

TEAM SPORT MEMBERSHIP AND SOCIAL ANXIETY

An exploratory analysis of team sport membership and social anxiety in an Irish context

By

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Thesis Presented in Partial Fulfilment of the Requirements for the Bachelor of Arts
(Hons) Degree in Psychology (BAHPSYCHNCI3). Submitted to the National College of

Ireland, March 2023

Submission of Thesis and Dissertation

National College of Ireland
Research Students Declaration Form
(Thesis/Author Declaration Form)

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Degree for which thesis is submitted: Bachelor of Arts (Hons) Degree in Psychology

Title of Thesis: An exploratory analysis of team sport membership in an Irish context.

Date: 13/03/2023

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Acknowledgements

I am appreciative for my advisor and mentor, Dr. David Mothersill, for his patience and faith in me, and for providing invaluable guidance throughout my final year at National College of Ireland.

I would like to thank my lecturers, Michelle Kelly and Colm Lannon-Boran, for consistent guidance and encouragement throughout lectures and providing one-on-one advice throughout practical classes.

I also wish to acknowledge the librarians at Norma Smurfit library in National College of Ireland, the participants who completed the study and my friends and family for their support and guidance.

Abstract

Social anxiety affects 13.7% of Irish adults. Health systems have not yet adequately responded to the needs of people with social anxiety disorder. **Aim:** To investigate the effect of physical activity on mental health. **Objectives:** To examine the prevalence of social anxiety amongst third-level students, to examine the effect of team sport membership on social anxiety, to examine the relationship between self-esteem and social anxiety.

Hypothesis 1: Team sport predicts lower levels of social anxiety. **Hypothesis 2:** Self-esteem will negatively correlate with social anxiety. **Methods:** This quantitative study adopted a cross-sectional design. Participants were recruited through social media using a convenience sampling technique ($N = 115$), and through poster advertisements using a volunteer sampling technique. An online survey was composed for data collection methods. Three validated measurement questionnaires were used in the online survey. **Results:** Results of regression and correlation analysis found that playing sport did not significantly predict lower levels of social anxiety and found a positive correlation between self-esteem and social anxiety.

Conclusion: Neither of the hypotheses put forth were supported. Importantly, the results of this current study challenges researchers to compose further studies with larger sample sizes to find significant factors that predict lower levels of social anxiety.

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Chapter 1: Introduction of dissertation

Social anxiety affects one in eight Irish adults and, is a growing concern without adequate response from health care systems and provision of early interventions. This study will examine whether team sport membership predicts lower levels of social anxiety. It uses online questionnaires and multiple regression, with the aim of better understanding the impact of team sports on social anxiety in Irish college students.

This introduction chapter will briefly outline the chapters of this dissertation. Chapter 2 addresses relevant and scholarly literature in the area. The review of this literature led to the development of the research aim, objectives and hypotheses which became the primary focus of the study. It discusses the current research literature and the topics of, Bandura's Social Learning Theory, and its association with sport and social anxiety. The impact of team sport membership and role of social skill development and Social Skill Treatment is also discussed.

Research aim: To investigate the effect of physical activity on mental health.

Objectives:

- To examine the prevalence of social anxiety amongst third-level students.
- To examine the effect of team sport membership on social anxiety.
- To examine the relationship between self-esteem and social anxiety.

Hypothesis 1: Team sport predicts lower levels of social anxiety.

Hypothesis 2: Self esteem will negatively correlate with social anxiety.

Chapter 3 addresses how this study is planned and executed, beginning with overview of the study plan and discusses various elements of the study design. Chapter 4 presents the findings. Chapter 5 discusses the findings and ends with a conclusion of the overall study.

Chapter 2: Literature Review

Bandura's Social Learning Theory: Initially proposed by Bandura (1977), the Social Learning Theory (SLT) highlights the importance of learning to successfully interact using direct (e.g., reward/punishment responses to new behaviour) and indirect (e.g., observation) experiences (Bandura, 1977). The theory also posits that individual learning is largely shaped through observational learning in a social milieu.

Social Learning Theory and Sport: From a social learning theory perspective, participation in an organised sport, particularly in teams, play an important role in a child's social development. Organised sport offers an unambiguous social context thanks to learning through peer modelling and relationships with other social agents (Smith, 2003) as well as modelling of adult role models who represent discipline and fair play. According to Jones and Lavallee (2009) social and communication skills are identified as "crucial life skills" (p. 164), that can be learnt through sport and transferred to everyday life. Sport is increasingly recognised as a contributing factor to a child's social development (Barcenilla & D'Arcy, 2021; Coalter, 2005; Fraser-Thomas, Côté & Deakin, 2005). Skinner and colleagues (2008) critically evaluate the role of traditional sports clubs and local government in delivering social inclusion and better community and citizen life outcomes. Children learn how to interact with peers, (Smith, 2003), develop psychosocial maturity and social competence (Fletcher et al., 2003) and can have a reduction in anxiety (Findlay & Coplan, 2008). Sports also has an association with increased self-esteem in elementary school children (Slutzky & Simpkins, 2009) by reducing shyness and improving confidence. A systematic review by Bessa and colleagues (2019) shows that students who participate in team sport membership, experience impactful changes to self-determination, enjoyment/satisfaction, enthusiasm, and confidence. The positive effects that team sport has regarding social behaviour, could imply an important positive influence on social anxiety symptoms.

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Social Anxiety Disorder: The term social phobia was first coined by Janet (1908). The diagnosis and definition of social phobia has seen substantial changes since then, from its first appearance in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III), published in 1980, to the DSM-IV-TR, text revision (2000). Hereafter, the term Social Anxiety Disorder (SAD) was identified as a diagnostic entity and added in parentheses after social phobia. Social phobia is often regarded as an underdiagnosed, chronic, and impairing condition (Öst, 1987; Schneier et al., 1992) and labelled a ‘neglected disorder’ (Liebowitz, Gorman, Fyer, & Klein, 1985). It is defined as ‘an irrational fear and avoidance of social interactions and/or situations that involve performance before others, evaluation by others’ (American Psychiatric Association, 2000; 2003; 2013). SAD is a relatively common disorder amongst children and adolescents (Burstein et al., 2011, Lawrence et al., 2019) and affects 13.7% of Irish individuals. Health systems in Ireland have not yet adequately responded to the needs of people with SAD. There is limited understanding regarding suitable social skill development treatments for SAD in Ireland.

Prevalence rates in community samples are generally found to increase from childhood through adolescence (Canino et al., 2004; Beesdo et al., 2007; Burstein et al., 2011) and in the absence of treatment SAD can persist for years and even decades (Gilliam et al., 1984; Clark & Wells, 1995; Mohatt, Bennett & Walkup, 2014). SAD has a negative impact on social and cognitive development (Banerjee & Henderson, 2001; Dimech & Seiler, 2011) as well as affecting quality of life (Rowa & Antony, 2005). A meta-analysis conducted by Koyunco and colleagues (2019) reported that there is an extremely high frequency of psychiatric comorbidity in 90% of patients with SAD. Therefore, making it difficult for clinicians to identify the most appropriate solutions for treatment.

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Engagement in team sports (Dimech & Seiler, 2010) and sport education programmes (Luna et al., 2019) display fewer physical SAD symptoms than individual sports. Team sports have been hypothesised as a beneficial treatment for SAD.

Individuals with SAD are hypothesised to lack appropriate verbal and non-verbal social abilities, which has repercussions on quality of social connections and educational achievement (Haller et al., 2015). Social skills deficits are considered to hinder social functioning and the adaptative ability of individuals. Impairment in social skills has been assumed as one of the paramount aspects of SAD (Angélico et al, 2013). Social skills, defined as “different classes of social behaviour within the individual’s repertoire to deal appropriately with demands of interpersonal situations” (Del Prette, 2001, p. 31), are in general considered to be essential for the processes of social adjustment and functioning of individuals (Bandeira, 2003; Angélico, 2004).

Treatment: Many popular SAD treatment approaches focus primarily on exposure therapies, in which the beneficial effects have been debated for decades (Rodebaugh et al., 2004). According to The Cognitive Model of Social Phobia by Clark and Wells (1995), cognitive processes play a huge role in the maintenance of SAD. Meta-analyses indicate that the employment of Cognitive Behavioural Therapy (CBT) appear to provide some benefit for adults (Rodebaugh et al., 2004), however the effect sizes are small-to-medium and approximately only 38% of individuals with SAD achieve effective results (Hofmann, 2007). Cognitive Behavioural Group therapy (CBGT) is accredited as the most researched treatment for SAD (Heimberg & Becker, 2002) since it includes Social Skills Training sessions (SST). There is a lack of empirical evidence to support the effectiveness of SST independently (Olivares-Olivares et al., 2019). Data suggests that SST alone is unlikely to produce beneficial results (Spence, 2003). Researchers have utilized sports activities as a ‘sport-based youth programming’ intervention to deliver social skills training (SST) programs. Results

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suggest that SST procedures effectively increase targeted social skills (Ferguson & Shapiro, 2016; Verkhoshansky & Verkhoshansky, 2011; Kunzi, 2015; Riley et al., 2017).

Vallis (2020) conducted a study to investigate an SAD intervention programme, consisting of non-competitive basketball embedded with SST. Results indicated that the intervention program was effective as a means for social skill remediation. Engagement in team sports displayed fewer physical social anxiety symptoms than individual sports (Dimech & Seiler, 2010).

Self-esteem: Self-esteem is defined as ‘the sum of evaluations across salient attributes of oneself or personality’ (Blascovich et al., 1991). Sport based youth programmes with SST, provide successful outcomes regarding a decrease in social anxiety and an overall improvement in and self-concept (Vatankhah et al., 2013) and self-esteem (Bijstra & Jackson, 1998; Sobhi-Gharamaleki & Rajabi, 2010). Recent literature suggests a negative correlation between self-esteem and social anxiety (Seema & Kumar, 2017; Rasmussen & Pidgeon, 2011; Hulme et al., 2012) that could assist further development of SAD interventions.

Physical Activity: Eudemonic research predicts a consistent and well-established relationship between high levels of physical activity and improving mental health wellbeing and this has been elucidated by many researchers (Salyers et al., 2017). Physical activity is defined as “any bodily movement produced by skeletal muscles that results in energy expenditure” (Caspersen et al., 1985, p. 126). Lack of physical activity not only provides a foundation for the obesity epidemic, but it also exacerbates anxiety and depression symptoms (Paluska & Schwenk, 2000; Goodwin, 2003; Asmundson et al., 2013; Hiles et al., 2017; Tajik et al., 2017).

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A cohort study, using compositional data analysis, examined how the replacement of technological use (screen-time/ social media use) with team sports, influenced positive effects on alleviating adolescent emotional distress and anxiety (Kandola et al., 2022).

The present study

The present study is setting out to examine the effects of team sport membership on social anxiety in Irish, third level college students, with the overall aim of contributing to existing research regarding sport and the impacts on mental health. There is limited data and knowledge regarding sport and physical activity, as SAD interventions. Much of the available data is based on research among children, therefore this study will investigate the effects of team sport on SAD in students/early adulthood. This present study will examine team sports, without the embellishment of SST, as a positive predictor to lower social anxiety scores using a validated self-report social anxiety measurement scale. It also investigates whether a negative correlational relationship exists between self-esteem and social anxiety. This study contributes to a broad body of literature that raises awareness of the scale of social anxiety as a severely debilitating issue. The objectives of this study are, to examine the prevalence of social anxiety amongst third-level students, to examine the effect of team sport membership on social anxiety, and to examine the relationship between self-esteem and social anxiety. Two main hypothesis were developed on that account, 1: Team sport predicts lower levels of social anxiety and hypothesis 2: Self-esteem will negatively correlate with social anxiety.

Chapter 3: Methodology

Introduction

This chapter will provide a brief overview of the research questions, aims and the two research hypotheses. The survey research methodology, measurements, participants, and procedures of the study, such as data collection and ethical considerations will also be discussed.

Research aim, objectives, and hypotheses

The research aim of this study is to determine whether team sport membership predicts lower levels of social anxiety (SAD) in students, as well as intending to support a natural intervention that addresses the growing concerns of SAD nationwide.

The objectives of this study are:

- to examine the prevalence of social anxiety amongst third-level students
- to examine the effect of team sport membership on social anxiety
- to examine the relationship between self-esteem and social anxiety.

Hypothesis 1: Individuals who participate in team sports will possess lower scores on the social anxiety scale, while controlling for external variables (physical activity and self-esteem).

Hypothesis 2: There is a strong negative correlational relationship between social anxiety and self-esteem.

Research design

Research paradigm

The study adopted a quantitative research approach, ensuing the paradigm of positivism research philosophy and it is based on deductive epistemological reasoning. The study implemented an experimental cross-sectional, within-subject research design. There were five predictor variables (team sport, physical activity, and self-esteem, gender, age). The criterion variable (CV) was social anxiety.

Survey research methodology

Google Forms, an online survey administration software was used to create the online survey for data collection in this study.

Demographic questions were administered regarding age and gender (see appendix 1). Three validated questionnaires were used for data collection regarding social anxiety (Liebowitz Social Anxiety Scale), weekly physical activity frequencies (Godin Leisure-Time Exercise Scale) and self-esteem (Rosenberg Self-Esteem Questionnaire).

Measurements

Godin Leisure-Time Exercise Questionnaire

The Godin Leisure-Time Exercise Questionnaire (GLTEQ) composed by Gaston Godin and H Shepard in 1965 is a commonly applied self-report measure of physical activity (PA) in health research. The questionnaire is a simple, and effective tool for describing patterns of PA and can be used to classify respondents into active and insufficiently active categories. The questionnaire was developed to assess self-reported PA among adults; however, it was later modified for children (Godin-Child Questionnaire) (Zelener & Schneider, 2016).

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The reliability and concurrent validity of the GLTEQ has been investigated and supported on numerous occasions. Reliability studies (Gionet & Godin, 1989; Valois et al., 1992), test-retest reliability studies (Sari & Erdoğan, 2016) and validity studies (Amireault et al., 2015; Motl et al., 2018; Fattahi et al., 2021) support the use of the GLTEQ as a quick and easy questionnaire that classifies individuals into several activity categories.

The questionnaire is very short consisting of three questions; “how many times on the average do you achieve, Strenuous (“basketball/ running/ jogging/ vigorous swimming/ vigorous cycling”), Moderate (“fast walking, tennis, easy swimming”) and Mild/Light (“yoga/easy walking/golf”), forms of exercise, for more than 15 minutes during your free time in a typical week (7-Day period)?”.

The GLTEQ score summarizes the points given to strenuous, moderate and mild/light by multiplying by 9, 5, 3 METS (Metabolic Equivalent of Task) respectively. Total weekly leisure PA is calculated by the following formula: ‘Weekly leisure activity= (9 x strenuous) + (5 x moderate) + (3 x mild/light). The overall score can range anywhere from zero, and higher GLTEQ scores demonstrate more weekly PA. (See appendix 2).

Liebowitz Social Anxiety Scale

The Liebowitz Social Anxiety Scale (LSAS), developed by Michael Liebowitz in 1987 is one of the most commonly used clinician-administered scales for the assessment of social anxiety disorder (SAD). Countless studies provide data on the reliability (Mannuzza et al., 1989; 1995) validity (Heimberg & Holaway, 2007) and treatment sensitivity of the LSAS. The LSAS possesses good psychometric properties as indicated by the results of test–retest reliability (Masia-Warner et al., 2003) internal consistency (Terra et al., 2006) and convergent and discriminant validity (Baker et al., 2002). Multiple findings provide support

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for the use of the LSAS for the identification of individuals with SAD across multiple cultures and settings (Mennin et al., 2002; Masia-Warner et al., 2003).

The LSAS assesses the degree in which social phobia plays a role in one's life across a variety of everyday situations. The scale consists of a 24 item list, illustrating everyday situations that are rated on a Likert Scale, first from 0 to 3 (0 = None, 1 = Mild, 2 = Moderate, 3 = Severe) regarding fear or anxiety felt during each situation, and then secondly the same items are rated from 0 to 3 regarding avoidance of each situation (0 = Never, 1 = Occasionally, 2 = Often, 3 = Usually). Combining the total scores for both sections, fear/anxiety, and avoidance, provides an overall score with a maximum of 144 points.

The LSAS suggests that scores from 5 to 65 indicate 'moderate social phobia', 65 to 80 indicate 'marked social phobia', 80 to 95 indicate 'severe social phobia' and 95 onward indicates 'very severe social phobia' (Liebowitz, 1987). (See appendix 3).

Rosenberg Self-Esteem Scale

The Rosenberg Self-Esteem Scale (RSE) developed by Morris Rosenberg in 1965, is a ten item, self-report convenient measure of global attitudes toward the self. Originally the scale was designed to measure the self-esteem statuses of high school students, however, since its development, the scale has been used across a wide variety of other populations. The RSES demonstrates concurrent validity (Jamil, 2006) and test-retest reliability (Mohammadi, 2005) which correlates significantly with other measures of self-esteem, including the Coopersmith Self-Esteem Inventory (Rosenberg, 1979; Pierce et al., 1989). The scale shows satisfactory levels of internal consistency with a Guttman Scale coefficient of reproducibility, of .92 (Rosenberg & Black, 1971; Rosenberg, 1979; Hatcher & Hall, 2009). Numerous studies provide data regarding the reliability and validity of cross-cultural adaptations of the RSES (Yang, Noels & Saumure, 2006; Morente-Sánchez et al., 2014).

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Originally, the RSES was constructed as a Guttman Scale (Goldsmith, 1986), however it is most used as a uni-dimensional additive scale along a 4-point Likert Scale, ranging from “Strongly Agree” to “Strongly Disagree” (Strongly Agree =1, Agree = 2, Disagree = 3, Strongly Disagree = 4). The scale can be scored by totalling the individual 4-point items. The negatively worded items, 2, 5, 6, 8, 9 are reverse scored. After reverse-scoring items, 2, 5, 6, 8, 9 (Strongly Agree = 4, Agree = 3, Disagree = 2, Strongly Disagree= 1 point) the 10 items are totalled. The scores range from 0-30. Scores higher than 15 are considered ‘normal range’ and exhibit high self-esteem, while scores below 15 suggest low self-esteem (Rosenberg, 1965). (See appendix 4).

Statistical software

IBM SPSS (v27) statistical software was downloaded to process and analysis quantitative data by means of Pearson’s correlation tests, Chi Square tests, independent samples T-Test and hierarchal multiple regression analysis.

G*Power, Statistical Power Analyses (version, 3.1.9.7) was used to complete a priori analysis and a sensitivity power analysis to calculate the minimum sample size and effect sizes required for a statistically powerful analysis.

Participants

Participants were recruited through convenience and snowballing sampling methods. A survey link was relayed on two social media platforms, Facebook, and Instagram, alongside a brief description of the participation criteria. Participants were invited to share the link with other potential participants that they thought were eligible without coercion.

Probability and volunteer sampling methods were executed through participant recruitment by means of poster advertisements. Posters were placed in SV Fitness Gym, situated adjoining the National College of Ireland campus, Mayor Square. Participants were

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invited to complete the study by scanning a QR code with their mobile phones that re-directed them to the online questionnaire. (See appendix 5 for poster).

A priori power analysis was conducted using G*Power version 3.1.9.7 (Faul et al., 2009) to determine the minimum sample size required to test hypothesis 1. To achieve 95% power for detecting a small effect (Cohen's, 1988) at a significance criterion of $\alpha = 0.5$, results suggested a minimum sample size of $N = 119$ for regression analysis.

A priori power analysis was conducted using G*Power version 3.1.9.7 (Faul et al., 2009) to determine the minimum sample size of 8 required to test hypothesis 2. To achieve 95% power for detecting a small effect (Cohen, 1988), at a significance criterion of $\alpha = 0.5$, results suggested a minimum sample size of $N = 8$ for correlation analysis.

There were 79 females (68.7%) and 36 males (31.3%) giving a total of 115 respondents who completed the study in entirety. Ages ranged from a minimum of 18 years and a maximum of 42 years (Mean= 21.8). 49 (42.6%) respondents stated they participated in team sport membership, 34 of these being female. 66 (57.4%) respondents did not participate in team sport membership, 45 of these being female. Male respondents reported higher frequency of PA on the GLTEQ, (Mean = 62.1) in comparison to females (Mean = 56.1).

Procedures

Data Collection

Data was collected through an online survey. The survey link was posted on two social media platforms, Facebook and Instagram and advertised by posters.

The first page on the online survey was a Participant Information Sheet (see appendix 6) that contained the aims, objectives, a brief description of the nature of the study and the author's and mentor's name and contact information. The second page was the consent form (see appendix 7). The conditions of consent were outlined above a 'tick the box' question where participants had to indicate their consent by 'ticking the box'. The third page asked for demographic variables such as age and gender. The next question asked whether they currently participate in team sports (see Appendix 8). The scales followed in this order; The Godin Leisure-Time Exercise Questionnaire, the Liebowitz Social Anxiety Scale (LSAS). The LSAS was repeated to assess 1. Avoidance behaviours of each situation and 2. The anxiety or fear participants feel toward each situation, separately, due to capacity of words in each question. The questionnaire finished with a debriefing sheet, that thanked the participants and enlisted 6 available student support and mental health helplines. Informational websites were provided, for optional further reading surrounding the topics of the study.

Ethical Implications

This study was approved by the National College of Ireland's Ethics Committee in December 2022 and is in line with The Psychological Society of Ireland Code of Professional Ethics (2010) and the NCI Ethical Guidelines and Procedures for Research involving Human Participants.

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An information sheet was displayed at the beginning of the online questionnaire that entailed the process of collecting un-identifiable information. Potential participants were made aware that no identifiable personal data, such as names or addresses would be required for this research and that the appropriate data protection legislation will be adhered to. The participants were made aware that the data they submit, is anonymous and participant confidentiality will be adhered to. The researcher's contact information was provided as an open invitation for enquiries.

There was no anticipated harm with this project, however if participants felt psychologically triggered by the material presented, there was a debriefing form provided at the end of the study including a list of 24-hour student and mental health helplines. Phone numbers, websites, and social media usernames were provided for each helpline to provide multiple contact options.

Chapter 4: Results

Descriptive Statistics

The current data is taken from a sample of 115 participants ($n = 115$). This comprised of 68.7% females ($n = 79$) and 31.3% males ($n = 36$). 57.4% ($n = 66$) of the overall sample affirmed that they do not take part in team sport, while 24.6% ($n = 49$) stated they do partake in team sport. Within both groups, females reported higher levels of social anxiety compared to males.

Preliminary analysis was performed on the data set to ensure all continuous variables followed the assumptions of normality. Inspection of histograms show that the data is positively skewed, and scores are clustered to the left of the chart. One continuous variable, age, had positive kurtosis values, indicating a peaked distribution. All other continuous variables accommodated negative kurtosis values with a platykurtic distribution of data. The results for all continuous variables, mean (M), standard deviation (SD), median (MD), minimum and maximum) are presented in Table 1. (see appendix 9 for screenshots of data file and appendix 10 for screenshot of output).

Table 1: *Descriptive statistics for continuous variables (N= 115)*

	Mean	Median	SD	Skewness	Kurtosis	Minimum	Maximum
Social anxiety	55.7	52	21.5	.463	-.131	10	117
Self-esteem	22.8	23	2.63	.105	-.152	17	29
Physical activity	57.95	54	32.2	.531	-.42	0	144
Age	21.8	21	3.81	2.89	10.2	18	42

Inferential Statistics

Hypothesis 1: Team sport membership predicts lower levels of social anxiety, while controlling for self-esteem and physical activity.

Firstly, relationships between team sport membership and age and gender were analysed. The level of significance used to determine the acceptance or rejection of the null hypothesis was 0.05. An independent samples T-test was conducted to examine whether age differentiates between team sport membership groups. The significance level for Levene's test was .38, therefore the assumption of equal variance had not been violated. There was no statistically significant difference in age, for the team sport membership group (M = 21.43, SD = 3.87) and the non-team sports group (M = 22.13, SD = 3.76, $p = .34$, two-tailed). The

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magnitude of the differences in the means (means difference = $-.69$, 95% CI: -2.12 to $.731$) was very small ($\eta^2 = .008$).

A Chi-Square Test of Independence was performed to assess the relationship between gender frequencies and team sport membership groups. There was a non-significant relationship between males playing sport (41.7%) and females playing sport (43%) and there was a non-significant relationship between females not playing sport (57%) and males not playing sport (58.3%), $X^2(df= 1, N= 115) = .019$, $p = .890$. The p -value is larger than the standard alpha value, so we fail to reject the null hypothesis and assert that the two variables, sport, and gender, are independent of each other and are not associated in this study.

Table 2: *Chi-Square Test of Independence assessing relationship between team sport and gender.*

Group	Team sport membership count	
	Plays team sport	Does not play team sport
Female Students	34	45
Male Students	15	21

Hierarchical Multiple Regression analysis was performed to assess the ability of the control measure 'team sport', in predicting lower levels of social anxiety after controlling for the influence of self-esteem and physical activity. Preliminary analyses were conducted to ensure no violations of the assumptions of normality, linearity, and homoscedasticity. Self-esteem and physical activity were entered at step 1, explaining 9.4% of the variance in social anxiety scores ($F(2, 112) = 5.79$, $p < 0.05$). After entry of team sports in block 2, the overall

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variance of the model was explained by 10.1% ($F(3, 111) = 4.17, p < 0.05$). Team sport explained an additional .8% of the variance in social anxiety, after controlling for self-esteem and physical activity responding. However, team sport supplied a non-significant contribution to social anxiety ($R^2 \text{ change} = .008, F \text{ change}(1, 111) = .938, p = .335$). In the final model, only the measures from block 1, self-esteem and physical activity were statistically significant, with self-esteem recording a higher beta value ($\beta = .26, p < 0.05$) than the physical activity scale ($\beta = .22, p < 0.05$). Self-esteem and physical activity significantly explained for 9.4% of the variance making them the strongest predictors to social anxiety scores positively.

Table 3: Hierarchical regression model predicting social anxiety levels in respondents who participate in team sport.

Variable	R^2	R^2	B	SE	β	t	p
	<i>Change</i>						
Step 1	.094	.094					
Physical activity			.145	.065	.217*	2.233	.028
Self-esteem			2.09	.761	.256*	2.751	.007
Step 2	.101	.008					
Team sport			4.04	4.17	.093	.969	.335

Note: R^2 = R-squared; $R^2 \text{ change}$ = R-Squared variance; B = unstandardized beta value; SE = Standard errors of B ; β = standardized beta value; $N = 115$; Statistical significance: * $p < .05$; ** $p < .01$; *** $p < .001$

Hypothesis 2: Regarding previous research, self-esteem negatively correlates with social anxiety.

Preliminary analyses were performed to ensure no violation of the assumptions of normality and all variables were normally distributed. Therefore, the parametric test Pearson Correlation was conducted. The level of significance used to determine the acceptance or rejection of the null hypothesis at 0.05.

A Pearson's correlation coefficient was conducted to assess the strength of the relationship between social anxiety and self-esteem. Preliminary analyses were performed to ensure no violation of the assumptions of normality linearity and homoscedasticity. There was a small (Cohen, 1988, pp. 79-81), significant positive correlation between the two variables ($r = .190$, $n = 115$, $p < 0.05$). The coefficient of determination showed that the correlation of $r = .190$, indicates self-esteem explained for 3.7% of the variance in social anxiety scores.

Table 4: *Pearson's correlation continuous variables, self-esteem, and social anxiety.*

Variables	Social Anxiety	Self-Esteem
Social Anxiety		.190*
Self- Esteem	.190*	

Note: $N=115$; * correlation is significant at the $p < 0.05$ level (two tailed)

Chapter 5: Discussion

Introduction

This chapter will commence with a summary of the findings of the current study. This is followed by a discussion in relation to the literature for hypothesis one and two. The limitations and strengths in relation to the methodology, and practical implications are then presented.

Overall summary of findings

The aim of this research was to determine whether team sport membership predicts lower levels of social anxiety in students.

Objectives:

- To examine the prevalence of social anxiety amongst third-level students.
- To examine the effect of team sport membership on social anxiety.
- To examine the relationship between self-esteem and social anxiety.

Hypothesis 1: Team sport membership predicts lower levels of social anxiety in students.

Hypothesis 2: Self-esteem and social anxiety negatively correlate.

Hypothesis 1: In total there were 115 participants. The main findings were that regression analysis found team sport membership to have a non-significant, positive effect on social anxiety, meaning participants who participate in team sports demonstrated higher scores on the Liebowitz Social Anxiety Scale (LSAS). Therefore, we fail to reject the null hypothesis in this study. This contradicts with multiple studies that found team sports to predict lower levels of social anxiety (Üstün & Yapici, 2019). Physical activity (PA) and self-esteem found a statistically significant, positive contribution to the scores on the LSAS. Suggesting that higher frequencies of PA and higher self-esteem scores contributed to higher

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social anxiety scores. This also contradicts with previous research (De Herdt et al., 2013; Iancu et al., 2015).

Hypothesis 2: The data also revealed that there is a significant, positive correlational relationship between self-esteem and social anxiety. Meaning that these variables increase in parallel. This was an unexpected finding that contradicts the second hypothesis and previous research that self-esteem and social anxiety negatively correlate (Seema & Kumar, 2017). These findings were statistically significant; therefore the null hypothesis is rejected.

Other findings include that males were more physically active (mean = 62.0) than females (mean = 56.0). More females participated in team sport (N= 34) than males (N=15). Overall, females (mean = 23.2) expressed higher levels of self-esteem than males (mean = 21.9).

Discussion in relation to literature.

Hypothesis 1: This study found that team sport membership did not have a significant effect on predicting lower levels of social anxiety. As the findings were non-significant, this study does not provide sufficient data to reject the null hypothesis. Team sport membership accounted for a very small variance in social anxiety scores, however non-significant. Results showed that social anxiety scores were higher among participants who currently participate in team sports (mean= 58.7) compared to those who do not (mean= 53.5). Physical activity and self-esteem had a significant, positive variance on social anxiety scores. This data is not in line with the results of multiple studies that found individuals who participate in regular physical activity (Anderson & Shivakumar, 2013), and individuals with higher self-esteem (Rasmussen & Pidgeon, 2011) experience lower levels of social anxiety.

Explanation 1: A possible explanation is that the current study included one question regarding whether respondents participate in team sport. Other research in this area employed

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multiple exploratory measures of team sport membership, as such, asking respondents whether they participate in individual or team sport, what type of sport and the duration of participation (Pluhar et al., 2019). A systematic review by Eime and colleagues (2013) highlighted the importance of including the surrounding influencing factors of team sport membership, such as, 'type of sport, domain, length of sport team membership and reasons behind joining team sports', when conducting research in this area. The current study may not have involved a sufficient amount of background information regarding team sport membership, as suggested by the studies above. This is a recommendation for future research in this area.

Explanation 2: A possible explanation is that some available research regarding the effects of team sport, implemented longitudinal and repeat measure, cross-sectional study designs and/or utilised pre and post data collection methods. Many of the researchers test a dependent variable before and after the team sport intervention and hence provided significant results on the effect of team sports (Civan et al., 2010; Johnston et al., 2021).

Explanation 3: Participants were recruited through convenience sampling techniques, hence this study did not provide a sufficient number of participants that participate in team sports to recognize an effect in comparison to a non-team sport group.

Hypothesis 2: Correlation analysis revealed that self-esteem had a relatively small positive correlation with social anxiety; higher self-esteem predicts higher social anxiety. This is not in line with the available research findings (Riggio et al., 1990; Kocovski & Endler, 2000; Stopa et al., 2010). Through Pearson correlation coefficient analysis, He (2022) found a significant negative correlation with self-esteem ($r = -0.17, p < 0.01$) and with social anxiety ($r = -0.26, p < 0.01$).

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Explanation 1: A possible explanation for this could be that the measures used in the current study were self-reported. Social desirability bias may explain respondents giving a more socially acceptable answer, rather than accurate reporting. The use of cross-sectional design regarding self-esteem and social anxiety could not determine a cause-effect relationship between the two variables.

Explanation 2: The study by He (2022) composed of 673 effective participants, in comparison to the current study ($N=115$). Higher sample sizes may be needed to determine a negative correlational relationship between social anxiety and self-esteem.

Explanation 3: This current study utilised the Liebowitz Social Anxiety Scale to collect self-reported social anxiety measures within the chosen population. The studies that prove a negative correlation between self-esteem and social anxiety include the use of the Interaction Anxiousness Scale (Yousaf, 2015; He, 2022) and Social Phobia inventory (Conner K. M. et al., 2000; Seem & Kumar, 2017). This could imply the use of different social anxiety data collection measures. However, many of the studies utilise the Rosenberg Self-Esteem Scale.

Limitations in relation to methodology

This section will discuss the limitations in relation to the methodology of this current study. Sample size and effect size, the limitations of cross-sectional design, lack of data collection regarding contextual factors of team sports, the use of quantitative research and the disproportion of females to males.

The relationship between the variables of interest might have been smaller in magnitude than originally expected, and that, with the sample size collected ($N = 115$) this study may not have been powered to detect smaller effects. A sensitivity power analysis (G^* Power) was conducted after the participants were recruited and showed that 155 participants

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would make a linear multiple regression model, with one predictor variable, sensitive enough to detect a 0.05 increase in R squared value ($\alpha = .05$, power = .95). Due to the time restraints of this final year project, 115 participants were collected. Previous studies deemed that 95% is sufficient power to generate significant results in relation to the hypotheses put forth in this study. However, Schulz & Grimes (2005) suggest using a smaller power to detect such smaller effects.

This research paper adopted a self-report cross sectional design. Cross-sectional research can be problematic and have varying response rates. Responses can be clouded by the desire to appear socially acceptable (Lowndes et al., 2012). In addition, there is a possibility of bias in this study. Cross-sectional design cannot establish a cause-effect relationship between variables, and a longitudinal design may have been more suitable for the research questions in this study.

This current study asked a simple yes or no closed-ended question in relation to team sport membership; 'do you participate in team sports?'. As mentioned above, team sport research requires a collection of contextual data (duration of team sports, type and/or reasons behind participation etc.) in order to prove team sport membership as a predictor to lower social anxiety scores.

This study adopted a quantitative design approach that may have collected data, inapplicable to the general population. However future studies could also consider a mixed method approach, combining the strength of both qualitative and quantitative analysis to explore this topic.

A higher proportion of females participated in this study in comparison to males. This may be explained by most of the respondents having replied through the social media advertisement for the study. Majority of social media followers were female. As a result, the

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findings may have been influenced by the higher proportion of female respondents. For example, previous statistics generally conclude that males typically show higher participation rates in team sports than females (Irish Sports Monitor, 2022) however this study prevailed that more females participated in team sport than males.

Strengths in relation to methodology

This section will discuss the strengths in relation to the methodology of this study: the benefits of this study, strengths of cross-sectional design and the use of validated questionnaires. An alternative perception of the results found in this study will also be discussed.

This study provides in-depth insight to the area of social anxiety and team sports as well as stimulating new research ideas in this area.

The online survey adopted a cross-sectional design that allowed for successful data collection and sanctioned for a snowballing sampling method. The online survey was practical and relatively quick to conduct when information was needed within the time frame of this college year.

The online survey was composed of 3 validated questionnaires, the Liebowitz Social anxiety Scale, the Rosenberg Self-esteem Scale, and the Godin Leisure-Time Exercise Questionnaire, that suitably addressed the research hypotheses and minimised measurement error.

Alternatively, this study suggests that there might not be a relationship between team sport membership and social anxiety. A study by Norton and colleagues (2000) examined team sport as a predictor to higher levels of social anxiety. Findings indicated that social anxiety and fear of negative evaluation generated from fears of negative judgement in sporting or athletic situations. Familial pressure to play sports was also associated with higher

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social anxiety scores. Furthermore, research suggests that sport has a potential for high levels of anxiety and stress (Ford et al., 2017) and the development of competitive anxiety (Hanin, 2010). As social anxiety is described ‘as a fear of negative evaluation of others’ () competitive anxiety within team sports may play a major contribution to the results in the current study.

Practical Implications of present study

The present study has several implications for practice. Firstly, counsellors and psychologists are directed to conduct further research on this topic of team sports. Further research is needed for the development of interventions or strategies to enable people to ultimately cope with social anxiety. Positive implications from this study may be used in future educational practices to proactively identify and provide early social anxiety interventions containing components to foster the social skills development of youth.

Sport and physical activity have been significantly proven to provide variance in social anxiety scores.

The purpose of this paper is to provide current insights into sport-related benefits on social anxiety. More specifically, it will provide the reader with definitions and theoretical conceptualizations of social anxiety, self-esteem, and insight on the topic of team sport. Furthermore, the urgent need for natural, social skill training interventions for social anxiety are discussed.

This study contributes to the existing data that self esteem does not negatively correlate with social anxiety.

To test hypothesis one, with thorough research, there was no measurement scale available regarding collecting and controlling for team sport data. Predicting variables, as mentioned by Eime and colleagues (2013), largely influences the impact of team sport on

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mental health research. Further research could benefit from the development of a sport measurement scale, which could analyse and control for a wider number of relevant predicting variables.

Conclusion

In total there were 115 participants. The main findings were that regression analysis found team sport membership to have a non-significant, positive effect on social anxiety, meaning participants who participate in team sports demonstrated higher social anxiety. Correlation analysis revealed that self-esteem had a relatively small positive correlation with social anxiety; higher self-esteem predicts higher social anxiety. This is not in line with the available research findings (Riggio et al., 1990; Kocovski & Endler, 2000; Stopa et al., 2010). While these findings are not in line with previous research, they contribute to the body of knowledge regarding social anxiety and sport. The study was limited by the lack of questions regarding team sport in the online questionnaire. The online survey was practical and relatively quick to conduct when information was needed within the time frame of this college year. Further research could include more participants, variables, and over longer time frames. Further studies should be conducted within this area of research, as team sports is a natural, fun method of improving social skills. Social anxiety disorder is a growing concern nationwide.

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Appendices

Appendix 1

Demographic questions

The screenshot displays a Google Forms interface for a survey titled "FYP FINAI". The form is set to "Questions" mode, with 115 responses recorded. The visible questions are:

- Question 1:** "Please specify your age in years *". It is a short-answer text question with a text input field.
- Question 2:** "What gender do you identify as? *". It is a multiple-choice question with the following options:
 - Male
 - Female
 - Prefer not to say
 - Other...

The interface includes a top navigation bar with "Questions", "Responses (115)", and "Settings" tabs. A "Send" button and a user profile icon are also visible. The Windows taskbar at the bottom shows the search bar, task view, and system tray with the date 11/03/2023 and time 15:15.

Appendix 2

*Liebowitz Social Anxiety Scale***Liebowitz Social Anxiety Scale**

Liebowitz MR. Social Phobia. Mod Probl Pharmacopsychiatry 1987;22:141-173

Pt Name:	Pt ID #:
Date:	Assessment point:

Fear or Anxiety:

0 = None

1 = Mild

2 = Moderate

3 = Severe

Avoidance:

0 = Never (0%)

1 = Occasionally (1—33%)

2 = Often (33—67%)

3 = Usually (67—100%)

	Fear or Anxiety	Avoidance	
1. Telephoning in public. (P)			1.
2. Participating in small groups. (P)			2.
3. Eating in public places. (P)			3.
4. Drinking with others in public places. (P)			4.
5. Talking to people in authority. (S)			5.
6. Acting, performing or giving a talk in front of an audience. (P)			6.
7. Going to a party. (S)			7.
8. Working while being observed. (P)			8.
9. Writing while being observed. (P)			9.
10. Calling someone you don't know very well. (S)			10.
11. Talking with people you don't know very well. (S)			11.
12. Meeting strangers. (S)			12.
13. Urinating in a public bathroom. (P)			13.
14. Entering a room when others are already seated. (P)			14.
15. Being the center of attention. (S)			15.
16. Speaking up at a meeting. (P)			16.
17. Taking a test. (P)			17.
18. Expressing a disagreement or disapproval to people you don't know very well. (S)			18.
19. Looking at people you don't know very well in the eyes. (S)			19.
20. Giving a report to a group. (P)			20.
21. Trying to pick up someone. (P)			21.
22. Returning goods to a store. (S)			22.
23. Giving a party. (S)			23.
24. Resisting a high pressure salesperson. (S)			24.

Appendix 3

Godin Leisure Time Exercise Questionnaire

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Godin Leisure-Time Exercise Questionnaire

Considering a **7-Day period** (a week), how many times on the average do you do the following kinds of exercise for **more than 15 minutes** during your **free time** (write on each line the appropriate number).

**Times Per
Week**

a) **STRENUOUS EXERCISE**

(HEART BEATS RAPIDLY)

(i.e. running, jogging, hockey, football, soccer,
squash, basketball, cross country skiing, judo,
roller skating, vigorous swimming,
vigorous long distance bicycling)

b) **MODERATE EXERCISE**

(NOT EXHAUSTING)

(i.e. fast walking, baseball, tennis, easy bicycling,
volleyball, badminton, easy swimming, alpine skiing,
popular and folk dancing)

c) **MILD EXERCISE**

(MINIMAL EFFORT)

(i.e. yoga, archery, fishing from river bank, bowling,
horseshoes, golf, snow-mobiling, easy walking)

Appendix 4

Rosenberg Self-Esteem Scale

decreases in self-esteem at Time 2. The results are discussed with reference to the importance of positive thinking for building resilience.

Scale:

Instructions

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

1. On the whole, I am satisfied with myself.

Strongly Agree Agree Disagree Strongly Disagree

2. At times I think I am no good at all.

Strongly Agree Agree Disagree Strongly Disagree

3. I feel that I have a number of good qualities.

Strongly Agree Agree Disagree Strongly Disagree

4. I am able to do things as well as most other people.

Strongly Agree Agree Disagree Strongly Disagree

5. I feel I do not have much to be proud of.

Strongly Agree Agree Disagree Strongly Disagree

6. I certainly feel useless at times.

Self Report Measures for Love and Compassion Research: *Self-Esteem*



Fetzer Institute

Strongly Agree Agree Disagree Strongly Disagree

7. I feel that I'm a person of worth, at least on an equal plane with others.

Strongly Agree Agree Disagree Strongly Disagree

8. I wish I could have more respect for myself.

Strongly Agree Agree Disagree Strongly Disagree

9. All in all, I am inclined to feel that I am a failure.

Strongly Agree Agree Disagree Strongly Disagree

10. I take a positive attitude toward myself.

Strongly Agree Agree Disagree Strongly Disagree

Scoring:

Items 2, 5, 6, 8, 9 are reverse scored. Give "Strongly Disagree" 1 point, "Disagree" 2 points, "Agree" 3 points, and "Strongly Agree" 4 points. Sum scores for all ten items. Keep scores on a continuous scale. Higher scores indicate higher self-esteem.

Appendix 5

Poster advertisement

Sport and Exercise Online Survey


Got a minute?
I am completing a research project, as part of my final year project at National College of Ireland.
It is investigating the effects of team sports and regular exercise on the mental wellbeing of students.

This online questionnaire will only take 10 minutes to complete
You can access the questionnaire by scanning the QR code on this poster with your phone!

If you have any further enquiries or concerns, please contact me: x20488104@student.ncirl.ie

Appendix 6

Participant information sheet



Final Year Project

Research examining the physical activity and mental health in young adults in Ireland.

Researcher

My name is Kate Cowman, and I am 21 years of age. I currently study psychology at National College of Ireland and I will be carrying out a study for my final year project, examining the physical activity and mental health effects of young people in Ireland. The study is a quantitative investigation about the effects of partaking in extracurricular sports teams. I am conducting this study under the supervision of Dr. David Mothersill. If any queries arise, please feel free to contact either me or Dr. David Mothersill, through the following:

Email: X204499104@student.ncirl.ie / David.Mothersill@ncirl.ie

My mobile: 087 342 6533

Aims and Objectives

The aim of this study is to extend my personal knowledge on the effects of exercise on mental health. I hope to further explore a topic relating to the effects of different types of sport and team sport on mental health.

I will be examining variables such as age, gender and how often you participate in regular activity, as well as including two validated psychological scales formerly used to investigate mental health statuses.

Safety and confidentiality

Your identity will remain confidential for the duration of this study. Your name will not be required to complete this questionnaire and the provided personal information such as age and gender will remain un-identifiable and anonymous. Appropriate data protection legislation will be adhered to. The anonymized data may be stored in an Open Data Repository.

After the completion of my study, it is a requirement that I present my findings from my final year project and I can assure you that no personal data will be recalled or presented, and unidentifiable information will be used to explain the results.

TEAM SPORT MEMBERSHIP AND SOCIAL ANXIETY

Voluntary participation and withdrawal

Your participation in this study is completely voluntary, and you may discontinue the questionnaire at any time without reason, and at no cost. The submitted data is unidentifiable and is collected anonymously, nonnumerical and randomly, therefore, after you submit the online questionnaire, you will not be able to withdraw your submission. In the event you wish to withdraw during your participation time frame (beginning to end of the questionnaire), you may leave or exit the questionnaire freely and your data will be dismissed. Your decision to stop participating during the participation timeframe, will not influence the nature of the ongoing study.

Risks

There are no anticipated risks associated with partaking in this study. If unpleasant issues or feelings arise for you, we advise you to discuss those feelings further with trusted friends and family and/or the following helplines I have identified at the end of my questionnaire.

Appendix 7

Consent form

By ticking the box below, you are indicating the following: *

I voluntarily agree to take part in this study.

I am over the age of 18.

I understand the purpose and nature of the study.

No personal data will be required to participate in this study, therefore, this data will be collected anonymously. My data will not be identifiable by any means.

I understand that un-identifiable information cannot be retracted after I submit this questionnaire.

I consent to participate in this study.

Next Clear form

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Google Forms

TEAM SPORT MEMBERSHIP AND SOCIAL ANXIETY

Appendix 8

Question asking participants to answer whether they participate in team sports.

Do you participate in regular (e.g. weekly/monthly) team/club sports? *

Yes
 No

Appendix 9

Screenshot of SPSS data file

Case	Consent	Age	Gender	Sport	SocialAnxietyQuestionnaire	Rosenberg SelfEsteem Questionnaire	GodinLeisureTimeScale	GodinSt	GodinMin	GodinMax	LSAS	LSAS1	LSAS2	LSAS3	LSAS4	LSAS5	LSAS6	LSAS7
61	1	20	1	0	57.00	28.00	40.00		9	10	21	0	2	0	0	2	2	
62	1	20	1	0	50.00	27.00	90.00		18	45	27	1	1	1	0	2	2	
63	1	20	1	0	57.00	27.00	73.00		27	25	21	1	0	1	0	1	1	
64	1	20	1	0	81.00	22.00	49.00		0	25	24	0	2	1	0	2	3	
65	1	20	1	0	45.00	24.00	33.00		9	15	9	2	1	1	0	1	2	
66	1	20	1	0	63.00	22.00	46.00		18	25	3	2	1	0	0	1	1	
67	1	20	0	0	24.00	21.00	30.00		9	15	6	1	0	0	0	1	1	
68	1	20	0	0	57.00	24.00	100.00		54	25	21	0	2	0	0	2	2	
69	1	20	1	0	46.00	26.00	27.00		0	15	12	1	2	0	0	1	3	
70	1	20	1	0	49.00	24.00	24.00		0	15	9	1	1	0	0	1	2	
71	1	20	1	0	28.00	25.00	27.00		0	0	27	0	1	1	0	1	2	
72	1	21	1	0	79.00	21.00	118.00		54	40	24	2	0	0	2	3	3	
73	1	21	1	0	77.00	28.00	35.00		18	5	12	1	1	1	0	1	2	
74	1	21	1	0	73.00	26.00	18.00		0	5	13	0	1	1	0	2	2	
75	1	21	0	0	30.00	24.00	74.00		27	20	27	1	0	1	0	0	1	
76	1	21	1	0	56.00	25.00	48.00		9	15	24	0	0	0	0	1	2	
77	1	21	1	0	53.00	24.00	24.00		0	15	9	0	0	0	0	1	3	
78	1	21	1	0	64.00	29.00	21.00		0	15	6	1	0	1	0	0	2	
79	1	21	0	0	46.00	22.00	60.00		36	15	9	0	0	0	0	2	0	

TEAM SPORT MEMBERSHIP AND SOCIAL ANXIETY

Appendix 10

Screenshot of SPSS outlook

The screenshot displays the SPSS Statistics Processor interface. The main window shows the output of a regression analysis. The dependent variable is 'SocialAnxietyQuestionnaire', and the independent variable is 'Sport'. The analysis includes descriptive statistics and correlations for the variables.

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
SocialAnxietyQuestionnaire	55.7043	21.54594	115
TotalFrequencies	57.9565	32.21866	115
RosenbergSelfEsteemQuestionnaire	22.8174	2.63106	115
Sport	.43	.497	115

Correlations

	SocialAnxietyQuestionnaire	TotalFrequencies	RosenbergSelfEsteemQuestionnaire	Sport
Pearson Correlation	1.000	.191	.190	.122

The SPSS command window shows the following syntax:

```

/MISSING FAIRWISE
/STATISTICS COEFF OUTS R ANOVA COLLIN TOL CHANGE ZPP
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT SocialAnxietyQuestionnaire
/METHOD=ENTER GodlinLeisureTimeScale RosenbergSelfEsteemQuestionnaire
/METHOD=ENTER Sport
/SCATTERPLOT=(*ZRESID ,*ZPRED)
/RESIDUALS NORMPROB(ZRESID)
/SAVE MAHAL COOK.

```

The Windows taskbar at the bottom shows the system tray with the date 13/03/2023 and time 12:59.