



Teh, R.; Krishnan-Vasanthi, R. (2022). The effects of individual vs. team sports on perceived stress, sports anxiety and sports motivation among competitive youth athletes. *Journal of Sport and Health Research*. 14(3): 395-404.

Original

LOS EFECTOS DE INDIVIDUAL VS. DEPORTES DE EQUIPO SOBRE ESTRÉS PERCIBIDO, ANSIEDAD DEPORTIVA Y MOTIVACIÓN DEPORTIVA ENTRE ATLETAS JUVENILES COMPETITIVOS

THE EFFECTS OF INDIVIDUAL VS. TEAM SPORTS ON PERCEIVED STRESS, SPORTS ANXIETY AND SPORTS MOTIVATION AMONG COMPETITIVE YOUTH ATHLETES

Teh, R.¹; Krishnan-Vasanthi, R.²

^{1,2}INTI International University

Correspondence to:

Rajkumar Krishnan Vasanthi

Faculty of Health and Life Sciences,
INTI International University
Persiaran Perdana BBN, Putra Nilai,
71800 Nilai, Malaysia.

Tel: +60129410541

rajkumarhari@yahoo.co.in

*Edited by: D.A.A. Scientific Section
Martos (Spain)*



Received: 08/10/2020

Accepted: 11/12/2020



RESUMEN

Objetivo: El objetivo del estudio fue determinar si existe una diferencia significativa entre el estrés percibido, la ansiedad deportiva y la motivación deportiva entre los jóvenes atletas competitivos de deportes individuales y de equipo.

Antecedentes: Se ha demostrado que el deporte organizado es la forma más óptima de actividad física asociada con la mejora de la salud mental. Esto es especialmente importante en la población de jóvenes, donde la prevalencia de problemas de salud mental ha tenido una tendencia al alza. Aún se desconoce si los deportes individuales y de equipo varían en términos de su impacto sobre el estrés percibido, la ansiedad deportiva y la motivación deportiva entre los atletas jóvenes competitivos.

Métodos: Llevamos a cabo una investigación cuasi-experimental ex post facto en la que se estudió a los participantes en deportes individuales o en equipo en retrospectiva sobre el estrés percibido, la ansiedad deportiva y la motivación deportiva. Comparamos las medidas autoinformadas de estrés percibido, ansiedad deportiva y motivación deportiva entre los atletas en deportes individuales y de equipo.

Resultados: Los resultados indican que existe una diferencia significativa entre el estrés percibido ($p < .001$), la ansiedad deportiva ($p < .001$) y la motivación deportiva ($p = .002$) entre los jóvenes atletas competitivos de deportes individuales vs.

Conclusión: los deportistas deportivos individuales tienen más probabilidades de reportar un mayor estrés percibido, mayor ansiedad deportiva y menor motivación deportiva en comparación con los deportistas de deportes de equipo.

Palabras clave: Deportes, Estrés, ansiedad, motivación.

ABSTRACT

Aim: The objective of the study was to determine if there a significant difference between perceived stress, sports anxiety and sports motivation among competitive youth athletes of individual vs. team sports.

Background: Organized sports has been shown to be the most optimal form of physical activity associated with the improvement of mental health. This is especially important in the population of youths, where the prevalence of mental health issues have been trending upwards. It is still unknown whether individual sports and team sports vary in terms of their impact towards perceived stress, sports anxiety and sports motivation among competitive youth athletes.

Methods: We conducted a quasi-experimental, ex-post facto research where the participants in either individual or team sports were studied in retrospect to perceived stress, sports anxiety and sports motivation. We compared self-reported measures of perceived stress, sports anxiety and sports motivation between the athletes in individual and team sports.

Results: The results indicate that there is a significant difference between perceived stress ($p < .001$), sports anxiety ($p < .001$) and sports motivation ($p = .002$) among competitive youth athletes of individual vs. team sports.

Conclusion: Individual sports athletes are more likely to report higher perceived stress, higher sports anxiety and lower sports motivation compared to team sports athletes.

Keywords: Sports, stress, anxiety, motivation



INTRODUCTION

The prevalence of mental health issues has continued to increase globally as 5-10% of children and up to 25% of teenagers now suffer from anxiety disorders while 2-9% of children are diagnosed with major depressive disorder (Glover and Fritsch, 2018; Sabiston et al., 2016). 60% of people ranging from the age of 18-24 reported increased stress levels related to the pressure to succeed contrasting to only 6% of people over the age of 55 (Mental Health Foundation, 2018). Consequently, several studies have been conducted and suggested physical activity as a potential protective mediator that reduces perceived stress levels, anxiety and depression (Boone and Leadbeater, 2006; Salmon, 2001; Schaal et al., 2011). Multiple studies have shown that 60 minutes of exercise per day can improve mood and decrease symptoms of depression and anxiety in subjects present with on-going moderate to high levels of depressive symptoms, where 30-40% of them are aged between 12 and 19 (Boone and Leadbeater, 2006; Sabiston et al., 2016; Strong et al., 2005).

Compared to exercise alone, the participation in organized sports is even better at reducing the risk of anxiety, depression, hopelessness, suicidal ideation and suicide attempts, cigarette smoking, and illegal drug use (Miller et al., 2002; Miller and Hoffman, 2009; Pedersen et al., 2017). Sports differ from physical activity and exercise, as sports involve a set of rules, goals to train and a need to excel in specific athletic skills – all to achieve an objective in order to score points. Sports are often but not always competitive in nature whereas physical activity and exercise do not involve competition. Organized sports are better associated with mental health of youths compared to other forms of physical activity and have been correlated with decreased depressive symptoms, increased self-esteem, and improved social abilities (Elime et al., 2013; Sabiston et al., 2016; Vella et al., 2017). The social benefits of sports participation have been associated with a reduction in stress and increased self-reported overall mental health in youths (Sabiston et al., 2016; Vella et al., 2017). Research has shown that those who do not participate in or drop out of organized sports have greater social and emotional difficulties than those who continue to play, as non-athletes are 10-20% more likely to suffer mental health issues (Vella et al., 2015, 2017).

High levels of perceived stress contribute directly to increased anxiety and depression (Cohen, Janicki-Deverts & Miller, 2007). Perceived stress often increases in athletes during a competition due to the presence of a spectating audience and having high expectations to succeed (Ford, Ildefonso, Jones, & Arvinen-Barrow, 2017). In this study, is important to distinguish between general anxiety and sports anxiety, as the latter is a specific type of anxiety that the athlete experience before or during competition – sometimes referred to as “choking”, which affects athletic performance due to high levels of perceived stress (Quinn, 2019). High levels of sports anxiety contribute directly to low motivation, inadequate concentration, high distress and poor performance (Saravanan & Kingston, 2014). With motivation being considered as one of the main characteristics of successful athletic performance (Weinberg & Goald, 1995), low motivation will in turn decrease athletic performance. Thus, it is concluded that stress, sports anxiety and sports motivation are inter-related and significantly affects the overall physiological, psychological and behavioural performance of an athlete. (Khan, Khan, Khan, & Khan, 2017). With high stress levels, sports anxiety and low sports motivation being direct psychological influences to athletic performance and sports behaviour (Kajbafnezhad et al., 2011), there is therefore a need to study these problems within the population of competitive youth in order to help educate and control the different psychological processes experienced throughout an athletes’ career to maximize their athletic potential.

There is also a significant difference between team sports and individual sports in terms of psychological skills and athletic motivation (Kajbafnezhad et al., 2011). A team sport is defined as any sport, which involves players working together towards a shared objective where individuals are organized into opposing teams, which compete to win such as basketball, football or baseball (Kumar, 2015). When an athlete competes in individual sports, they are entirely dependent on their sole ability where the performance criteria is unidimensional (Kajbafnezhad et al., 2011). Individual sports athletes require more motivation to excel compared to team sports athletes (Kumar, 2015) where they require a higher level of preparation as their success is entirely



dependent on their own skills and training (Kajbafnezhad et al., 2011). Individual sports clearly encourage self-reliance and accountability, but this increased sense of responsibility may contribute to increased stress and sports anxiety during competition or worse – intense feelings of guilt and shame after losing (Nixdorf et al., 2016). However, individual sports exhibit the highest rates of anxiety among elite athletes not only because of the way they internalize failure but also their tendency to set intense personal goals for themselves where they feel immense pressure to differentiate themselves from competition in pursuit of perfection and the judge's approval (Nixdorf, Frank, Hautzinger, & Beckmann, 2013; Schaal et al., 2011).

In contrast to individual sports, team sports athletes spend more time practicing with teammates leading to increased interaction and cooperation with one another (Kajbafnezhad et al., 2011). Although both team and individual sports have been shown to improve mental and physical health, evidence suggests that participation in team sports may have a larger positive impact on psychological and social outcomes when compared to individual sports (Vella et al., 2017). However, not all sports impact mental health the same as sport psychology researchers have shown that competitive sports has the potential for high levels of perceived stress and anxiety which may impact sports performance (Ford, Ildefonso, Jones, & Arvinen-Barrow, 2017; Kajbafnezhad et al., 2011). Evidence show that combining team cooperation with competition facilitates the highest levels of intrinsic motivation and sports performance compared to competition alone (Tauer & Harackiewicz, 2004).

Hence, the purpose of this study is to determine the significant difference between perceived stress, sports anxiety and sports motivation among competitive youth athletes in individual vs. team sports.

METHODS

Study Design

The target population consist of 96 youth athlete ranging from the age of 15 to 24 and who have participated in any level of sports competition in the past one year where purposively recruited. Concurrent participation in both individual and team

sports in the past 6 months and any injury or disorders were strictly excluded. The study incorporated quantitative approach, ex-post facto research design.

Procedure

Upon informed consent, a self-administered structured online questionnaire using Google forms used to gather demographics of the participants and active participation in competitive sports, individual or team participation, level of representation and most recent participation. Dependent variables comprises of 3 outcome measures

i. Cohen's 10-Item Perceived Stress Scale (PSS-10)

The PSS-10 (Cohen, 1988), consists of 10 items and will be the instrument used to measure perceived stress. The individual score of the PSS-10 ranges from 0 to 40 where a higher score indicates a greater amount of perceived stress. The PSS-10 has excellent internal consistency (Cronbach's alpha: 0.81), test-retest reliability (Intraclass Correlation Coefficient: 0.954) and high construct validity (Sun, Gao, Kan, & Shi, 2019).

ii. Sports Anxiety Scale-2 (SAS-2)

The SAS-2 (Smith, Smoll, Cumming, & Grossbard, 2006), consists of 15 items and will be the instrument used to measure sports anxiety. Hence, the individual score of the SAS-2 ranges from 15 to 60 where a higher score indicates a greater amount of sports anxiety. The SAS-2 has excellent internal consistency (Cronbach's alpha: 0.91) with good construct validity (Cho, Choi, Eklund, & Paek, 2018).

iii. Sports Motivation Scale-6 (SMS-6)

The SMS-6 (Mallett, Kawabata, Newcombe, Otero-Forero, & Jackson, 2007) consists of 24 items and will be the instrument used to measure sports motivation. Hence, the individual score of the SMS-6 ranges from 24 to 168 where a higher score indicates a greater amount of sports motivation. The SMS-6 has high internal validity (Cronbach's alpha: 0.78) and good construct validity (Mallett, Kawabata, Newcombe, Otero-Forero, & Jackson, 2007)



Ethical Approval

Following approval from the ethical committee of the Institution (INTI-IU/FHLS-RC/BPHTI/7NY12019/001), that has followed the tenets of the Declaration of Helsinki.

Statistical Analysis

IBM SPSS Version 21.0 were used for statistical analysis. The perceived stress, sports anxiety and sports motivation were measured using central tendencies and dispersion such as mean, mode and standard deviation and an independent T-test was used to calculate the significant difference between perceived stress, sports anxiety and sports motivation in individual vs. team sports. A p-value of <0.05 was used to define statistical significance.

RESULTS

Table 1 represents the demographic data of the participants with respect to gender, type of sports and the highest level of representation. This study has predominantly more males (61.46%) compared to females (38.54%). Team sports are also at a higher proportion (53.12%) over individual sports at (46.88%). The major level of representation was also at the school level (47.92%).

Table 1. Demographics

Demographics	Categories	n	Percentage
Gender	Male	59	61.46%
	Female	37	38.54%
Type of Sports	Individual	45	46.88%
	Team Sports	51	53.12%
	Self	18	18.75%
Highest Level of Representation	School	46	47.92%
	District	11	11.46%
	State	21	21.88%
	Nation	0	0%

Table 2 represents the results of descriptive group statistics in perceived stress, sports anxiety and sports motivation between individual sports ($n=45$) and team sports ($n=51$). For perceived stress, the individual sports group reported a higher mean score at 20.82 ± 5.58 compared to the team sports group at 15.63 ± 4.20 . For sports anxiety, the individual sports group reported a higher mean score at 20.56 ± 9.98

compared to the team sports group at 13.57 ± 8.24 . For sports motivation, the individual sports group reported a lower mean score at 100.31 ± 24.60 compared to the team sports group at 115.55 ± 21.25 .

Table 2. Perceived stress, sports anxiety and sports motivation between individual sports and team sports

	Group	n	Mean	\pm SD
Stress	Individual	45	20.82	5.581
	Team	51	15.63	4.195
Anxiety	Individual	45	20.56	9.981
	Team	51	13.57	8.244
Motivation	Individual	45	100.31	24.596
	Team	51	115.55	21.252

Table 3 represents the results of the inferential statistics of the independent sample t-test. Since the F-value for perceived stress in the Levene's Test of Equality of Variances was significant ($p = .044$) but not for sports anxiety ($p = 1.73$) and sports motivation ($p = 1.24$), we assume that homogeneity has been met for sports anxiety and sports motivation but not for perceived stress as its variances cannot be assumed to be equal.

Comparing Table 2 and 3, for perceived stress, there was a significant difference in the scores for the individual sports group ($M=20.82$, $SD=5.58$) and team sports group ($M=15.63$, $SD=4.20$); $t(81.07) = 5.10$, $p < .001$. For sports anxiety, there was a significant difference in the scores for the individual sports group ($M=20.56$, $SD=9.98$) and team sports group ($M=13.57$, $SD=8.24$); $t(94) = 3.76$, $p < .001$. For sports motivation, there was a significant difference in the scores for the individual sports group ($M=100.31$, $SD=24.60$) and team sports group ($M=115.55$, $SD=21.25$); $t(94) = -3.26$, $p = .002$. These results suggest that there is significant difference between perceived stress, sports anxiety and sports motivation among competitive youth athletes in individual vs. team sports.

Table 3. Represents the results of the inferential statistics of the independent sample t-test

		F	Sig.	t	df	Sig. (2-tailed)
Stress	Equal variances assumed	4.178	0.044	5.19	94	0.000
	Not assumed			1		



	Equal variances not assumed			5.10	81.	0.000
				1	073	
Anxiety	Equal variances assumed	1.884	0.173	3.755	94	0.000
	Equal variances not assumed			3.71	85.	0.000
					619	
Motivation	Equal variances assumed	2.408	0.124	-3.257	94	0.002
	Equal variances not assumed			-3.227	87.	0.002
					609	

DISCUSSION

In this study, we aimed to determine if there was a significant difference between perceived stress, sports anxiety and sports motivation among competitive youth athletes of individual vs. team sports. It has been found that the individual sports group exhibited higher perceived stress, higher sports anxiety and lower sports motivation compared to the team sports group. As predicted, there was indeed a significant difference in all the three psychological components tested among the competitive youth athletes of individual vs. team sports.

The outcome of the results in this study may possibly be explained in two potential manners. Firstly, it could be that individual sports places a greater deal of psychological stress on an athlete compared to team sports which in-turn diminishes the motivational component, which drives athletic success. When competing alone, individual sport athletes not only experiences loneliness but they also have to carry the weight of failure alone in the presence of a loss. (Nixdorf et al., 2016). Individual sport athletes have increased stress and sports anxiety because they have to depend entirely on their own ability and skills to succeed unlike in team sports where teammates are always present to provide assistance and psychological support (Kajbafnezhad et al., 2011). Secondly, it could be that competitive athletes participating in team sports are better at mediating psychological stressors and are generally more motivated than competitive athletes participating in individual sports. This is due to the introduction of a social component only present in team sports where there is a sense of community and relationships are

built on teams with peers, which promote feelings of acceptance and comfort helping the athletes to better process psychological stressors (Boone and Leadbeater, 2006). Team sport athletes are also shown to have higher sports motivation as an added component of team engagement presents more opportunities for fun and interaction compared to training or competing alone (Pluhar et al., 2019). However, competing in individual sports alone should not be considered as a risk factor of increased perceived stress, increased sports anxiety and lower sports motivation. Studies have shown that gender differences in brain structure and function places women at greater risk of psychological stressors and anxiety disorder (Altemus et al., 2014). Although there have been no studies done on the level of representation of athletes in relation to their psychological factors, it can be hypothesized that elite competitive athletes representing an entire nation tend to exhibit higher levels of perceived stress and anxiety compared to athletes representing their schools. Therefore, it is essential to consider how gender and the level of representation coupled with the type of sport may influence issues regarding psychological health.

Study Limitations

In this study, the estimated minimum sample size is calculated at $n=96$ using a margin of error of 10% instead of the standard 5%. Even though a margin of error of 10% is a widely accepted value, a lower margin of error in statistics will indicate a higher reliability of the poll results to represent the population. Based on the results of this study, associations can be drawn but not a direct cause and effect.

CONCLUSION

We concluded that there is a significant difference between perceived stress, sports anxiety and sports motivation among competitive youth athletes in individual vs. team sports. Youth athletes competing in individual sports exhibit increased perceived stress, increased sports anxiety and reduced sports motivation compared to youth athletes competing in team sports. It could be possible that individual sports places a greater deal of psychological stress on an athlete compared to team sports and/or that team sports athletes are better at mediating psychological



stressors compared to individual sports athletes. Researchers should continue to investigate the regulation of psychological stressors in relations to team motivation and self-motivation in youth competitive athletes.

ACKNOWLEDGEMENTS

We would also like to extend my gratitude to my friends for their endless support, creative opinions and heated discussions, which paved the way for the successful completion of my research project. More importantly, would like to thank my mother Ms. Rebecca Tan Mei Leng for the unconditional love and financial support throughout our research.

REFERENCES

1. Altemus M., Sarvaiya N., Epperson C.N. (2014) Sex differences in anxiety and depression clinical perspectives. *Frontiers in neuroendocrinology*, 35(3), 320-330.
2. Boone, E. M., & Leadbeater, B. J. (2006, January 25). Game On: Diminishing Risks for Depressive Symptoms in Early Adolescence Through Positive Involvement in Team Sports. Retrieved from <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1532-7795.2006.00122.x>.
3. Cho, S., Choi, H., Eklund, R. C., & Paek, I. (2018, March 23). Validation and Reliability of the Korean Version of the Sport Anxiety Scale-2. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/29599874>
4. Cochran, W. G. 1963. *Sampling Techniques*, 2nd Ed., New York: John Wiley and Sons, Inc
5. Cohen, S. and Williamson, G. Perceived Stress in a Probability Sample of the United States. Spacapan, S. and Oskamp, S. (Eds.) *The Social Psychology of Health*. Newbury Park, CA: Sage, 1988.
6. Cohen, S., Janicki-Deverts, D., & Miller, G. E. (2007, October 10). Psychological stress and disease. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/17925521>
7. Eime, R. M., Young, J. A., Harvey, J. T., Charity, M. J., & Payne, W. R. (2013, August 15). A systematic review of the psychological and social benefits of participation in sport for children and adolescents: informing development of a conceptual model of health through sport. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/23945179>
8. Ford, J. L., Ildefonso, K., Jones, M. L., & Arvinen-Barrow, M. (2017, October 27). Sport-related anxiety: current insights. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/29138604>
9. Glover, J., & Fritsch, S. L. (2018, April). #KidsAnxiety and Social Media: A Review. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/29502744>
10. Kajbafnezhad, H., Ahadi, H., Heidarie, A. R., Askari, P., & Enayati, M. S. (2011). Difference between Team and Individual Sports with Respect to Psychological Skills, Overall Emotional Intelligence and Athletic Success Motivation in Shiraz City Athletes. PDF.
11. Khan, M. K., Khan, A. U., Khan, S., & Khan, S. (2017, October 25). Effects of Anxiety on Athletic Performance. PDF.
12. Kumar, P. (2015). Motivation among individual and Team sports players. PDF.
13. Mallett, C., Kawabata, M., Newcombe, P., Otero-Forero, A., & Jackson, S. (2007). Sport motivation scale-6 (SMS-6): A revised six-factor sport motivation scale. Retrieved from <https://psycnet.apa.org/record/2007-12294-003>
14. Mental Health Foundation. (2018, May 13). Mental health statistics: stress. Retrieved from <https://www.mentalhealth.org.uk/statistics/mental-health-statistics-stress>
15. Miller, K. E., Barnes, G. M., Melnick, M. J., Sabo, D. F., & Farrell, M. P. (2002, December). Gender and racial/ethnic differences in predicting adolescent sexual risk: athletic participation versus exercise. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/12664675>
16. Miller, K. E., & Hoffman, J. H. (2009, June 1). Mental Well-Being and Sport-Related Identities in College Students. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/20661467>



17. Nixdorf, I., Frank, R., Hautzinger, M., & Beckmann, J. (2013). Prevalence of Depressive Symptoms and Correlating Variables Among German Elite Athletes. PDF.
18. Nixdorf, I., Frank, R., & Beckmann, J. (2016, June 17). Comparison of Athletes' Proneness to Depressive Symptoms in Individual and Team Sports: Research on Psychological Mediators in Junior Elite Athletes. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/27378988/>
19. Pedersen, M. T., Vorup, J., Nistrup, A., Wikman, J. M., Alstrøm, J. M., Melcher, P. S., ... Bangsbo, J. (2017, August). Effect of team sports and resistance training on physical function, quality of life, and motivation in older adults. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/28144978/>
20. Pluhar, E., McCracken, C., Griffith, K., Christino, M., Sugimoto, D., & Meehan, W. (2019, August 1). Team Sport Athletes May Be Less Likely To Suffer Anxiety or Depression than Individual Sport Athletes. Retrieved June 29, 2020, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6683619/>
21. Quinn, E. (2019, September 14). How to Overcome Performance Anxiety in Sports With Psychology. Retrieved from <https://www.verywellfit.com/sports-psychology-for-performance-anxiety-3119436>
22. Sabiston, C. M., Jewett, R., Ashdown-Franks, G., Belanger, M., Brunet, J., O'Loughlin, E., & O'Loughlin, J. (2016, February). Number of Years of Team and Individual Sport Participation During Adolescence and Depressive Symptoms in Early Adulthood. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/27018562/>
23. Salmon, P. (2001, February). Effects of physical exercise on anxiety, depression, and sensitivity to stress: a unifying theory. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/11148895>
24. Saravanan, C., & Kingston, R. (2014, May). A randomized control study of psychological intervention to reduce anxiety, amotivation and psychological distress among medical students. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4116568/>
25. Schaal, K., Tafflet, M., Nassif, H., Thibault, V., Pichard, C., Alcotte, M., Toussaint, J.-F. (2011, May 4). Psychological balance in high-level athletes: gender-based differences and sport-specific patterns. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/21573222/>
26. Smith, R. E., Smoll, F. L., Cumming, S. P., & Grossbard, J. R. (2006). Measurement of Multidimensional Sport Performance Anxiety in Children and Adults: The Sport Anxiety Scale-2. PDF.
27. Strong, W. B., Malina, R. M., Blimkie, C. J. R., Daniels, S. R., Dishman, R. K., Gutin, B., ... Trudeau, F. (2005, June). Evidence based physical activity for school-age youth. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/15973308/>
28. Sun, Y., Gao, L., Kan, Y., & Shi, B.-X. (2019, February). The Perceived Stress Scale-10 (PSS-10) is reliable and has construct validity in Chinese patients with systemic lupus erythematosus. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/30518288>
29. Tauer, J. M., & Harackiewicz, J. M. (2004, June). The effects of cooperation and competition on intrinsic motivation and performance. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/15149259>
30. Vella, S. A., Cliff, D. P., Magee, C. A., & Okely, A. D. (2015, May). Associations between sports participation and psychological difficulties during childhood: a two-year follow up. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/24908361/>
31. Vella, S. A., Swann, C., Allen, M. S., Schweickle, M. J., & Magee, C. A. (2017, April). Bidirectional Associations between Sport Involvement and Mental Health in Adolescence.



- Retrieved from
<https://www.ncbi.nlm.nih.gov/pubmed/27801745/>
32. Weinberg, R. S., & Gould, D. (1995). Foundations of sport and exercise psychology. Champaign (IL): Human Kinetics, 1995. Retrieved from <http://www.sci epub.com/reference/42268>.
33. WHO. (2017, July 13). World Health Organization, Adolescent health and development. Retrieved from http://www.searo.who.int/entity/child_adolescent/topics/adolescent_health/en/

