

Article

Mental Health and Physical Fitness during Adolescence in a Region of Southeastern Spain

Santiago Gómez-Paniagua ¹, María José García-Guillén ¹, Carmen Galán-Arroyo ^{2,*} and Jorge Rojo-Ramos ¹¹ BioErgon Research Group, University of Extremadura, 10003 Cáceres, Spain; mjgg240300@gmail.com (M.J.G.-G.); jorgerr@unex.es (J.R.-R.)² Physical and Health Literacy and Health-Related Quality of Life (PHYQoL), Faculty of Sport Science, University of Extremadura, 10003 Cáceres, Spain

* Correspondence: mamengalana@unex.es

Abstract: Life satisfaction has been identified as a cognitive indicator of subjective well-being as well as self-image, and these become fundamental factors in the development of young people during adolescence. Therefore, the aim of this study is to explore the possible associations between life satisfaction and self-perceived physical fitness in adolescents from a region of southeastern Spain. In addition, the aim is to evaluate the influence in these associations of gender and urban or rural living environment. For this purpose, a cross-sectional study was carried out with 688 secondary school students (12 to 16 years old) in which the “Satisfaction with Life Scale” and the “Visual Analogical Scale of Physical Fitness Perception for Adolescents” were applied. The associations of the scales were analyzed through Spearman’s Rho test and the consistency of the scales through Cronbach’s Alpha. In addition, a linear regression analysis was carried out to evaluate the contributions of the different dimensions of physical fitness to the life satisfaction of the students. Medium, positive and significant correlations were found between the dimensions of physical fitness and life satisfaction. Similarly, the regression model showed that general physical fitness and endurance explained 20% of the variance in life satisfaction. Therefore, educational interventions and policies must take this information into account when designing and developing actions aimed at improving these cognitive factors.



Citation: Gómez-Paniagua, S.; García-Guillén, M.J.; Galán-Arroyo, C.; Rojo-Ramos, J. Mental Health and Physical Fitness during Adolescence in a Region of Southeastern Spain. *Psychiatry Int.* **2024**, *5*, 492–502. <https://doi.org/10.3390/psychiatryint5030035>

Academic Editor: Domenico De Berardis

Received: 30 June 2024

Revised: 31 July 2024

Accepted: 29 August 2024

Published: 2 September 2024

Keywords: life satisfaction; physical fitness; associations; gender; environment; adolescents; education

1. Introduction

Various factors influence and determine the personal development of individuals as they grow. One of them is life satisfaction (LS), a complex set of factors that can be defined as the emotional reaction of each individual related to his or her life and the expectations he or she has about it, taking into account his or her perspectives related to work, social, and personal life, and also taking into account his or her biological and psychological needs [1,2]. LS comprises a set of factors that determine its fulfillment, factors that influence the value of this component; these items are related to the meaning that each person gives to life and the values that he/she considers important to the achievement of personal goals, his/her identity, socioeconomic stability, and physical health [3].

In this sense, health is closely related to LS, as well as to quality of life, specifically to healthy lifestyle habits [4]. Among these healthy lifestyle habits is physical activity (PA), which has multiple psychological benefits, reducing the incidence of depressive and anxiety disorders [5–7], improving stress control [8] and improving the person’s social relationships, an important factor for a good state of health [9]; PA improves numerous health parameters, such as maximum oxygen volume, lipid profile, blood pressure, and insulin control [10], in addition to preventing diseases and reducing risk factors that are very important for this prevention [11]. It should be mentioned that different studies have explored the effect of PA on LS, finding that lower levels of PA are associated with a worse state of health, thus causing LS to decrease [12].



Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

On the other hand, numerous studies, the majority of which focused on the pandemic's detrimental effects on mental health, have provided insight into how the epidemic has affected children's and young people's mental health and well-being [13–16]. Nevertheless, some research has only reported declines in a few areas or has found little to no change in the general mental health of adolescents and young adults [17,18]. In another line of research, Stallard et al. [19] deliberately sought to investigate beneficial outcomes associated with the epidemic, including relationships with others (such as better family bonds), life appreciation (such as the chance to evaluate one's own values and lead a healthier life), new opportunities (such as picking up new skills), and spiritual development (such as beneficial social and environmental changes). However, in general, children and young people who have had improvements in their mental health and well-being throughout the epidemic have not received enough attention [20].

In addition, LS varies according to sociodemographic variables like age and gender, with girls [21,22] and younger teenagers reporting higher levels [22]. Furthermore, there is a connection between academic achievement and LS [23]. Studies examining this connection, however, have produced contradictory results because of variations in outcomes according to cultural and contextual factors [24]. It has been shown that LS is predicted by social and emotional abilities [22,25]. According to Branquinho et al. [22], social and emotional abilities have a major impact on young people's LS, and these competencies explained a significant 69% of the variation in LS. In short, there are correlations between LS, social and emotional competencies and academic performance [26].

Furthermore, childhood and adolescence comprise two critical stages for the creation and acquisition of habits [27]. Research in this area shows that these are the stages in which personality is shaped [28], and are fundamental to the promotion of PA to prevent problems such as obesity and improve the physical condition of this population. In this context, differences are observed between the terms PA, physical exercise, and physical fitness (PF). In this sense, PA is defined as any movement performed by the musculoskeletal system that requires caloric expenditure commensurate with the effort made, while physical exercise refers to the performance of PA in an orderly and voluntary manner to improve one or more elements of PF [29]. The latter term, by contrast, could be defined as a series of attributes that enable each individual to execute the activities of daily life with vigor, without excessive fatigue, to meet the demands of the environment and to overcome obstacles, while allowing them to enjoy their leisure time [29].

In particular, PF in adolescence is of utmost importance since maintaining high levels during this period reduces the incidence of obesity and other diseases [30]. PF represents a set of parameters that can predict the health status of a person of any age, although the methodology used to quantify these levels is usually expensive, involving medical tests, and high levels of human resources if field tests are performed. In addition, it is necessary to repeat these evaluations to identify changes produced by different lifestyles, which increases the labor, economic and material costs of testing [31]. To solve this problem, a low-cost tool based self-perception of PF called the "Visual Analogue Fitness Perception Scale for Adolescents" (VAS-PFA) was developed [32].

Previous studies of LS and PA have found that there are positive correlations between these two variables and even that the intensity of PA performed is associated with greater LS [33–35]. It has also been found that different variables, such as the gender of the individual, could be established as predictors or modify the effect on LS [36]. A high perception of PF can translate into improvements in academic performance [37] and self-esteem [38], together with a better lipid profile, lower adiposity, and a decrease in cardiovascular risk factors [39]. In addition, variables such as age moderate the magnitude of self-perception, with improvements from childhood to adolescence as individuals perceive their abilities more objectively [40]. Despite these findings, no studies have examined the relationship between adolescent PF and LS, particularly in the region where this study is located. Therefore, this study focuses on exploring this association, as well as the effects of these two variables differentiated by gender and living environment. In the same way, the intention

is to explore the concurrent validity between two validated scales to allow the assessment of LS in adolescents. Therefore, it is hypothesized that there is a significant association between LS and self-perceived physical condition and that it is higher among female students and those residing in rural environments. In this way, the pedagogical strategies developed and implemented in the region can be adapted to the characteristics of the target population and the environment in which they are developed.

2. Materials and Methods

2.1. Participants

A total of 688 students participated, selected by means of convenience sampling, in line with the methodologies proposed by Salkind [41]. This research followed a descriptive cross-sectional design, as the objective was to gather as many responses as possible. According to the most recent statistics from the National Institute of Statistics (www.ine.es), the population of young people between 8 and 18 years of age in the Community of Extremadura, Spain, is 43,043. The sample of our study, which consisted of 688 participants, exceeded the minimum size of 381 individuals necessary to guarantee a confidence level of 95% and a margin of error of $\pm 5\%$.

To determine the demographic location criterion, the categorization made by Diputación Provincial de Cáceres (<https://www.dip-caceres.es/>, accessed on 1 June 2024) was used as a reference, whereby rural locations are considered to be those with less than 20,000 inhabitants. The criteria for including participants in the study were as follows: (a) informed consent signed by parents or legal guardians, and (b) attending one of the aforementioned educational stages.

This study was conducted in accordance with the relevant ethical regulations and received the approval of the Ethics Committee of the EDUCA platform for excellence in educational research (approval code: 42022).

2.2. Procedure

From the list of public schools in Extremadura that offer secondary education, physical education teachers were contacted by e-mail to inform them about the study, send them a model questionnaire and request parental consent. The interested teachers arranged an appointment for a member of the research team to visit the center and administer the questionnaires to the students, once the signed consent had been obtained from the families.

On the agreed date, a researcher gave each student a Tablet with the link to the Google Forms questionnaire and read aloud each question to ensure that participants understood it. It was decided to use an electronic questionnaire to facilitate efficient data collection and storage.

The questionnaire required approximately 10 min to complete, and the data were collected anonymously between January and April 2023.

2.3. Instruments

Sociodemographic questionnaire: First of all, a questionnaire was developed with six sociodemographic questions related to sex, grade, location of the center, age, height and weight.

In addition, the “Satisfaction with Life Scale” (SWLS), validated by Atienza and collaborators [42], was used to analyze the students’ self-perception of their LS. This instrument is designed on a 5-point Likert-type response scale that offers the respondent a variety of possible answers with the following values: (1) strongly disagree; (2) disagree; (3) indifferent; (4) agree; and (5) strongly agree. Since all five items are positively oriented, the sum of the five responses gives the total scale score. The instrument showed good psychometric properties in children and adolescents (Cronbach’s $\alpha = 0.84$).

Similarly, the “Student’s Life Satisfaction Scale” (SLSS), validated by Alfaro and collaborators [43], was applied. It comprises six levels, with items 3 and 4 formulated in reverse to facilitate interpretation. The response options range from “Strongly disagree”

(1) to “Strongly agree” (6). The scale shows high reliability, with a Cronbach’s alpha of 0.70 [43].

Finally, the “Visual Analogical Scale of Physical Fitness Perception for Adolescents” (VAS-PFA) was used to assess self-reported physical fitness in adolescents [32]. The VAS-PFA is composed of five items (general physical fitness, cardiorespiratory fitness, muscular strength, speed-agility and flexibility) and uses a Likert scale 1–10 with 1 being “very poor” and 10 “very excellent”.

2.4. Statistical Analysis

Initially, the distribution of the data was explored using the Kolmogorov–Smirnov test, and it was found that the assumption of normality was not met. Consequently, it was decided to use nonparametric statistical tests. To analyze the relationship between the dimensions of self-perceived physical fitness and LS (measured by the VAS-PFA and SWLS scales), Spearman’s Rho test was used. To interpret the results, the ranges proposed by Mondragón Barrera [44] were followed: from 0.01 to 0.10 (low correlation), from 0.11 to 0.50 (medium correlation), from 0.51 to 0.75 (considerable correlation), from 0.76 to 0.90 (very high correlation), and from 0.91 to 1.00 (perfect correlation). In addition, a linear regression analysis was performed to identify significant predictors of LS, assessing the contribution of different dimensions of physical fitness to subjective well-being.

In addition, to assess the concurrent validity between the SLSS and SWLS scales, the correlation between the two was analyzed, again using Spearman’s Rho test, and the correlations were interpreted according to the ranges mentioned above.

The reliability of the scales used in the study was evaluated using Cronbach’s alpha coefficient. For its interpretation, the criteria set forth by Nunnally and Bernstein [45] were taken as a reference: <0.70 (low), 0.71 to 0.90 (satisfactory), and >0.91 (excellent).

3. Results

The study participants were students from public secondary schools (aged 12 to 16 years) in Extremadura. With respect to gender distribution, the sample was fairly balanced, with 49.4% (348) male students and 50.6% (340) female students. The distribution of participants by educational level was as follows: 401 (58.3%) from the first year of secondary education, 135 (19.6%) from the second year, 82 (11.9%) from the third year, and 70 (10.2%) from the fourth year. As for the origin of the students, 324 (47.1%) came from rural areas, and 364 (52.9%) from urban areas. The mean age of the participants was 13.68 years, with a standard deviation of 1.09 years. In addition, data were also collected on the students’ height and weight, with a mean of 1.58 m (SD = 0.14) and 58.09 kg (SD = 15.16), respectively. These participant characteristics are shown in Table 1.

Table 1. Characterization of the sample ($n = 688$).

Variable	Categories	<i>n</i>	%
Sex	Men	348	49.40
	Women	340	50.60
Course	1° E.S.O.	401	58.30
	2° E.S.O.	135	19.60
	3° E.S.O.	82	11.90
	4° E.S.O.	70	10.20
Demographic location	Rural	324	47.14
	Urban	364	52.90
Variable		M	SD
Age		13.68	1.09
Height (m)		1.58	0.14
Weight (kg)		58.09	15.16

n: number; %: percentage; SD: standard deviation; M: mean; E.S.O.: secondary education; m: meters; kg: kilograms.

The results of the Spearman correlation analysis between LS, as measured by the SWLS, and physical fitness and its specific dimensions (overall fitness, endurance, strength, speed and flexibility) are presented in Table 2. The analyses were performed considering different subgroups of the sample: by sex (men and women), and by demographic location (rural and urban). The rho values (ρ) and the corresponding p -values (p) are detailed in the table, showing the strength and significance of the relationships found.

Table 2. Correlation between VAS-PFA and SLSS scales, according to gender and environment.

Variables	SWLS ρ (p)	SWLS ρ (p)			
		Men	Women	Rural	Urban
Global physical fitness	0.38 (<0.01)	0.38 (<0.01)	0.35 (<0.01)	0.36 (<0.01)	0.38 (<0.01)
Endurance	0.32 (<0.01)	0.36 (<0.01)	0.22 (<0.01)	0.35 (<0.01)	0.29 (<0.01)
Strength	0.26 (<0.01)	0.28 (<0.01)	0.17 (<0.01)	0.32 (<0.01)	0.20 (<0.01)
Speed	0.27 (<0.01)	0.31 (<0.01)	0.18 (<0.01)	0.28 (<0.01)	0.25 (<0.01)
Flexibility	0.21 (<0.01)	0.25 (<0.01)	0.16 (<0.01)	0.23 (<0.01)	0.19 (<0.01)
VAS-PFA	0.40 (<0.01)	0.42 (<0.01)	0.33 (<0.01)	0.42 (<0.01)	0.37 (<0.01)

SLSS: Student's Life Satisfaction Scale; SWLS: Satisfaction with Life Scale; VAS-PFA: Visual Analogical Scale of Physical Fitness Perception for Adolescents.

The results reveal several significant relationships between LS and the dimensions of physical fitness. In this sense, the direct relationship between VAS-PFA and SWLS was the highest ($\rho = 0.40$, $p < 0.01$), followed by global physical fitness ($\rho = 0.38$, $p < 0.01$), while the remaining values ranged from 0.21 to 0.32. In terms of gender, all associations remained significant ($p < 0.01$), with the highest levels of association between LS and the components of physical fitness self-perception for male students compared to female students. Similarly, students in rural environments showed greater associations between both scales, but the association was significant ($p < 0.01$) for both environments.

Table 3 presents the relationship between the LS variables measured through the SLSS and SWLS scales, with the aim of evaluating the concurrent validity between both scales. The results of Spearman's correlation analysis are shown in Table 3, broken down by gender subgroups (men and women) and demographic location (rural and urban).

Table 3. Concurrent validity between the SWLS and the SLSS.

Scale	SLSS ρ (p)	SLSS ρ (p)			
		Men	Women	Rural	Urban
SWLS (ρ (p))	0.60 (<0.01)	0.51 (<0.01)	0.70 (<0.01)	0.63 (<0.01)	0.56 (<0.01)

SLSS: Student's Life Satisfaction Scale; SWLS: Satisfaction with Life Scale.

The results of the Spearman correlation analysis indicate a moderate concurrent validity between the SLSS and SWLS scales, with significant positive correlations in all subgroups analyzed. The overall correlation between the two scales is 0.60 ($p < 0.01$), suggesting a considerable relationship between the two measures of LS. However, the results were more similar in female students and in those living in rural environments. Therefore, these findings support the concurrent use of the SLSS and SWLS scales to assess LS in adolescents.

The prediction model for LS, as measured by the SWLS scale, is presented below. Model 1 includes the variables global fitness and endurance, and explains 20% of the variance in LS ($R^2 = 0.20$). The detailed results of the regression analysis are shown in Table 4.

Table 4. Prediction model for life satisfaction measured by SWLS scale.

SWLS Model 1 (R^2) = 0.20				
Variable	β	SE	t	p
Constant	2.55	0.11	21.86	<0.01
Overall physical fitness	0.26	0.03	8.32	<0.01
Endurance	0.12	0.02	4.44	<0.01

The results of the linear regression model reveal that both global fitness and endurance are significant predictors of LS. Global fitness had a strong positive relationship with LS. Likewise, endurance is also shown to be a significant predictor. These findings suggest that improvements in global fitness and endurance may be associated with higher levels of LS in adolescents.

Finally, Cronbach's alpha coefficients (α) are presented for the scales used in the study: SLSS, SWLS and VAS-PFA (Table 5). These coefficients indicate the internal consistency of each scale and its reliability for measuring the LS and physical fitness of the participants. The results show that all the scales used in the study present high internal consistency. The SLSS scale obtained a Cronbach's alpha coefficient of 0.92, indicating excellent reliability. The SWLS scale also showed high reliability with a Cronbach's alpha of 0.81. Finally, the VAS-PFA scale obtained an alpha coefficient of 0.79, suggesting acceptable internal consistency. These Cronbach's alpha values reinforce the reliability of the measures used to assess LS and physical fitness in adolescents.

Table 5. Internal consistency of scales.

Scale	Cronbach's Alpha
SLSS	0.92
SWLS	0.81
VAS-PFA	0.79

SLSS: Student's Life Satisfaction Scale; SWLS: Satisfaction with Life Scale; VAS-PFA: Visual Analogical Scale of Physical Fitness Perception for Adolescents.

4. Discussion

The aim of this work was to study the relationship between LS and self-perceived PF in adolescents. The main results obtained in this investigation indicate significant and moderate correlation between both variables, with increases in this ratio for male students and those living in rural areas. Likewise, concurrent validity was confirmed between the two scales validated in the study population to analyze the LS. Similarly, the linear regression model showed that general fitness and endurance are predictors of LS, explaining 20% of its variance. Finally, Cronbach's alpha showed satisfactory values for the three instruments administered during the research.

Considering the relationship between the variables described above, there are authors such as Diener and colleagues [46] who report that people with better PF tended to have higher levels of LS, suggesting that the practice of regular PA and good PF can contribute significantly to improving the emotional well-being and LS of individuals. However, authors such as Enríquez Molina et al. [47] indicate that this relationship depends on the population studied and other contextual factors. In the adolescent population, it has been found that those with higher PF perceived greater LS, as well as higher levels of emotional well-being, than those with poor PF [48,49]. In addition to the above, the study by Feng et al. [34] suggests that higher frequency of PA may be associated with higher LS in adolescents; however, this association may be influenced by the age of the adolescents. Thus, staying physically active and taking care of PF may contribute to a better perception of life at this stage of development [50].

Regarding gender, the scientific literature shows a variety of results. As in this study, Marques et al. [51] found a significant correlation between self-perceived FC and LS in

Portuguese adolescents; however, this relationship showed a higher magnitude in female students compared to their male peers. In contrast, other groups of studies show that this association is lower in adolescent female students [52,53]. On the other hand, there are studies that found a positive correlation between both variables without finding differences in the scores obtained when the gender of the students was explored as a moderating factor [54]. Along these lines, a stream of studies has emerged indicating that gender moderates the association between LS and FC in adolescents as a function of the levels of vigorous PA they practice [36,55].

As for the environment in which the adolescent lives, to the authors' knowledge, there is little literature examining the role of this variable as a mediator in the association between LS and self-perceived PF. In this context, Chen et al. [56] found evidence that the population living in urban areas reported higher self-perceived health compared to rural residents with the same PA levels, provided that there were sufficient green spaces available in the cities. Similarly, another study investigating Portuguese adolescents found a stronger relationship between rural residential areas and cardiorespiratory fitness, despite the fact that urban residents showed higher levels of PA during the weekend [57]. Similarly, a study carried out in Spanish adolescents found higher scores in physical well-being, psychological well-being and health-related quality of life in students from rural areas, although no differences were found in PA levels [58].

4.1. Limitations and Future Lines of Research

Like any such research, this study has a number of limitations. Primarily, and essentially due to its design, the results of this study should be interpreted with caution, since it is not possible to establish cause–effect relationships. Similarly, certain sociocultural factors may have affected the scores obtained on the instruments since all participants belonged to the same region. Furthermore, only quantitative approaches were employed, despite the fact that qualitative research could produce pertinent data about additional LS and PF mediators.

As future lines of research, it is proposed to extend this type of study to other Spanish regions in order to investigate these associations throughout the country and thus identify those sociocultural factors that influence the associations between the two variables. In addition, the aim is to explore the possible influence of physical activity as a mediator in the relationship between LS and self-perceived PF. Moreover, it would be interesting to carry out longitudinal studies that evaluate this relationship from the stages in which self-image begins to be formed in childhood. Finally, it is necessary to explore the direction in which the relationship between self-perceived physical fitness and SL occurs; therefore, future analyses should attempt to shed light on whether it is SL that influences self-perceived PF or vice versa.

4.2. Practical Implications

These associations provide schools with a fundamental task for the promotion of students' mental health, mainly through components such as positive body image and healthy self-perception, since this implies that this population shows higher levels of LS and lower incidence of emotional disorders [59]. Likewise, inclusion and body diversity are essential when promoting the acceptance of different body types. This involves challenging traditional beauty ideals and significantly improving students' physical self-perception and, therefore, their LS [60]. Furthermore, and as mentioned above, the promotion of physical activity by educational environments can be a determining factor in achieving a better body image and LS, so active participation should be promoted in this area, regardless of the physical ability or appearance of students [61].

Given the results of this investigation and the scientific literature [62], it is proposed to design psychoeducational interventions focused on self-image and self-esteem, either incorporated into the educational curriculum or provided in an extracurricular context. Finally, the importance of the family and community environment should not be underestimated,

as they should participate together with the school in a healthy formation of self-esteem and self-image, either through community activities or workshops for parents [63].

5. Conclusions

The present investigation shows a significant and moderate correlation between LS and self-perceived FC, with general physical fitness and overall scale scores showing the greatest magnitude. These associations were greater for male students and those residing in rural areas. Likewise, concurrent validity was confirmed between two scales aimed at assessing SL in Spanish adolescents. Finally, a regression model was explored in which endurance and general physical condition predicted LS in students.

Given the worrying rate of physical inactivity and mental disorders in the adolescent population, physical activity-based interventions appear to be effective in improving physical fitness and life satisfaction, as well as mental health and physical health. Moreover, there is a positive correlation between these two variables, where improvement in one leads to improvement in the other. These interventions are important for promoting healthy habits among young people, a group that is in a very unstable context and requires tools to improve their health, both mental and physical.

Author Contributions: Conceptualization, S.G.-P.; Formal analysis, S.G.-P., C.G.-A. and J.R.-R.; Methodology, M.J.G.-G. and J.R.-R.; Resources, M.J.G.-G.; Validation, C.G.-A.; Writing—original draft, S.G.-P. and J.R.-R. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of the EDUCA platform for excellence in educational research (approval code: 42022).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The datasets are available through the corresponding author upon reasonable request.

Conflicts of Interest: The authors declare no conflicts of interest.

References

1. Baştuğ, G.; Duman, S. Examining Life Satisfaction Level Depending on Physical Activity in Turkish and German Societies. *Procedia Soc. Behav. Sci.* **2010**, *2*, 4892–4895. [\[CrossRef\]](#)
2. Huebner, E.S.; Suldo, S.M.; Gilman, R. Life Satisfaction. In *Children's Needs III: Development, Prevention, and Intervention*; National Association of School Psychologists: Washington, DC, USA, 2006; pp. 357–368, ISBN 978-0-932955-79-1.
3. Wong, E.; Cronin, L.; Griffith, L.; Irvine, E.J.; Guyatt, G.H. Problems of HRQL Assessment: How Much Is Too Much? *J. Clin. Epidemiol.* **2001**, *54*, 1081–1085. [\[CrossRef\]](#)
4. Anand, M.; Arora, D. Burnout, Life Satisfaction and Quality of Life among Executives of Multi National Companies. *J. Indian Acad. Appl. Psychol.* **2009**, *35*, 159–164.
5. Anderson, E.; Shivakumar, G. Effects of Exercise and Physical Activity on Anxiety. *Front. Psychiatry* **2013**, *4*, 27. [\[CrossRef\]](#)
6. Kandola, A.; Vancampfort, D.; Herring, M.; Rebar, A.; Hallgren, M.; Firth, J.; Stubbs, B. Moving to Beat Anxiety: Epidemiology and Therapeutic Issues with Physical Activity for Anxiety. *Curr. Psychiatry Rep.* **2018**, *20*, 63. [\[CrossRef\]](#) [\[PubMed\]](#)
7. Denche-Zamorano, Á.; Paredes-Mateos, V.; Pastor-Cisneros, R.; Carlos-Vivas, J.; Contreras-Barraza, N.; Iturra-Gonzalez, J.A.; Mendoza-Muñoz, M. Physical Activity Level, Depression, Anxiety, and Self-Perceived Health in Spanish Adults with Migraine: A Cross-Sectional Study. *Int. J. Environ. Res. Public Health* **2022**, *19*, 13882. [\[CrossRef\]](#) [\[PubMed\]](#)
8. Baceviciene, M.; Jankauskiene, R. The Mediating Effect of Nature Restorativeness, Stress Level, and Nature Connectedness in the Association between Nature Exposure and Quality of Life. *Int. J. Environ. Res. Public Health* **2022**, *19*, 2098. [\[CrossRef\]](#)
9. Muñoz-Bermejo, L.; Adsuar, J.C.; Postigo-Mota, S.; Casado-Verdejo, I.; de Melo-Tavares, C.M.; Garcia-Gordillo, M.Á.; Pérez-Gómez, J.; Carlos-Vivas, J. Relationship of Perceived Social Support with Mental Health in Older Caregivers. *Int. J. Environ. Res. Public Health* **2020**, *17*, 3886. [\[CrossRef\]](#)
10. Warburton, D.E.R.; Bredin, S.S.D. Health Benefits of Physical Activity: A Systematic Review of Current Systematic Reviews. *Curr. Opin. Cardiol.* **2017**, *32*, 541. [\[CrossRef\]](#)
11. Karavasiloglou, N.; Pestoni, G.; Pannen, S.T.; Schönenberger, K.A.; Kuhn, T.; Rohrmann, S. How Prevalent Is a Cancer-Protective Lifestyle? Adherence to the 2018 World Cancer Research Fund/American Institute for Cancer Research Cancer Prevention Recommendations in Switzerland. *Br. J. Nutr.* **2023**, *130*, 904–910. [\[CrossRef\]](#)

12. Zullig, K.J.; Valois, R.F.; Huebner, E.S.; Drane, J.W. Adolescent Health-Related Quality of Life and Perceived Satisfaction with Life. *Qual. Life Res.* **2005**, *14*, 1573–1584. [[CrossRef](#)] [[PubMed](#)]
13. Luijten, M.A.J.; Van Muilekom, M.M.; Teela, L.; Polderman, T.J.C.; Terwee, C.B.; Zijlman, J.; Klaufus, L.; Popma, A.; Oostrom, K.J.; Van Oers, H.A.; et al. The Impact of Lockdown during the COVID-19 Pandemic on Mental and Social Health of Children and Adolescents. *Qual. Life Res.* **2021**, *30*, 2795–2804. [[CrossRef](#)]
14. Magson, N.R.; Freeman, J.Y.A.; Rapee, R.M.; Richardson, C.E.; Oar, E.L.; Fardouly, J. Risk and Protective Factors for Prospective Changes in Adolescent Mental Health during the COVID-19 Pandemic. *J. Youth Adolesc.* **2021**, *50*, 44–57. [[CrossRef](#)] [[PubMed](#)]
15. Torales, J.; O'Higgins, M.; Castaldelli-Maia, J.M.; Ventriglio, A. The Outbreak of COVID-19 Coronavirus and Its Impact on Global Mental Health. *Int. J. Soc. Psychiatry* **2020**, *66*, 317–320. [[CrossRef](#)]
16. Hawes, M.T.; Szenczy, A.K.; Klein, D.N.; Hajcak, G.; Nelson, B.D. Increases in Depression and Anxiety Symptoms in Adolescents and Young Adults during the COVID-19 Pandemic. *Psychol. Med.* **2022**, *52*, 3222–3230. [[CrossRef](#)] [[PubMed](#)]
17. Hafstad, G.S.; Sætnen, S.S.; Wentzel-Larsen, T.; Augusti, E.-M. Adolescents' Symptoms of Anxiety and Depression before and during the COVID-19 Outbreak—A Prospective Population-Based Study of Teenagers in Norway. *Lancet Reg. Health Eur.* **2021**, *5*, 100093. [[CrossRef](#)] [[PubMed](#)]
18. Bignardi, G.; Dalmaijer, E.S.; Anwyll-Irvine, A.L.; Smith, T.A.; Siugzdaitė, R.; Uh, S.; Astle, D.E. Longitudinal Increases in Childhood Depression Symptoms during the COVID-19 Lockdown. *Arch. Dis. Child.* **2021**, *106*, 791–797. [[CrossRef](#)]
19. Stallard, P.; Pereira, A.I.; Barros, L. Post-Traumatic Growth during the COVID-19 Pandemic in Carers of Children in Portugal and the UK: Cross-Sectional Online Survey. *BJPsych Open* **2021**, *7*, e37. [[CrossRef](#)]
20. Soneson, E.; Puntis, S.; Chapman, N.; Mansfield, K.L.; Jones, P.B.; Fazel, M. Happier during Lockdown: A Descriptive Analysis of Self-Reported Wellbeing in 17,000 UK School Students during COVID-19 Lockdown. *Eur. Child Adolesc. Psychiatry* **2023**, *32*, 1131–1146. [[CrossRef](#)]
21. Alvarez, K.; Denegri, M.P.; Valdés, C. 6.56 Gender Differences and Life Satisfaction in Vulnerable Adolescents. *J. Am. Acad. Child Adolesc. Psychiatry* **2017**, *56*, S296. [[CrossRef](#)]
22. Branquinho, C.; Moraes, B.; Noronha, C.; Ferreira, T.; Neto Rodrigues, N.; Gaspar De Matos, M. Perceived Quality of Life and Life Satisfaction: Does the Role of Gender, Age, Skills, and Psychological Factors Remain Relevant after the COVID-19 Pandemic? *Children* **2023**, *10*, 1460. [[CrossRef](#)]
23. Ng, Z.J.; Huebner, S.E.; Hills, K.J. Life Satisfaction and Academic Performance in Early Adolescents: Evidence for Reciprocal Association. *J. Sch. Psychol.* **2015**, *53*, 479–491. [[CrossRef](#)] [[PubMed](#)]
24. Crede, J.; Wirthwein, L.; McElvany, N.; Steinmayr, R. Adolescents' Academic Achievement and Life Satisfaction: The Role of Parents' Education. *Front. Psychol.* **2015**, *6*, 52. [[CrossRef](#)] [[PubMed](#)]
25. Turan, M.E. The Relationship between Social Emotional Learning Competencies and Life Satisfaction in Adolescents: Mediating Role of Academic Resilience. *Int. Online J. Educ. Sci.* **2021**, *13*, 1126–1142. [[CrossRef](#)]
26. Ayllón Salas, P.; Fernández Martín, F.D. The Role of Social and Emotional Skills on Adolescents' Life Satisfaction and Academic Performance. *Psychol. Soc. Educ.* **2024**, *16*, 49–56. [[CrossRef](#)]
27. Telama, R.; Yang, X.; Leskinen, E.; Kankaanpää, A.; Hirvensalo, M.; Tammelin, T.; Viikari, J.S.; Raitakari, O.T. Tracking of Physical Activity from Early Childhood through Youth into Adulthood. *Med. Sci. Sports Exerc.* **2014**, *46*, 955–962. [[CrossRef](#)]
28. Ortega, F.B.; Ruiz, J.R.; Castillo, M.J.; Sjöström, M. Physical Fitness in Childhood and Adolescence: A Powerful Marker of Health. *Int. J. Obes.* **2008**, *32*, 1–11. [[CrossRef](#)]
29. Caspersen, C.J.; Powell, K.E.; Christenson, G.M. Physical Activity, Exercise, and Physical Fitness: Definitions and Distinctions for Health-Related Research. *Public Health Rep.* **1985**, *100*, 126–131.
30. Shen, H.; Yan, J.; Hong, J.-T.; Clark, C.; Yang, X.-N.; Liu, Y.; Chen, S.-T. Prevalence of Physical Activity and Sedentary Behavior among Chinese Children and Adolescents: Variations, Gaps, and Recommendations. *Int. J. Environ. Res. Public Health* **2020**, *17*, 3066. [[CrossRef](#)]
31. Haskell, W.L.; Blair, S.N.; Hill, J.O. Physical Activity: Health Outcomes and Importance for Public Health Policy. *Prev. Med.* **2009**, *49*, 280–282. [[CrossRef](#)]
32. Mendoza-Muñoz, M.; Adsuar, J.C.; Mendoza-Muñoz, D.M.; Polero, P.; Carlos-Vivas, J. Concurrent Validity and Reliability of a Novel Visual Analogue Fitness Perception Scale for Adolescents (FP VAS A). *Int. J. Environ. Res. Public Health* **2021**, *18*, 3457. [[CrossRef](#)] [[PubMed](#)]
33. Vaquero-Solís, M.; Gallego, D.I.; Tapia-Serrano, M.Á.; Pulido, J.J.; Sánchez-Miguel, P.A. School-Based Physical Activity Interventions in Children and Adolescents: A Systematic Review. *Int. J. Environ. Res. Public Health* **2020**, *17*, 999. [[CrossRef](#)] [[PubMed](#)]
34. Feng, B.; Xu, K.; Zhou, P. Association between Vigorous Physical Activity and Life Satisfaction in Adolescents. *Front. Public Health* **2022**, *10*, 944620. [[CrossRef](#)]
35. Chen, S.; Ho, W.K.Y.; Ahmed, M.D. Physical Activity and Its Relationship with Life Satisfaction among Middle School Students: A Cross-Culture Study. *Sustainability* **2020**, *12*, 6932. [[CrossRef](#)]
36. Slapšinskaitė, A.; Lukoševičiūtė, J.; Šmigelskas, K. Interplay between Adolescent Physical Activity and Life Satisfaction: Gender as Potential Effect Modifier. *Int. J. Public Health* **2020**, *65*, 1355–1363. [[CrossRef](#)]

37. Claver, F.; Martínez-Aranda, L.M.; Conejero, M.; Gil-Arias, A. Motivation, Discipline, and Academic Performance in Physical Education: A Holistic Approach from Achievement Goal and Self-Determination Theories. *Front. Psychol.* **2020**, *11*, 1808. [\[CrossRef\]](#)
38. Vaughan-Johnston, T.I.; Lambe, L.; Craig, W.; Jacobson, J.A. Self-Esteem Importance Beliefs: A New Perspective on Adolescent Self-Esteem. *Self Identity* **2020**, *19*, 967–988. [\[CrossRef\]](#)
39. Smith, J.J.; Eather, N.; Morgan, P.J.; Plotnikoff, R.C.; Faigenbaum, A.D.; Lubans, D.R. The Health Benefits of Muscular Fitness for Children and Adolescents: A Systematic Review and Meta-Analysis. *Sports Med.* **2014**, *44*, 1209–1223. [\[CrossRef\]](#)
40. De Meester, A.; Barnett, L.M.; Brian, A.; Bowe, S.J.; Jiménez-Díaz, J.; Van Duyse, F.; Irwin, J.M.; Stodden, D.F.; D'Hondt, E.; Lenoir, M.; et al. The Relationship Between Actual and Perceived Motor Competence in Children, Adolescents and Young Adults: A Systematic Review and Meta-Analysis. *Sports Med.* **2020**, *50*, 2001–2049. [\[CrossRef\]](#)
41. Salkind, N.J.; Escalona, R.L.; Valdés Salmerón, V. *Métodos de Investigación*; Prentice-Hall: Mexico City, Mexico, 1999; ISBN 978-970-17-0234-5.
42. Atienza, F.L.; Pons, D.; Balaguer, I.; García-Merita, M. Propiedades Psicométricas de La Escala de Satisfacción Con La Vida En Adolescentes. *Psicothema* **2000**, *12*, 314–319.
43. Alfaro, J.; Guzman, J.; Sirlopu, D.; Garcia, C.; Reyes, F.; Gaudlitz, L. Propiedades Psicométricas de La Escala de Satisfacción Con La Vida En Los Estudiantes (SLSS) de Huebner En Niños y Niñas de 10 a 12 Años de Chile. *An. Psicol.* **2016**, *32*, 383. [\[CrossRef\]](#)
44. Mondragón Barrera, M.A. Uso de La Correlación de Spearman En Un Estudio de Intervención En Fisioterapia. *Mov. Científico* **2014**, *8*, 98–104. [\[CrossRef\]](#)
45. Nunnally, J.C.; Bernstein, I.H. *Psychometric Theory*, 3rd ed.; McGraw-Hill series in psychology; McGraw-Hill: New York, NY, USA, 1994; ISBN 978-0-07-047849-7.
46. Diener, E.; Oishi, S.; Lucas, R.E. Subjective Well-Being: The Science of Happiness and Life Satisfaction. In *The Oxford Handbook of Positive Psychology*; Lopez, S.J., Snyder, C.R., Eds.; Oxford University Press: Oxford, UK, 2009; pp. 186–194, ISBN 978-0-19-518724-3.
47. Enríquez Molina, R.; Sánchez-García, C.; Reigal, R.E.; Juárez-Ruiz De Mier, R.; Sanz Fernández, C.; Hernández-Mendo, A.; Morales-Sánchez, V. La Modalidad de Actividad Físico-Deportiva Practicada Determina El Nivel de Atención Dividida En Adultos Jóvenes. *Cuad. Psicol. Deporte* **2023**, *23*, 118–132. [\[CrossRef\]](#)
48. Cocca, A.; Liukkonen, J.; Mayorga-Vega, D.; Viciano-Ramírez, J. Health-Related Physical Activity Levels in Spanish Youth and Young Adults. *Percept. Mot. Skills* **2014**, *118*, 247–260. [\[CrossRef\]](#)
49. Piko, B.F.; Kovács, E. Do Parents and School Matter? Protective Factors for Adolescent Substance Use. *Addict. Behav.* **2010**, *35*, 53–56. [\[CrossRef\]](#) [\[PubMed\]](#)
50. Proctor, C.L.; Linley, P.A.; Maltby, J. Youth Life Satisfaction: A Review of the Literature. *J. Happiness Stud.* **2009**, *10*, 583–630. [\[CrossRef\]](#)
51. Marques, A.; Mota, J.; Gaspar, T.; De Matos, M.G. Associations between Self-Reported Fitness and Self-Rated Health, Life-Satisfaction and Health-Related Quality of Life among Adolescents. *J. Exerc. Sci. Fit.* **2017**, *15*, 8–11. [\[CrossRef\]](#)
52. Eddolls, W.T.B.; McNarry, M.A.; Lester, L.; Winn, C.O.N.; Stratton, G.; Mackintosh, K.A. The Association between Physical Activity, Fitness and Body Mass Index on Mental Well-Being and Quality of Life in Adolescents. *Qual. Life Res.* **2018**, *27*, 2313–2320. [\[CrossRef\]](#)
53. Pate, R.R.; Wang, C.-Y.; Dowda, M.; Farrell, S.W.; O'Neill, J.R. Cardiorespiratory Fitness Levels Among US Youth 12 to 19 Years of Age: Findings From the 1999-2002 National Health and Nutrition Examination Survey. *Arch. Pediatr. Adolesc. Med.* **2006**, *160*, 1005. [\[CrossRef\]](#)
54. Valois, R.F.; Zullig, K.J.; Huebner, E.S.; Drane, J.W. Physical Activity Behaviors and Perceived Life Satisfaction Among Public High School Adolescents. *J. Sch. Health* **2004**, *74*, 59–65. [\[CrossRef\]](#)
55. Lábiscák-Erdélyi, Z.; Somhegyi, A.; Veres-Balajti, I.; Kósa, K. Bad for Girls and Boys: Gender Does Not Modify the Negative Effect of Physical Inactivity on Life Satisfaction in Adolescents. *Front. Public Health* **2022**, *10*, 904411. [\[CrossRef\]](#) [\[PubMed\]](#)
56. Chen, H.; Liu, Y.; Zhu, Z.; Li, Z. Does Where You Live Matter to Your Health? Investigating Factors That Influence the Self-Rated Health of Urban and Rural Chinese Residents: Evidence Drawn from Chinese General Social Survey Data. *Health Qual. Life Outcomes* **2017**, *15*, 78. [\[CrossRef\]](#)
57. Machado-Rodrigues, A.M.; Coelho-E-Silva, M.J.; Mota, J.; Padez, C.; Martins, R.A.; Cumming, S.P.; Riddoch, C.; Malina, R.M. Urban-Rural Contrasts in Fitness, Physical Activity, and Sedentary Behaviour in Adolescents. *Health Promot. Int.* **2014**, *29*, 118–129. [\[CrossRef\]](#) [\[PubMed\]](#)
58. Boraita, R.J.; Alsina, D.A.; Ibort, E.G.; Torres, J.M.D. Quality of Life Related to Health and Habits: Differences between Adolescents in Rural and Urban Environments. *An. Pediatria Engl. Ed.* **2022**, *96*, 196–202. [\[CrossRef\]](#) [\[PubMed\]](#)
59. Sánchez-Miguel, P.A.; León-Guereño, P.; Tapia-Serrano, M.A.; Hortigüela-Alcalá, D.; López-Gajardo, M.A.; Vaquero-Solís, M. The Mediating Role of the Self-Concept Between the Relationship of the Body Satisfaction and the Intention to Be Physically Active in Primary School Students. *Front. Public Health* **2020**, *8*, 113. [\[CrossRef\]](#)
60. Kurz, M.; Rosendahl, J.; Rodeck, J.; Muehleck, J.; Berger, U. School-Based Interventions Improve Body Image and Media Literacy in Youth: A Systematic Review and Meta-Analysis. *J. Prev.* **2022**, *43*, 5–23. [\[CrossRef\]](#)
61. Jones, M.; Defever, E.; Letsinger, A.; Steele, J.; Mackintosh, K.A. A Mixed-Studies Systematic Review and Meta-Analysis of School-Based Interventions to Promote Physical Activity and/or Reduce Sedentary Time in Children. *J. Sport Health Sci.* **2020**, *9*, 3–17. [\[CrossRef\]](#)

62. Alleva, J.M.; Sheeran, P.; Webb, T.L.; Martijn, C.; Miles, E. A Meta-Analytic Review of Stand-Alone Interventions to Improve Body Image. *PLoS ONE* **2015**, *10*, e0139177. [[CrossRef](#)]
63. Das, J.K.; Salam, R.A.; Lassi, Z.S.; Khan, M.N.; Mahmood, W.; Patel, V.; Bhutta, Z.A. Interventions for Adolescent Mental Health: An Overview of Systematic Reviews. *J. Adolesc. Health* **2016**, *59*, S49–S60. [[CrossRef](#)]

Disclaimer/Publisher’s Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.