2.90)	55	9.25(3.68)	1.74(75)	.088	0.42
Concentration disruption (5-20)	22	7.36(2.30)	55	6.65(2.27)	1.23(75)	.221	0.31
Total (15-60)	22	28.77(5.81)	55	24.02(7.01)	2.82(75)	.006	0.74

Independent samples *t*-tests displayed no differences in overall sport anxiety or on any of the sub-scales between male and female participants (see Table 3). The second hypothesis, that female athletes would report higher levels of sport anxiety than male athletes, was therefore not supported.

Table 3

Frequency, Means, Standard Deviations, and Results of Independent Samples t-tests and Cohen's d Effect Sizes of Mean Difference of SAS-2 Between Genders for Each Sub-Scale

SAS-2	Males		Females		<i>t(df)</i>	<i>p</i>	<i>d</i>
	<i>n</i>	<i>M(SD)</i>	<i>n</i>	<i>M(SD)</i>			
Somatic anxiety (5-20)	64	8.88(2.80)	13	8.85(2.48)	.03(75)	.973	0.01
Worry (5-20)	64	9.53(3.51)	13	10.23(3.56)	-.65(75)	.516	0.20
Concentration disruption (5-20)	64	7.03(2.40)	13	6.00(1.41)	1.49(75)	.139	0.52
Total (15-60)	64	25.44(7.24)	13	25.08(5.87)	.17(75)	.867	0.05

Spearman's correlation test did not indicate a significant association between SAS-2 and parental support, $r(77) = .05$, $p = .688$. The third hypothesis, that athletes with perception of high parental support in their sport would report lower levels of sport anxiety than athletes with perception of less or no parental support in their sport, was thus not supported.

Discussion

Three hypotheses were put forward. Firstly, it was hypothesized that athletes in individual sports would report higher levels of sport anxiety than athletes in team sports, secondly, that female athletes would report higher levels of anxiety than male athletes, and thirdly, that athletes with perception of high parental support in their sport would report lower levels of sport anxiety than athletes with perception of less or no parental support in their sport.

In accordance with findings of prior studies, athletes in individual sports demonstrated higher levels of anxiety than athletes in team sports (Correia & Rosado, 2019; Pluhar et al., 2019), more specifically higher levels of somatic anxiety and in total in sport anxiety. These results are partly consistent with Correia & Rosado's (2019) study where individual athletes

demonstrated higher levels in two sub-scales, somatic anxiety and concentration disruption, than team athletes based on scores of SAS-2. This accordance suggests that athletes in individual sports are more prone to show symptoms of anxiety than athletes in team sports. Whether participation in individual sports causes the development of anxiety symptoms has, however, not been confirmed by previous research. No differences in sport anxiety were present between male and female athletes, hence the second hypothesis was not supported. Similarly, no differences in sport anxiety were between athletes with perception of high parental support in their sport and athletes with perception of less or no parental support in their sport, hence the third hypothesis was not supported.

The finding that no differences in sport anxiety were between male and female athletes is not consistent with previous findings, where female athletes have reported higher levels of anxiety than male athletes (Dias et al., 2010; Sattar & Hussain, 2019; Schaal et al., 2011). This disparity in results may be due to several factors. Firstly, the number of participants was relatively low making it more difficult to produce statistically significant difference between male and female athletes. Secondly, gender distribution was biased, and female participants were only thirteen, also reducing the possibility for statistically significant results. Furthermore, because female participants made up such a small proportion of the sample, the results may have been more representative for males.

The findings of the study did not support the hypothesis that athletes with perception of high parental support in their sport would report lower levels of sport anxiety than athletes with perception of less or no parental support in their sport. Interestingly, of the 77 participants in this study, every participant excluding three either strongly agreed or agreed to the statement that they received parental support in their sport. Where only a low proportion of participants disagreed or strongly disagreed to the statement, demonstrating differences between athletes who receive varying degrees of support in their sport would demand a larger

sample. Only one question in the questionnaire inquired the role of athletes' parents in their sports involvement and may not provide a thorough understanding of athletes' perception towards their parents. In addition, the question did not distinguish between the role of each parent. Further studies exploring parental support of athletes might consider utilizing a questionnaire scale regarding athletes' perceptions of their parents' sports involvement such as Parental Perception Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda & White, 1992).

The current study had several limitations. The participation rate (58.8%) should be taken into consideration where several factors could have contributed to students not participating in the study. Participants were located at their homes during the data collection procedure due to COVID-19 restrictions and the proportion would possibly have been higher if the procedure had taken place under normal circumstances in the students' school. At the beginning of the questionnaire, participants were asked to state their name if they wanted to receive results in the future. Stating a name in a research study regarding psychological skills of athletes, which is a sensitive matter, and then revealing personal experiences, may have driven participants away or reduced the sincerity of responses. Also, the questionnaire was quite long and therefore respondent fatigue may appear due to frequent items, which might have caused participants to spend less time responding to each item, decreasing honesty and accuracy of responses and hence affecting the quality of the results. Moreover, responses of items were self-reported, and participants asked to recall circumstances before and during competition and could decrease the accuracy of answers. The study was a cross-sectional study and therefore not capable of indicating a causal relationship. The results applied only to dual career athletes, limiting generalizability for athletes in general.

The strengths of the study should be noted. Before participation took place, an introduction of the study was given through Teams, perhaps placing greater emphasis on the

importance of the study than receiving an introduction through a text following the questionnaire. In addition, the researcher was at hand during participation in case there were any questions regarding the items, reducing chances of misinterpretation when answering them. The study was able to detect differences between athletes in individual sports and team sports based on scores of SAS-2, emphasizing the need for reacting to the current distress among athletes. To the researcher's knowledge the study was the first one to examine associations between scores of SAS-2 and a sample of dual career athletes in Iceland. Considering the disproportion of participants who had already sought help from a psychologist or a mental coach to improve their performance in their sport versus the ones who were interested in doing so indicates the need to both encourage people, athletes or not, and normalize seeking help no matter the extent of a problem.

Further studies on the subject should focus on identifying additional influencing factors of sport anxiety to find more practical ways to reduce or prevent symptoms of anxiety that tend to be destructive for the performer. Prospective studies exploring the association between athletes' performance anxiety and sport participation in Iceland might furthermore want to apply a cognitive-behavioural intervention for the purpose of promoting a mastery-involving motivational climate between the athlete and its mentors, the coach and parents as well (Smith et al., 2007). By utilizing the approach of mastery, the people closest to the athlete's environment such as coaches and parents, would attend a seminar where an expert would provide them behavioural guidelines. Studies have developed interventions for coaches, such as the coach effectiveness training (CET; Smith et al., 1979; Smoll et al., 1978). CET emphasizes on encouraging athletes to learn from their mistakes, reinforcing positive behaviours, and defining success by giving maximum effort to become the best possible athlete, instead of emphasizing on winning or outperforming others. The guidelines were designed to enhance positive interactions between the coach and the athlete, reduce fear

of failure, and to improve intrinsic motivation for the activity by creating a more enjoyable environment (Smith & Smoll, 2002). Parent interventions include similar guidelines that emphasize on positive and encouraging attitudes toward the athlete, defining success as putting in the most effort, accentuate individual development, team support, and enjoyment of the activity (Smoll et al., 2007). Sport anxiety has decreased among athletes that follow the coach and parent intervention, both cognitive and somatic anxiety evaluated by the SAS-2 (Smith et al., 2007; Smoll et al., 2007).

Future studies that take into account a variety of influencing factors such as race, socio-economic status (SES), cultures, perceptions of both parents and coaches, and definitions of all types of sports will achieve a better understanding of anxiety in the sport setting and obtain actionable results to counteract sport anxiety.

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