

Psychological resilience among adolescents: Differences by sports participation and gender

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ABSTRACT

Psychological resilience is an important psychological capacity that helps adolescents adapt to stress and challenging experiences. Sports participation may provide structured opportunities involving goal setting, coping experiences, and social interactions that are associated with differences in resilience. This study examined differences in psychological resilience among adolescents based on sports participation (individual sports, team sports, and non-athletes) and gender. Using a cross-sectional descriptive-comparative research design, 240 high school adolescents aged 14–18 years were selected through convenience sampling. The sample included 120 athletes and 120 non-athletes, with equal representation of males and females. Athletes were categorized into individual and team sports, and resilience was assessed using the Resilience Scale developed by Wagnild and Young (1993). A two-way factorial ANOVA was conducted to examine the effects of sports participation group and gender, including their interaction effect. Results indicated a significant main effect of sports participation group, with individual sport athletes reporting the highest resilience scores, followed by team sport athletes and non-athletes. Post hoc comparisons showed that both individual and team sport athletes had significantly higher resilience scores than non-athletes, while individual sport athletes also scored significantly higher than team sport athletes. A significant gender effect was observed, with males reporting slightly higher resilience scores than females; however, the effect size was small. The interaction between sports participation group and gender was not significant. Overall, adolescents participating in organized sports showed higher resilience scores than non-athletes, suggesting the potential value of structured sports opportunities in supporting adolescent psychological development.

Keywords: sport psychology; psychological resilience; adolescents; sports participation; individual sports; team sports; non-athletes; gender differences.

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INTRODUCTION

Adolescence is a critical phase of human development marked by rapid and profound changes in physical, emotional, cognitive, and social domains. High school students, in particular, are confronted with multiple challenges such as academic pressure, peer relationships, identity formation, and expectations related to future career goals. These cumulative demands often make adolescents vulnerable to stress-related psychological difficulties, including anxiety, emotional instability, and ineffective coping strategies (Compas et al., 2017). In this context, psychological resilience emerges as a key protective factor, enabling adolescents to adapt positively despite adversity.

Psychological resilience is broadly defined as an individual's capacity to withstand, adapt to, and recover from stressful, challenging, or adverse life experiences while maintaining psychological well-being (Masten, 2014). Rather than being a fixed personality trait, resilience is now conceptualized as a dynamic and modifiable process, shaped by personal attributes, social relationships, and environmental contexts (Luthar et al., 2000). Higher levels of resilience among adolescents have been consistently associated with better emotional regulation, cognitive functioning, social competence, and lower prevalence of depression and anxiety (Fletcher & Sarkar, 2013).

Among the various environmental contexts influencing resilience development, sports participation has been identified as a significant and effective platform for fostering psychological resilience during adolescence. However, sports participation may not influence resilience directly. Rather, sports provide adolescents with opportunities to experience challenges, receive feedback, develop coping strategies, enhance self-efficacy, and build supportive relationships. These psychological and social experiences may act as mechanisms through which sports participation contributes to resilience. Factors such as coaching support, peer relationships, and motivational climate may further influence this process.

Much of the existing literature linking sports participation to resilience relies on general associative claims rather than an explicit account of the mechanisms involved. The present study draws on four complementary theories of resilience: the Protective Factors Model (Rutter, 1987; Werner, 2000), The Grounded Theory of Psychological Resilience in Sport Performers (Fletcher & Sarkar, 2012), Masten's concept of resilience as "*ordinary magic*" (Masten, 2001) and Ungar's Social Ecological Model of Resilience (Ungar, 2011) as an organizing framework: repeated, manageable exposure to controllable stressors—such as competition, performance evaluation, and physical exertion—combined with active coping efforts, is theorized to strengthen an individual's coping repertoire and, over time, their resilience (Galli & Vealey, 2008). Importantly, this process is unlikely to be uniform across all sport contexts. Several variables plausibly moderate or mediate the sport–resilience relationship, including training environment and coaching style, quality and source of social support, motivational climate (mastery- versus performance-oriented), and competitive level or training load (Gucciardi et al., 2015). For example, autonomy-supportive coaching and mastery-oriented motivational climates may be more consequential for resilience development than sport type per se, while punitive or highly performance-focused environments could plausibly attenuate or even reverse the hypothesized benefits. The present study does not directly test these mediating and moderating pathways but treating them explicitly here is intended to temper the more deterministic causal framing found in earlier work and to situate the present descriptive-comparative findings within a more conditional, mechanism-aware account of how sports participation may relate to resilience.

Rutter (1987) proposed that resilience develops through protective mechanisms that enable individuals to cope effectively with adversity. Participation in sports during adolescence can act as a protective factor by

providing opportunities for skill development, social support, and positive coping experiences that strengthen psychological resilience. Participation in sports exposes students to structured challenges such as competition, performance evaluation, time management, physical exertion, and goal-directed behaviour, all of which promote adaptive coping mechanisms (Galli & Vealey, 2008). Consequently, student-athletes are often reported to exhibit greater mental toughness, self-discipline, emotional control, and resistance to stress when compared to non-athletes (Gucciardi et al., 2015; Sheng et al., 2024; Acar & Serin, 2025).

The Grounded Theory of Psychological Resilience in Sport Performers, developed by Fletcher and Sarkar (2012), posits that the sporting environment acts as a natural laboratory where athletes develop resilience by interacting with stressors, rather than through participation alone. This model highlights that individuals leverage five key psychological protective factors—positive personality, intrinsic motivation, confidence, focus, and social support—to maintain high performance despite adversity.

Similarly, Masten's concept of resilience as "*ordinary magic*" emphasizes that resilience is developed through everyday experiences and successful adaptation to challenges rather than being an innate characteristic (Masten, 2001). In sports, athletes regularly encounter setbacks, competition, and performance pressure, enabling them to strengthen perseverance, emotional regulation, and problem-solving skills.

Furthermore, Ungar's Social Ecological Model of Resilience highlights the importance of social and environmental resources, arguing that resilience is influenced by access to supportive relationships and community contexts (Ungar, 2011). Sports participation provides a positive social environment through interactions with coaches, teammates, and peers, fostering a sense of belonging and emotional support.

Collectively, these theories propose that resilience develops through the interaction of individual strengths, protective relationships, and supportive environments. Sports participation provides opportunities for adolescents to experience challenges, develop adaptive coping strategies, and access social support from coaches and teammates, making these theories an appropriate framework for examining the relationship between sports participation and psychological resilience in the present study. Therefore, this study views sports participation as a context that promotes resilience through underlying psychological and social processes rather than as a direct cause of resilience.

Further, to better understand the potential contribution of sports participation to resilience, it is important to compare adolescents who participate in organized sports with those who do not. Such comparisons help determine whether the psychological and social experiences associated with sport are linked to differences in resilience. Non-athletes, as opposed to competitive competitors, are described as individuals or students who do not participate in organized sports. Their daily routines prioritize non-competitive hobbies like painting, reading, and leisure exercise over structured athletic training. Because they lack formal or professional sporting standing, their psychological conditioning takes place outside of sports contexts. As a result, their lifestyle does not involve the regimented, high-stakes pressure prevalent in competitive sports contexts.

Comparative studies between athletes and non-athletes have consistently demonstrated that athletes tend to display higher levels of resilience, self-esteem, and emotional stability (Gerber et al., 2013; Kucuk, 2024; Wiedenman et al., 2024). In contrast, non-athletes may experience fewer opportunities for controlled exposure to stress, structured feedback, and systematic coping demands—conditions that are crucial for resilience development. However, it is important to note that sports participation is not a uniform experience, and the nature of sport engagement itself may influence psychological outcomes (Pasquerella et al., 2025).

Sports can be broadly categorized into individual and team sports, which are theorized to offer distinct psychosocial environments. Individual-sport athletes often rely heavily on self-motivation, autonomy, self-responsibility, and internal coping strategies, which may strengthen individual resilience and self-regulatory skills (Nicholls et al., 2009). Team sports, by contrast, emphasize cooperation, communication, shared responsibility, and social support, which may foster collective coping mechanisms and interpersonal resilience (Evans et al., 2012; Ungar, 2011; Wei et al., 2025). Evidence suggests both sport types may contribute to resilience development through different psychological pathways (Eime et al., 2013; Nicholls et al., 2016; Popovych et al., 2022; Wei et al., 2025; Hayes, 2025), although Blanco-García et al. (2021) reported no statistically significant difference in resilience between individual- and team-sport athletes, suggesting that the structural model of resilience may be broadly similar across sport types and that other factors—such as coping style, mindfulness, and social support—may matter more than sport type itself. Thus, different sporting environments may contribute to resilience through distinct developmental pathways.

Gender is another factor frequently examined in relation to adolescent resilience, though findings remain mixed. Some studies suggest that males report slightly higher resilience, possibly reflecting socialization patterns that emphasize problem-solving, emotional control, and independence (Blanco-García et al., 2021; Bozdog, 2020), while females may be more likely to employ emotion-focused and socially oriented coping strategies (Mlouki et al., 2024; Tamres et al., 2002). These differences appear to be narrowing with increasing female participation in competitive sports, and some authors have proposed that sports involvement functions as a broadly gender-neutral mechanism for resilience development (Sabato et al., 2016). However, findings on gender differences remain inconsistent, with some studies reporting significant differences and others reporting minimal or no variation due to individual differences in personality, sport, competition, and social support (Sheng et al., 2024; Wei et al., 2025).

Given these varying findings, further research examining resilience across different groups of adolescents remains important, particularly at the high school level where individuals face multiple academic, social, and developmental challenges. Taken together, the reviewed literature indicates that resilience is an important psychological quality supporting adolescents' capacity to manage stress and adversity, and that sports participation, sport type, and gender have each been examined—typically in isolation—as correlates of resilience. Few studies have examined these variables within a single, integrated design, and research on adolescents in Middle Eastern educational contexts remains particularly scarce. The present study therefore examines psychological resilience among high school adolescents in Sharjah, United Arab Emirates, by comparing athletes and non-athletes and exploring differences across sport types and gender categories, while interpreting the findings as group-level differences without making causal inferences.

Objectives

1. To examine the differences in psychological resilience among adolescents who participate in individual sports, team sports, and non-athletes.
2. To examine the differences in psychological resilience between male and female adolescents.
3. To examine whether differences in psychological resilience across sports participation groups vary by gender.

Hypotheses

- H_{01} : There is no significant difference in psychological resilience among adolescents who participate in individual sports, team sports, and non-athletes.
- H_{02} : There is no significant difference in psychological resilience between male and female adolescents.

- H_{03} : There is no significant interaction between sports participation and gender on psychological resilience among adolescents.

MATERIALS AND METHODS

Research design

The present study employed a cross-sectional, descriptive-comparative research design using a survey method to examine differences in psychological resilience among adolescents based on sports participation and gender.

Variables

Independent variables:

- Sports Participation Group (individual sports, team sports & non-athletes).
- Gender (male and female).

Dependent variable:

- Psychological Resilience score.

Operational definition of variables

Athletes. In the present study, athletes were operationally defined as adolescents who had engaged in organized sports for a minimum of three continuous years and had represented their school in interschool competitions. Based on the nature of their sport involvement, athletes were further categorized into individual sport athletes (e.g., badminton, athletics) and team sport athletes (e.g., basketball, football). This classification was based on sustained sports involvement and school-level competitive representation to distinguish organized sports participation from recreational or occasional physical activity.

Non-athletes. Non-athletes were defined as adolescents who had not participated in organized sports during the previous three years.

Psychological resilience. Psychological resilience refers to the individual's capacity to adapt effectively to challenges and stress and was measured using the 25-item Resilience Scale (RS-25) developed by Wagnild and Young (1993). Higher scores indicate greater resilience.

Measures

Demographic profile / Personal data sheet

A structured demographic profile was developed by the researcher to collect background information such as age, gender, sports participation status, and type of sport. This information was used for classification and comparative analysis.

Resilience scale

Psychological resilience was measured using the Resilience Scale (RS) developed by Gail Wagnild and Heather Young (1993). The scale consists of 25 items rated on a 7-point Likert scale. Higher scores indicate greater psychological resilience. The scale has demonstrated good internal consistency, with Cronbach's alpha coefficients ranging from .85 to .94.

Sample-specific reliability

Resilience was assessed using the 25-item Resilience Scale on a 7-point Likert response scale ranging from 1 (*Disagree*) to 7 (*Agree*), yielding total scores between 25 and 175. In the total study sample (N = 240),

comprised of $n = 120$ sports persons (60 males, 60 females) and $n = 120$ non-sports controls (60 males, 60 females), the scale demonstrated excellent overall internal consistency reliability $\alpha = .913$. Subgroup reliability analyses confirmed high internal reliability across sports participants $\alpha = .913$ and non-sports participants $\alpha = .911$, as well as within male $\alpha = .902$ and female $\alpha = .919$ cohorts. Item-total correlations ranged from .307 to .720, confirming that all 25 items contributed meaningfully to the overall resilience construct without requiring item deletion.

Participants and sampling procedure

The sample comprised 240 adolescents (high school students), including both male and female students aged between 14 and 18 years, recruited from ten schools in and around Sharjah, United Arab Emirates. Participants were selected using a convenience sampling technique. Based on the operational definitions established for the study, participants were categorized into individual sport athletes, team sport athletes, and non-athletes. The distribution of participants according to sports participation category and gender is presented in the sampling framework below.

Table 1. Sampling framework.

Category	Subcategory	Male (n)	Female (n)	Total (n)
Athletes	Individual sports	30	30	60
	Team sports	30	30	60
	Total athletes	60	60	120
Non-Athletes	—	60	60	120
Grand total	—	120	120	240

Inclusion criteria

1. Adolescents (high school students) aged 14–18 years.
2. Students enrolled in recognized schools in the study area and willing to participate voluntarily.
3. Athletes: Minimum 3 years of regular participation in individual (badminton, athletics) or team sports (basketball, football), and who represented their school in competitions.
4. Non-athletes: No involvement in organized sports during the past three years.
5. Both male and female students were included.

Exclusion criteria

1. Students with a diagnosed psychological disorder or those currently receiving psychological treatment.
2. Participants who provided incomplete responses or did not provide informed consent.

Procedures

Formal letters requesting permission to conduct the study were sent to the administrative offices of ten selected schools in and around Sharjah, United Arab Emirates. Five schools provided consent to participate in the study. On-site visits were conducted at the participating schools, during which the researcher interacted with school counsellors and physical education teachers, addressed their queries, and explained the purpose and procedures of the study prior to data collection. Written permission was obtained from the respective school authorities to ensure ethical compliance and institutional support.

Data were collected using both online and offline survey methods. The online questionnaire was distributed through electronic links via email or secure digital platforms, while hard copies of the questionnaire were

administered in person to participants who were available at their training centres. Participants completed the questionnaire voluntarily after receiving information about the study procedures.

Statistical analysis

The data were analysed using descriptive and inferential statistics. Descriptive statistics (mean, standard deviation, and 95% confidence intervals) were calculated for psychological resilience scores. Assumptions of normality and homogeneity of variance were examined before hypothesis testing. A 3×2 between-subjects factorial ANOVA was conducted to examine the main effects of sports participation group, gender, and their interaction on psychological resilience. Partial eta squared (η^2) was reported as an effect size measure, and post-hoc comparisons with Cohen's d and 95% confidence intervals were conducted for significant group differences. Statistical significance was set at $p < .05$.

RESULTS

Table 2. Descriptive statistics of psychological resilience across sports participation groups and gender.

Athletic group	Gender	n	M	SD
Individual sport (<i>Athletics, Badminton</i>)	Female	30	150.17	16.32
	Male	30	155.87	16.51
	Overall	60	153.02	16.58
Team sport (<i>Basketball, Football</i>)	Female	30	141.77	18.06
	Male	30	148.90	15.89
	Overall	60	145.33	17.21
Nonathletes	Female	60	128.45	15.20
	Male	60	134.10	16.12
	Overall	120	131.28	15.87

Note. M = Mean; SD = Standard Deviation.

Table 2 presents the descriptive statistics for psychological resilience scores across sports participation groups and gender categories. Among the sports participation groups, individual sport athletes reported the highest mean resilience scores ($M = 153.02$, $SD = 16.58$), followed by team sport athletes ($M = 145.33$, $SD = 17.21$) and non-athletes ($M = 131.28$, $SD = 15.87$). Across all participation groups, male participants demonstrated slightly higher mean resilience scores ($M = 143.24$, $SD = 17.75$) compared to female participants ($M = 137.24$, $SD = 18.42$). The descriptive pattern suggests higher resilience scores among adolescents involved in organized sports compared to non-athletes, with relatively small differences observed between male and female participants.

Table 3. Two-Way Factorial ANOVA results for psychological resilience by sports participation group and gender.

Source	SS	df	MS	F	p	η^2
Sports participation group	7,842.15	2	3,921.08	14.852	<.001*	.113
Gender	1,501.40	1	1,501.40	5.687	.018*	.024
Sports participation group $\times$ gender	92.30	2	46.15	0.175	.842	.001
Error	61,776.00	234	264.00	—	—	—
Total	71,211.85	239	—	—	—	—

Note. SS = Sum of Squares; MS = Mean Square; η^2 = Partial Eta Squared. * $p < .05$.

Table 3 indicates that the main effect of sports participation group was statistically significant, $F(2, 234) = 14.852$, $p < .001$, $\eta^2 = .113$, indicating a moderate-to-large effect size and suggesting meaningful differences

in resilience across individual sport athletes, team sport athletes, and non-athletes. The main effect of gender was also statistically significant, $F(1, 234) = 5.687$, $p = .018$, $\eta^2 = .024$, representing a small effect size, with males showing higher resilience scores than females. However, the interaction between sports participation group and gender was not statistically significant, $F(2, 234) = 0.175$, $p = .842$, $\eta^2 = .001$, indicating a negligible effect size and suggesting that the pattern of resilience differences across sports participation groups did not vary by gender.

Table 4. Post hoc pairwise comparisons for psychological resilience across sports participation groups.

Comparison	Mean difference	SE	Adjusted p	95% CI for Mean difference
Individual sports vs. Non-athletes	+21.74	2.57	<.001*	[15.69,27.79]
Team sports vs. Non-athletes	+14.05	2.57	<.001*	[8.00,20.10]
Individual sports vs. Team sports	+7.69	2.97	.028*	[0.70,14.68]

Note. $p < .05$.

Table 4 presents the Tukey HSD post-hoc comparisons following the significant main effect of sports participation. Individual sport athletes demonstrated significantly higher psychological resilience scores than non-athletes (mean difference = 21.74, $p < .001$) and team sport athletes (mean difference = 7.69, $p = .028$). Similarly, team sport athletes showed significantly higher resilience scores than non-athletes (mean difference = 14.05, $p < .001$). The confidence intervals for all comparisons did not include zero, confirming that the observed group differences were statistically significant.

DISCUSSION

The present study contributes to the understanding of psychological resilience among adolescents by examining whether resilience levels differ according to sports participation category and gender. The findings highlight the importance of sports participation context, showing that adolescents involved in organized sports demonstrated higher resilience scores than non-athletes, with individual sport athletes showing the highest levels among the groups examined. These findings extend previous comparative research suggesting that athletes generally demonstrate more adaptive coping profiles and stress responses compared with non-athletes (Gerber et al., 2013; Wiedenman et al., 2024). However, as the study employed a cross-sectional design, these findings should be interpreted as differences observed between groups rather than evidence that sports participation directly increases resilience. Other factors, including personal characteristics, prior resilience levels, and self-selection into sports participation, may also contribute to these differences.

The significant difference between sports participation groups suggests that involvement in organized sports is associated with higher levels of psychological resilience compared with non-participation. Individual sport athletes demonstrated the highest resilience scores, with significantly higher scores than both team sport athletes and non-athletes. The difference between individual and team sport athletes was statistically significant, with a smaller magnitude compared with the difference between athletes and non-athletes. This finding differs from some previous studies that reported no significant differences between individual and team sport participation (Blanco-García et al., 2021). One possible explanation is that individual sports may involve greater emphasis on personal responsibility, self-regulation, autonomous decision-making, and coping with performance outcomes independently, which may contribute to the development of resilience-related characteristics (Nicholls et al., 2009). However, differences in factors such as training intensity, competitive level, coaching practices, or sport-specific demands were not examined in the present study and may also influence resilience outcomes.

The gender comparison revealed a statistically significant difference, with male participants reporting higher resilience scores than female participants. However, the magnitude of this difference was small, suggesting limited practical significance. This finding indicates that although gender differences were observed within the present sample, the difference should be interpreted cautiously rather than as evidence of a substantial disparity in adolescent resilience. Similar variations in gender-related resilience findings have been reported in previous research, suggesting that resilience differences may be influenced by contextual and social factors rather than reflecting fixed differences between genders (Sabato et al., 2016). Socialization experiences and differences in coping opportunities may contribute to variations observed across studies (Tamres et al., 2002).

From a theoretical perspective, the findings support the Grounded Theory of Psychological Resilience in Sport Performers proposed by Fletcher and Sarkar (2012), which suggests that exposure to challenges, pressure, and competitive demands may contribute to the development of effective coping strategies and resilience-related resources. Participation in sports provides adolescents with opportunities to experience challenges, regulate emotions, set goals, and develop adaptive coping skills. These findings are also consistent with the Protective Factors Model (Rutter, 1987; Werner, 2000), Masten's "*Ordinary Magic*" framework (Masten, 2001), and Ungar's Social Ecological Model of Resilience (Ungar, 2011), which emphasize the role of personal strengths, supportive environments, and social resources in promoting resilience development.

Overall, the findings highlight that adolescents involved in organized sports, particularly individual sports, demonstrated higher resilience scores compared with non-athletes. While the results do not establish that sports participation causes greater resilience, they emphasize the importance of sports environments as contexts in which resilience-related skills and protective factors may be observed and further developed.

Limitation of the study

1. The use of convenience sampling from secondary schools in Sharjah, UAE, limits the generalizability of the findings to other populations and cultural contexts.
2. The study design does not allow causal conclusions regarding whether sports participation directly influences psychological resilience. Longitudinal studies are recommended for future research.
3. The classification of athletes was based on participation duration and school representation; however, factors such as training intensity, competitive level, and coaching quality were not considered.
4. Reliance on self-reported resilience scores may introduce response biases, including social desirability bias, and future studies may benefit from multi-informant assessments.
5. The study included only school-going adolescents aged 14–18 years; therefore, findings may not apply to younger adolescents or non-school populations.
6. The study focused on group comparisons and did not include potential influencing variables such as training load or socioeconomic factors. Future research may consider regression-based approaches or additional covariates for a more comprehensive analysis.

CONCLUSIONS

The study found that sports participation was significantly associated with psychological resilience among adolescents. Individual sport athletes showed the highest resilience scores, followed by team sport athletes and non-athletes. Gender differences were observed, with males reporting slightly higher resilience than females, while no interaction effect between sports participation and gender was found. These findings

highlight the potential role of structured sports participation in promoting adolescent psychological resilience and well-being.

Implications

The findings indicate that sports participation may play an important role in promoting adolescents' psychological resilience. The higher resilience scores observed among individual and team sport athletes suggest that structured sports involvement may support the development of self-regulation, confidence, goal orientation, and adaptive coping skills. Schools and educational stakeholders should consider strengthening inclusive sports programs that provide opportunities for both individual and team sports participation. Coaches, physical education teachers, and school counsellors can incorporate resilience-building activities within sports settings to support adolescents' psychological well-being. The findings also highlight the need to provide equitable sports opportunities for adolescents of all genders to support their psychological development and well-being.

AUTHOR CONTRIBUTIONS

All authors meet the criteria for authorship in accordance with established ethical guidelines. Contributions are specified according to the CRediT (Contributor Roles Taxonomy) as follows: Conceptualisation: Deepthi Saligram, Chethana V. Chalapathy. Methodology: Deepthi Saligram. Formal analysis: Deepthi. Saligram, Sheeja E. Aliyas. Investigation: Sheeja E. Aliyas. Data curation: Sheeja E. Aliyas. Writing – original draft: Sheeja E. Aliyas. Writing – review & editing: Deepthi Saligram. Supervision: Chethana V. Chalapathy, Deepthi Saligram.

All authors have critically reviewed and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

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CONFLICT OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this manuscript.

AI USE DISCLOSURE

In accordance with current publishing ethics and transparency recommendations, artificial intelligence (AI) tools were used solely to assist with translation and language editing, with the aim of improving clarity and readability. No AI tools were used in the generation of scientific content, including the study design, data collection, analysis, interpretation of results, or the formulation of conclusions. The authors retain full responsibility for the content of the manuscript and confirm its originality, integrity, and accuracy.

REFERENCES

Acar, G., & Serin, K. (2025). Sports and psychological resilience: The key role of sports for children. *Yalova Üniversitesi Spor Bilimleri Dergisi*, 4(1), 18-35. <https://doi.org/10.70007/yalovaspor.1604465>

- Blanco-García, C., Acebes-Sánchez, J., Rodríguez-Romo, G., & Mon-López, D. (2021). Resilience in sports: Sport type, gender, age and sport level differences. *International Journal of Environmental Research and Public Health*, 18(15), 8196. <https://doi.org/10.3390/ijerph18158196>
- Bozdag, B. (2020). Examination of psychological resilience levels of high school students. *World Journal of Education*, 10(3), 65-78. <https://doi.org/10.5430/wje.v10n3p65>
- Compas, B. E., Jaser, S. S., Bettis, A. H., Watson, K. H., Gruhn, M. A., Dunbar, J. P., Williams, E., & Thigpen, J. C. (2017). Coping, emotion regulation, and psychopathology in childhood and adolescence: A meta-analysis and narrative review. *Psychological Bulletin*, 143(9), 939-991. <https://doi.org/10.1037/bul0000110>
- Eime, R. M., Young, J. A., Harvey, J. T., Charity, M. J., & Payne, W. R. (2013). 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. *International Journal of Behavioral Nutrition and Physical Activity*, 10(1), 98. <https://doi.org/10.1186/1479-5868-10-98>
- Evans, M. B., Eys, M. A., & Bruner, M. W. (2012). Seeing the "we" in "me" sports: The need to consider individual sport team environments. *Canadian Psychology / Psychologie Canadienne*, 53(4), 301-308. <https://doi.org/10.1037/a0030202>
- Fletcher, D., & Sarkar, M. (2012). A grounded theory of psychological resilience in Olympic champions. *Psychology of Sport and Exercise*, 13(5), 669-678. <https://doi.org/10.1016/j.psychsport.2012.04.007>
- Fletcher, D., & Sarkar, M. (2013). Psychological resilience: A review and critique of definitions, concepts, and theory. *European Psychologist*, 18(1), 12-23. <https://doi.org/10.1027/1016-9040/a000124>
- Galli, N., & Vealey, R. S. (2008). "Bouncing back" from adversity: Athletes' experiences of resilience. *The Sport Psychologist*, 22(3), 316-335. <https://doi.org/10.1123/tsp.22.3.316>
- Gerber, M., Brand, S., Feldmeth, A. K., Lang, C., Elliot, C., Holsboer-Trachsler, E., & Pühse, U. (2013). Adolescents with high mental toughness adapt better to perceived stress: A longitudinal study with Swiss vocational students. *Personality and Individual Differences*, 54(7), 808-814. <https://doi.org/10.1016/j.paid.2012.12.003>
- Gucciardi, D. F., Hanton, S., Gordon, S., Mallett, C. J., & Temby, P. (2015). The concept of mental toughness: Tests of dimensionality, nomological network, and traitness. *Journal of Personality*, 83(1), 26-44. <https://doi.org/10.1111/jopy.12079>
- Hayes, N. (2025). Comparative analysis of mental resilience in individual vs. team sports athletes. *Revista Internacional de Medicina y Ciencias de la Actividad Física y del Deporte*, 25(100), 54-69. <https://doi.org/10.15366/rimcafd2025.100.004>
- Kucuk, H. (2024). Investigation of sport participation motivation and psychological resilience in football players. *Journal of ROL Sport Sciences*, 5(1), 30-40. <https://doi.org/10.5281/zenodo.10876509>
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71(3), 543-562. <https://doi.org/10.1111/1467-8624.00164>
- Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, 56(3), 227-238. <https://doi.org/10.1037/0003-066X.56.3.227>
- Masten, A. S. (2014). Ordinary magic: Resilience in development. Guilford Press.
- Mlouki, I., Majdoub, M., Hariz, E., Silini, A., Mrabet, H. E., Rezg, N., & El Mhamdi, S. (2024). Gender differences in adverse childhood experiences, resilience and internet addiction among Tunisian students: Exploring the mediation effect. *PLOS Global Public Health*, 4(1), e0002556. <https://doi.org/10.1371/journal.pgph.0002556>
- Nicholls, A. R., Polman, R. C. J., Levy, A. R., & Backhouse, S. H. (2009). Mental toughness in sport: Achievement level, gender, age, experience, and sport type differences. *Personality and Individual Differences*, 47(1), 73-75. <https://doi.org/10.1016/j.paid.2009.02.006>

- Nicholls, A. R., Taylor, N. J., Carroll, S., & Perry, J. L. (2016). The development of a new sport-specific classification of coping and a meta-analysis of the relationship between different coping strategies and moderators on sporting outcomes. *Frontiers in Psychology*, 7, 1674. <https://doi.org/10.3389/fpsyg.2016.01674>
- Pasquerella, L., Aychman, M. M., Tasnim, N., Piccirillo, A., Holmes, V., & Basso, J. C. (2025). The benefits of chronic sport participation and acute exercise on mental health and executive functioning in adolescents. *Scientific Reports*, 15, 22392. <https://doi.org/10.1038/s41598-025-88427-0>
- Popovych, I., Radul, I., Hoian, I., Ohnystyi, A., Doichyk, M., & Burlakova, I. (2022). Athletes' resilience typology: a comparative analysis of individual and team sports. *Journal of Physical Education and Sport*, 22(9), 2036-2046. <https://doi.org/10.7752/jpes.2022.09260>
- Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry*, 57(3), 316-331. <https://doi.org/10.1111/j.1939-0025.1987.tb03541.x>
- Sabato, T. M., Walch, T. J., & Caine, D. J. (2016). The elite young athlete: Strategies to ensure physical and emotional health. *Open Access Journal of Sports Medicine*, 7, 99-113. <https://doi.org/10.2147/OAJSM.S96821>
- Sheng, X., Liang, K., Li, K., Chi, X., & Fan, H. (2024). Association between sports participation and resilience in school-attending students: A cross-sectional study. *Frontiers in Psychology*, 15, 1365310. <https://doi.org/10.3389/fpsyg.2024.1365310>
- Tamres, L. K., Janicki, D., & Helgeson, V. S. (2002). Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. *Personality and Social Psychology Review*, 6(1), 2-30. https://doi.org/10.1207/S15327957PSPR0601_1
- Ungar, M. (2011). The social ecology of resilience: Addressing contextual and cultural ambiguity of a nascent construct. *American Journal of Orthopsychiatry*, 81(1), 1-17. <https://doi.org/10.1111/j.1939-0025.2010.01067.x>
- Wei, D., Xue, J., & Sun, B. (2025). Team vs. individual sports in adolescence: Gendered mechanisms linking emotion regulation, social support, and self-efficacy to psychological resilience. *Frontiers in Psychology*, 16, 1636707. <https://doi.org/10.3389/fpsyg.2025.1636707>
- Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the Resilience Scale. *Journal of Nursing Measurement*, 1(2), 165-178.
- Werner, E. E. (2000). Protective factors and individual resilience. In J. P. Shonkoff & S. J. Meisels (Eds.), *Handbook of early childhood intervention* (pp. 115-132). Cambridge University Press. <https://doi.org/10.1017/CBO9780511529320.008>
- Wiedenman, E. M., Kruse-Diehr, A. J., Bice, M. R., McDaniel, J., Wallace, J. P., & Partridge, J. A. (2024). The role of sport participation on exercise self-efficacy, psychological need satisfaction, and resilience among college freshmen. *Journal of American College Health*, 72(9), 3507-3514. <https://doi.org/10.1080/07448481.2023.2177817>

