



Systematic Review Relevant Variables in the Stimulation of Psychological Well-Being in Physical Education: A Systematic Review

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Abstract: This study is based on the need to explore the different strategies and interventions that seek to develop psychological well-being (PW) in scholars (children and adolescents aged 9–19 years) through physical education and school sports by bearing in mind other variables that can extensively facilitate PW in these students. This study analyzed 504 research works published between 2010 and 2020, and 23 were selected for this review because they met the inclusion criteria. The results showed that the most studied variables were: motivation, academic performance, teaching climate in physical education (PE) teaching styles, parents' relationships and school environment. The literature review carried out in this study reveals the need to consider PW with other relevant variables, and the importance of doing so from a community approach, in which all systems (parents, school and government) are active participants, and contribute to generate a positive environment for all. Finally, school professionals should be aware of the need to stimulate their students' PW because government organizations should be interested in promoting such a policy in this population.

Keywords: psychological well-being; primary and secondary schools; physical education; teachers

1. Introduction

Experiencing serious problems in childhood can be the origin of a wide range of diseases manifested throughout life [1]. Behavioral problems in adolescence are also precursors to future mental distress [2]. However, mental health disorders first appear early in youth in the vast majority of cases [3]. On this matter, an international study reports that nearly one in three first-year college students has experienced a mental health disorder in the past 12 months [4]. This problem is growing among college students in the U.S.A., where depression, anxiety and suicide rates are rising [5]. This condition also plays a permanent role in the U.S. adult population as one in four adults suffers mental difficulties [6]. From this perspective, the education center acts as an adequate space for promoting student well-being to strengthen their psychological well-being (PW), helps them to cope with future events that affect their mental health [7–10], and stimulates the PW of peers who may experience some degree of social marginalization [11]. This may be one of the reasons why the literature emphasizes the preventive approach to child mental health supported by interventions [12].

Research efforts are being made to study the effects of physical activity (PA) and sport on children and adolescents, to which interest in their mental health has been added in recent times. Studies indicate that this practice favors their self-esteem [13], benefits their cognitive and emotional functions [14,15], stimulates their psychosocial health [16], reduces anxiety and depressive symptoms [17], lowers cardiovascular risk factors, and stimulates



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Copyright: © 2022 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/). their PW [18]. Yet despite evidence for PA and practicing sports influencing mental health in these stages, there are still many questions left unanswered about this practice [19], among other aspects on the specific influence of PA on PW, a construct in which research in the sport and PA field does not apply the same conceptualization [20].

Given the possible application to design interventions that encourage PW in children and adolescents through PA and school sports, it is worth pointing out what exactly PW actually represents by differentiating it from other upcoming constructs integrated into well-being studies, and knowing which variables make up the most relevant PW proposals and associated benefits.

Well-being has been identified as, among other diverse concepts, happiness [21], quality of life [22,23] or flourishing [24]. Well-being research comes in three main lines: the literature on mental health, which implicitly deals with well-being, and hedonic and eudaemonic currents, which explicitly address it [25,26].

Mental health research deals with psychological disorders from clinical diagnosis [26]. This line of work conceives well-being as lack of discomfort and leaves aside the positive approach to mental health [27]. Experts in the field claim that until recent times, the efforts made in this line have not intended to propose, test and apply models of psychological health, but only models of its deficit or the disease [28].

Among the most specific traditions to study well-being we find the hedonic current that focuses on subjective well-being [29], as well as the eudaemonic current oriented to PW [30]. One of the axes that differentiates both approaches is that the hedonic current assumes that the human organism is initially empty and malleable, and in such a way that it acquires its meaning through social and cultural learning.

In contrast, the eudaemonic current attributes content to human nature, and it works to both discover that content and understand the conditions that facilitate or reduce it [31]. The essential distinction made between both these approaches lies in both enjoyment terms toward which hedonic well-being is oriented and growth that eudaemonic well-being addresses the most [30]. Within this introductory framework, it is worth pointing out the empirical evidence for the same phenomenon being contemplated from a different perspective to some extent [32]. The coordinated behavior of both well-being types when faced with external stimuli seems to point in that direction [33]. Another aspect that falls in line with both the experience of flow states, in which effort and enjoyment can be experienced, and the well-being vision, is the multidimensional construct [34,35].

Specifically in relation to PW, the literature contains a wide variety of concepts used interchangeably to refer to this construct: well-being, happiness, life satisfaction, quality of life, mental or emotional health, subjective well-being, and emotional state and affection [36]. From an operational point of view, subjective well-being implies a high degree of positive affect, a low level of negative affect and a high degree of life satisfaction [37] (of these three indicated components, the most typical of the hedonic tradition—focused on pleasure—are the first two because they are not linked with a cognitive evaluation of a more general nature). Apart from the prominence of positive emotions, PW implies being psychologically well and full psychological functioning [31] or optimal psychological function [28]. It is also conceived as the concern to live well or to update one's personal potential. Hence it is a process of the materialization of the daemon or true nature; that is, the materialization of virtuous potentials and living as one is destined to live. This approach has already been traced in Aristotle and is aligned with several intellectual traditions of the twentieth century [31,38]. Be that as it may, conceptualizations about PW are diverse and present different abstraction levels [25,32].

In order to facilitate its understanding, indicators are provided in Table 1 that integrate some of the many proposals formulated in the conceptualization of PW. This framework shows the heterogeneity associated with this construct.

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Table 1. PW components.

Of the several existing models of PW, we highlight the multidimensional model of PW proposed by Ryff [38,46]. It argues, with empirical basis and theoretical support in various sources (Aristotle, life span developmental psychologist, existential and human-

istic psychology, clinical psychology and utilitarian philosophers), that full or optimal psychological functioning is determined by six key components or dimensions of PW: self-acceptance (knowing and accepting the multiple aspects of oneself, including awareness of both the positive aspects and one's own limitations); positive relationships with others (experiencing deep connection in relationships with other significant people); personal growth (using one's personal potential and talent from a feeling of continuous development); purpose in life (having goals in life and feeling that it has meaning, purpose and direction); environmental mastery (managing life situations with a sense of dominance and competence); autonomy (having self-determination, independent judgment and internal behavior regulation) [39,40].

Along with the benefits of PW, it has been found to be more consistently related to physical well-being than subjective well-being. This is because it focuses more on affective regulation mechanisms in the short and long terms than subjective well-being, and is related more to satisfaction and enjoyment in immediate circumstances [47]. In a systematic review about health and PW, Vázquez et al. (2009) also point out these benefits: lighter body weight; higher "good" cholesterol (HDL) levels; lower allostatic load (high load predicts, among other factors, physical and cognitive impairment); being a buffer or protector of adverse effects of negative experiences.

In line with the multidimensional model proposed by Ryff and Singer [40], higher PW levels have been associated with better neuroendocrine regulation, lower cardiovascular risk and better immune system functioning. They have also been linked with lower inflammatory markers, less insulin resistance, longer REM sleep periods and entering this sleep phase more quickly [48]. As far as attitude and mental health are concerned, a higher PW level has been associated with more positive dispositional styles and less likelihood of depression [49]. It has also been confirmed that those practicing several types of physical exercise (PE) or performing PA on a regular basis have higher PW levels than those who do not [50,51].

Information on interventions in the PE and school sport context that consider the most widely accepted PW models, such as TDS or the multidimensional PW model, is scarce despite them being useful tools for developing PW [52,53]. Although it represents a growing area of interest, information on the effect of PA on PW in children and adolescents, and their development in the PE and school sport context, is lacking [54]. Therefore it is necessary to explore the literature for the different strategies and interventions that seek its development by considering other variables in actions to design activities that facilitate students developing PW. This consideration is the backbone of our main study objective: explore research that seeks to develop PW along with other variables in schoolchildren through PE and school sports.

Therefore, this systematic review aims to analyze the scientific literature that relates PW to physical education. The intention is to identify, collect, synthesize and analyze the relevant data about the PW interventions related to other variables so they will be useful for future research works into PW, PE, school interventions and decision-making.

For this purpose, this research work attempts to answer the following questions: what population type do they aim to address?; what is their level of education?; what sample size is contemplated in each case?; where were these studies conducted?; what research objectives are set out?; what other variables besides PW are considered in these studies?; what instruments do they use?; how do they conceive the well-being concept?; what results do they obtain during interventions?

We consider that the results are especially interesting for educational centers that wish to stimulate student PW (health promotion), and also for government entities interested in promoting this type of policy. Likewise, we understand that the results are also relevant for school psychologists and the teachers responsible for PE sensitized to student well-being.

2. Materials and Methods

2.1. Search Strategy

This review (identifier osf-registrations-xydh9-v1) was carried out following the protocol outlined in the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement (Supplementary Materials). A comprehensive search was conducted in four databases: WOS, SPORTDiscus (EBSCO, Ipswich, MA, USA), SCOPUS and ERIC (Proquest, Wake County, NC, USA). In addition, a number of articles (8) were selected considering the bibliography of reference research. Individual searches for all the studies published up to June 2021 were performed in each database following the PICO protocol as used by Opstoel et al. [55] (P = Population, I = Intervention, C = Comparison, O = Outcomes):

- P = child, children, boys, girls, adolescents;
- I = physical education;
- C = no comparison group was added to the search;
- O = psychological well-being, eudaemonic well-being.

The employed search terms were "psychological well-being" and "eudaemonic wellbeing", in combination with "AND" and the search terms "physical education" and "child", "children", "boys", "girls", and "adolescents". Searches were done in English and Spanish. Only original articles were included in the study.

2.2. Selection Criteria

(a) The study is published in an international peer-reviewed journal; (b) the study covers interventions with children and adolescents aged between 6 and 18 years; (c) the study explores the relation between PE and/or school sports and psychological well-being; (d) studies assess inherent aspects of PW (i.e., self-concept, vitality) or related ones (BPN, life skills, quality of life); (e) the study includes questionnaires to assess PW, PW-related variables and other education-related variables; (f) a full-text version is available in English and/or Spanish.

Regarding the second criterion, interventions with children and adolescents in all the formal schooling stages within the indicated age range were also considered for inclusion. If studies included individuals beyond the indicated age range, only the articles with the majority of participants within that age range were eligible. Regarding the third criterion, interventions implemented in the school setting (PE classes and in-school and extracurricular sports activities) were also eligible.

Articles were excluded following Opstoel and colleagues' criteria [55]:

- Studies involving a specific population with any type of physical, cognitive or psychological impairment;
- Articles not providing primary data (non-interventions) because they do not ensure methodological and statistical rigor (reviews, conceptual articles, conference proceedings, editorials, doctoral theses, books, opinion articles, etc.);
- Instrument validations.

Duplicates were discarded. The study selection process consisted of screening the titles and abstracts identified during searches. Potentially relevant full-text studies were independently checked for eligibility by four authors: J.P.C., R.P.O., E.A., O.D. Discrepancies in the selection of articles were discussed until a consensus was reached. Figure 1 shows the followed sampling process. After removing duplicates and excluding records for abstract and title, 23 articles were retrieved.



Figure 1. Flow chart of the sampling process.

2.3. Data Extraction and Reliability

Pilot test forms were used to extract data from studies. A content analysis of the articles included in this review was also performed. Subsequently, data were discussed and confirmed by the researchers. The following categories were defined: authors, year, journal (volume and issue), objectives, sample size, participants' characteristics, instruments used to assess PW and results (Table 2).

Study	Journal	Objectives	Population/ Sample Size	Instruments Used to Assess Well-Being	Results
1. Bagøien et al. [56]	Perceptual and Motor Skills	Test a trans-contextual model based on the self-determination theory of the relations among motivation in PE, motivation in leisure-time PA, PA and PW.	SE students (<i>Mage</i> = 16.5) n = 329	Support for perceived autonomy: Physical Education Climate Questionnaire (PECQ); BPN Satisfaction: Basic Psychological Need Scale—General; Autonomous Motivation: Self-Regulation Questionnaire; PA in leisure time and effort: ad hoc questionnaire.	There is an association between teacher support for autonomy in PE classes and student BPN satisfaction, which is related to autonomous motivation for participation in PE. Autonomous motivation is positively related to perceived competence and autonomous motivation during free time, which is also related to PW in general.
2. Barth et al. [57]	Mental Health and PA	Describe the association among PA, mental health and academic achievement in adolescents.	Adolescents (<i>Mage</i> = 13.3) n = 1001 (402♂599 ♀)	Accelerometer, grade point average. The Warwick-Edinburgh Mental Well-being scale (WEMWBS) Harter's Self-Perception Profile for Adolescents (SPPA) and Strengths and Difficulties Questionnaire (SDQ). The Family Affluence Scale (FAS) and academic achievement.	PA is positively associated with mental well- being, perceived competence and social acceptance. There is no association with self-esteem. No relations were found between PA and academic performance, but an association appeared between PA and performance in PE for women.
3. Berman et al. [58]	Plos One	Provide self-report standards for children and parents for the KIDSCREEN-27 in Swedish children aged 11–16 years.	Children 11-16 years n = 1200 and one of their parents n = 600	Children and adolescents' quality of life (KIDSCREEN-27). Parental QoL (WHOQOL-Bref. and Sociodemographic factors.	The Swedish children in this sample score lower for PW (48.8 SE/49.94 EU), but higher for the other KIDSCREEN-27 dimensions: PW (53.4/49.77), Parent relations and autonomy (55.1/49.99), social support and peers (54.1/49.94) and school (55.8/50.01). Older children self-report lower well-being than younger children. No significant self-reported gender differences occur, and parent ratings show no gender or age differences.

Table 2. General overview of the included articles.

Study

4. Chu et al. [59]

Objectives	Population/ Sample Size	Instruments Used to Assess Well-Being	Results
Explore the predictive strengths and relative importance of BPN in PE in physical, cognitive and psychological poutcomes in Hispanic boys and girls.	4th and 5th grade children n = 214 (110♂ 104 ♀)	Demographic information. BPNs: autonomy (Standage scale, Duda, Ntoumanis 2005); competence (Intrinsic Motivation Inventory); relations (Acceptance subscale of Need for Relatedness Scale); cardiorespiratory health (PACER TEST); effort (Effort Scale of Intrinsic Motivation Scale); body composition (Health-O-Meter	Competence as a predictor of effort and well-being in children. Social relationships only predict well-being in boys, and well-being and effort in girls. Autonomy does not predict any improvement.

Table 2. Cont.

Journal

Journal of Teaching in Physical Education

		outcomes in Hispanic boys and girls.		health (PACER TEST); effort (Effort Scale of Intrinsic Motivation Scale); body composition (Health-O-Meter 500KL Digital Scale).	Autonomy does not predict any improvement.
5. Cronin et al. [60]	PE and Sport Pedagogy	Explore the relationship between the teaching climate and students' perceived development of LS in PE and their PW.	SE and young adults 11–18 years n = 294 (204 ở 90 \$)	Support for autonomy: Sport Climate Questionnaire; LS development: Life Skill Scale.	Students perceive improvements in LS through PE: teamwork, goal setting, time management, emotional skills, interpersonal communication, social skills, leadership, and problem-solving and decision-making. Support for teacher autonomy is positively related to the perception of LS development in PE and its PW.
6. Earl et al. [61]	Psychology in Schools	Identify satisfaction profiles of psychological needs (PN) and in grades in classroom performance, and self-reported well-being results.	SE students 11–15 years n = 586 (387♂199 ♀)	Autonomy satisfaction; competence: Perceived Competence subscale of the Intrinsic Motivation Inventory; relationships: Acceptance Subscale of Need for Relatedness Scale); teacher achievement; Subjective Vitality Scale; Perceived Stress Scale; Positive and Negative Affect Schedule.	Five profiles appear; four profiles indicate a synergy among three needs, showing similar in-group levels of satisfaction across needs, but in varying amounts. The findings illustrate that the three psychological needs may operate interdependently and should be considered together rather than isolated.

Study	Journal	Objectives	Population/ Sample Size	Instruments Used to Assess Well-Being	Results
7. Erturan-Ilker [62]	Educational Psychology in Practice	Examine the relationships among BPN, motivational regulations, self-esteem, subjective vitality and social physical anxiety in PE.	SE students 14–19 years n = 1082 (539♂543 ♀)	PN: Need Satisfaction Scale; motivation: Situational Regulation Scale.	Students' motivational regulations mediate the relation between BPN and PW. Intrinsic motivation negatively predicts social physique anxiety and positively predicts subjective vitality. Amotivation positively predicts social physique anxiety and negatively predicts subjective vitality. The identified regulation and external regulation positively predicts subjective vitality.
8. Fierro-Suero et al. [63]	Revista Electrónica Interuniversitaria de Formación del Profesorado	Analyze the relationship among BPN, motivation, emotional intelligence, life satisfaction and academic performance in PE classes.	SE students 11–17 years n = 343 (161 ♂ 182 ♀)	BPN: BPN Measurement Scale; perceived locus of causality: Perceived Locus Scale of Causality in PE PLOC; emotional intelligence: Emotional Intelligence Questionnaire EQI: Young Version and the Life Satisfaction Scale.	The results show positive correlations among PNs, the most self-determined types of motivation, emotional intelligence and possible consequences, such as academic performance or life satisfaction. Demotivation is associated with lower levels in the study variables along the Self-Determination Theory lines. LBBs act as predictors of the most self-determined types of motivation and emotional intelligence.
9. García et al. [64]	PeerJ	Investigate whether self-regulation, well-being and exercise behavior influence the academic performance of Swedish SE students.	Secondary Students (<i>Mage</i> = 17.7 years). n = 160 (111 ♂ 49 ♀)	Self-regulation: Regulatory Mode Questionnaire; subjective well-being: Positive and Negative Affect Schedule, Satisfaction with Life Scale; exercise behavior: 2 items to measure frequency of exercise practice; academic achievement: grades in mathematics, English and PE.	Academic achievement is positively related to assessment, well-being and frequent/intensive exercise behavior. Assessment is, however, negatively related to well-being. Locomotion is positively associated with well-being and also with exercise behavior.

Study	Journal	Objectives	Population/ Sample Size	Instruments Used to Assess Well-Being	Results
10. Garn et al. [65]	International Journal of Sport and Exercise Psychology	Test a BPN model of physical self-concept in SE teenagers.	High school students n = 1022 Mage = 16.13 (511♀490 ♂)	Autonomy support: Sport Climate Questionnaire; BPN Basic Need Satisfaction at Work Scale.	Need satisfaction fully mediates autonomy support and physical self-concept and autonomy support and global self-esteem. Physical self-concept is a partial mediator in the relationship between overall need satisfaction and global self-esteem.
11. González et al. [66]	Journal of Sport Psychology	Establish relationships between educational styles on content transmission in PE classes and the PW perceived by students in PE.	Students 11–14 years n = 150 $(64 \sigma^{2}$ $86 \circ)$ and PE teachers n = 15	Educational styles: Styles Questionnaire Educational Profiles (PEE); the Spanish version of Ryff's Scale of Psychological Well-Being.	The data analysis suggests a positive correspondence between the indices of psychological well-being perceived by students with the way in which their PE teachers teach this subject.
12. Ha et al. [67]	BMC Public Health	Examine the effects of the intervention on students' MVPA (moderate-to- vigorous physical activity) during PE.	SE students Mage = 14 n = 773	AFMV: accelerometer; need for teacher support: The Learning Climate Questionnaire; BPN: Basic Need Satisfaction in Sport Scale; AF autonomous motivation: Perceive Locus Causality Questionnaire; future intention of sports practice: 2 items; health-related physical condition: Hong Kong School Physical Fitness Award Scheme; interviews and focus group.	The SELF-FIT intervention was designed to improve students' health and well-being by using high-intensity activities in classes given by teachers trained in supportive autonomy needs. If successful, scalable interventions based on SELF-FIT can be applied to PE in general.
13. Lovoll et al. [68]	Scandinavian Journal of Educational Research	Explore processes of developing emotional patterns in PE over a 3-year period in SE.	SE students 14–17 years n = 1681 (51% ♂49% ♀)	Basic Emotion State Scale. Basic Psychological Need Satisfaction in PE: BPNES; Situational Motivation Scale (SIMS).	The results reveal an association among the intensity of positive emotions, BPN satisfaction and quality of motivation.
14. Jančiauskas [69]	Baltic Journal of Sport and Health Sciences	Analyze the self-esteem and PW of young students in PE classes.	Students n = 222	Self-esteem: Self-assessment scale; PW profiles formed based on A. Suslavičius semantic differential method.	The results show that 41% of the evaluated children have high PW levels, with the same percentage for those who consider their self-esteem to be average.

Study	Journal	Objectives	Population/ Sample Size	Instruments Used to Assess Well-Being	Results
15. Karasimopoulou et al. [70]	Health Education Research	Examine the effect of the Health Education Program "Skills for primary school Children" quality of life: physical well-being, mental well-being, moods, and emotions, self-concept, leisure-autonomy, family life, financial resources, friends, school environment, social acceptance (bullying).	Students 10–12 years n = 286 (139 ♂147 ♀)	KIDSCREEN-52 Group Europe.	The children in the experimental group have significantly improved perceptions of physical well-being, family life, financial aspects, friends, school life and social acceptance. The children in the control group have significantly improved perceptions of physical well-being, which deteriorate significantly for family life, mood and feelings and social acceptance. Children's self-concept also improves. The experimental group has better autonomy perceptions than the control group.
16. Madsen et al. [71]	Scandinavian Journal of Medicine & Science in Sports	Analyze the well-being effects for the 10- to 12-year-old children who participated in the school-based intervention "11 for Health in Denmark," which comprises PA and health education.	Children aged 10–12 years n = 3061	Brief scale of multidimensional well-being (KIDSCREEN-27).	The "11 for Health in Denmark" intervention program has a positive effect on girls' physical well-being, whereas the improvement for boys is not significant. The program also positively impacts the well-being scores for peers and social support. When analyzed separately in the boys' and girls' subgroups, changes are not significant.
17. McDavid and McDonough [72]	Psychology of Sports and Exercise	Examine associations between observed staff behaviors and youths' perceptions of their relationships with staff and well-being.	Youth form PYD programs Staff n = 24, Youth $n = 394$ Mage = 10.20 $(53\%\sigma^{2}47\% \circ)$	Youth Program Quality Assessment (YPQA), Perception of Teachers Scale, Teacher Mutual Respect Scale, Learning Climate Questionnaire; social competence and self-worth: Self-Perception Profile for Children; Hope: Hope Scale.	Structural equation modeling indicates that the observed staff engagement positively predicts youths' perceptions of their relationships with staff and well-being. Youths' perceptions of positive social relationships with staff also positively predict their well-being.

Study	Journal	Objectives	Population/ Sample Size	Instruments Used to Assess Well-Being	Results
18. Neave et al. [73]	Theater, Dance and Performance Training	Assess the effectiveness of engaging in CST (Circus Skills Training) for up to 6 months on the development and enhancement of a range of physical, psychological and emotional measures in children aged 9–12.	Children 9–12 years n = 89	Optimism–pessimism: 'Youth Life Orientation Test' (YLOT), AF: PAQ-C; prosocial behaviors: 'Strengths and Difficulties Questionnaire' (SDQ)	With an intersubject design, two groups of children (aged 9–12 years) are compared at the baseline by various physical and psychological well-being measures. Significant differences appear between the children in the experimental group vs. the control group.
19. Ramanathan et al. [74]	Journal of School Health	Analyze the association between active transport to school and indicators of happiness and well-being of Canadian children and their parents.	Students n = 5423 (mostly in kindergarten to grade 8) Parents n = 5423	Demographic variables and distances to travel to school survey; emotional perception of the way to travel to school: 2 items. Welfare of active transport: 4 items.	Parents and children using active transport report increased positive emotions. Parents who actively travel with their children report stronger connections to well-being dimensions. Active transport shows the strongest association with parents' perceptions of their child's well-being. Positive emotions (parent and child) are also significantly related to well-being on trips to school.
20. Schmidt et al. [75]	International Journal of Environmental Research and Public Health	Examine changes in PA, physical fitness and PW in early adolescents after implementing a school-based health promotion program in SE schools.	Students 13–15 years n = 813	Subjective vitality and health-related quality of life (HRQoL) in five domains: physical health, psychological well-being, parent, peers and school. PA and sedentary lifestyle: accelerometer; cardiorespiratory fitness: Andersen test; strength: standing long jump test; anthropometry, demographics;	A multicomponent school program emphasizes the use of active physical learning with positive changes in school-based PA levels. Positive changes are seen in young adolescents' physical fitness, vitality and health-related quality of life.

Study	Journal	Objectives	Population/ Sample Size	Instruments Used to Assess Well-Being	Results
21. Smith et al. [76]	Mental Health and Physical Activity	Examine the impact of a school-based PA intervention on adolescents' self-esteem and subjective well-being, and explore the moderators and mediators of intervention effects.	9th grade scholars n = 607 49.6% (\$)	global self-esteem: Physical Self-Description Questionnaire (PSDQ); socio-economic status: Socio-Economic Indices for Areas (SEIFA), weight, height and BMI; physical self-perception: International Fitness Scale (IFIS); self-efficacy to training: Luban's Scale; autonomous Motivation: BREQ-2.	Intervention effects for self-esteem and well-being are not statistically significant. Moderator analyses show that the effects for self-esteem are stronger for the overweight/obese subgroup, and resistance training self-efficacy is a significant mediator of changes in self-esteem. No other significant indirect effects are observed.
22. Standage et al. [77]	BMC Public Health	Determine the effectiveness of the BtBYCB program 'Be the Best You Can Be' on (i) pupils' well-being, self-perceptions, self-esteem, aspirations, and learning strategies; (ii) changes in modifiable health-risk behaviors (i.e., PA, diet, smoking, alcohol consumption).	Students 11–13 years n = 711	Self-esteem: Rosenberg Scale; adaptive learning strategies: Patterns of Adaptive Learning Scale; AF: Physical Activity for Older Children and Adolescents Questionnaire; alcohol and cigarettes: Youth Risk Behavior Survey; muscle mass: BMI; focus group.	This research informs about improvements in the BtBYCB program and other interventions that target child/youth health and wellness.
23. Valadez et al. [78]	Frontiers in Psychology	Compare the perceptions and opinions of parents or caregivers of a community sample of children and adolescents to another with high abilities for PW, PA and sedentary lifestyles developed during the COVID-19 health crisis.	Parents <i>Mage</i> = 41.54 high-ability children n = 325 and parents control group n = 209	Ad hoc questionnaire to evaluate: demographic data, pandemic problems, PA, routines, PA assessment by your child.	The results show no differences between students from community samples and those with high capacities in well-being and PA. Parents living in Spain observe less play time in the high-ability sample, and more time spent on homework, but make a high-ability diagnosis.

PE: physical education; PA: physical activity; PW: psychological well-being; BPN: basic psychological needs; PN: psychological needs; SE: secondary education; LS: life skills.

The criteria for assessing the quality of the included studies were adapted from the Consolidated Standards of Reporting Trials (CONSORT) Statement, as used by Pozo et al. [79]. The quality assessment criteria were: (a) description of the program; (b) number of participants; (c) inclusion of the publication journal in journal citation reports; (d) PW assessment; (e) methodology description; (f) definition of psychological well-being.

Each item was rated from 0 to 2 based on the criteria outlined in Figure 1. A total score was calculated for each study depending on the number of positive items that it contained. Studies with a total score of 9 or higher were considered to be of high quality (HQ); studies

with a total score of 5-8 were considered to be of average quality (AQ); studies with a total score lower than 4 were considered to be of low quality (LQ). Details are shown in Table 3.

Study	Program Description	Number of Participants	JCR	PW Assessment	Methodology Description	PW Definition	Total Score	Quality
1. Bagøien et al. [56]	2	1	2	1	2	2	10	HQ
2. Barth et al. [57]	2	2	2	0	2	1	9	HQ
3. Berman et al. [58]	2	2	2	2	2	1	11	HQ
4. Chu et al. [59]	2	1	2	2	2	1	10	HQ
5. Cronin et al. [60]	2	1	2	1	2	1	9	HQ
6. Earl et al. [61]	2	2	2	1	2	1	10	HQ
7. Erturan-Ilker [62]	2	2	2	1	2	2	11	HQ
8. Fierro-Suero et al. [63]	2	1	1	1	2	0	7	MQ
9. García et al. [64]	2	1	1	2	2	2	10	HQ
10. Garn et al. [65]	2	2	2	1	2	0	9	HQ
11. González et al. [66]	2	1	2	2	2	0	9	HQ
12. Ha et al. [67]	2	2	2	2	2	1	11	HQ
13. Lovoll et al. [68]	2	2	2	1	2	2	11	HQ
14. Jančiauskas [69]	2	1	0	2	2	0	7	MQ
15. Karasimopoulou et al. [70]	2	1	2	2	2	1	10	HQ
16. Madsen et al. [71]	2	2	1	2	2	0	9	MQ
17. McDavid and McDonough [72]	2	1	0	0	2	0	5	MQ
18. Neave et al. [73]	2	0	1	2	2	1	8	MQ
19. Ramanathan et al. [74]	2	2	2	0	2	1	9	HQ
20. Schmidt et al. [75]	2	2	2	2	2	1	11	HQ
21. Smith et al. [76]	2	2	2	2	2	2	12	HQ
22. Standage et al. [77]	2	2	2	2	2	2	12	HQ
23. Valadez et al. [78]	2	2	2	2	2	1	11	HQ

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Table 3	()mality	of studies
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Parameter 1: Does the study provide a detailed description of the implementation? 0: No, 1: Yes, but it is incomplete or inaccurate, 2: Yes. Parameter 2: The number of participants: 0: fewer than 100 participants, 1: between 100 and 500 participants, 2: more than 500 participants. Parameter 3: Is the publication journal included in journal citation reports?: 0: No, 1: It is included in SJR, 2: Yes. Parameter 4: Assessment tool: 0: without validation, 1: subscales or, 2: PW validates the scale. Parameter 5: Does the study provide a detailed description of the methodology? 0: No, 1: Yes, but it is incomplete or inaccurate, 2: Yes. Parameter 6: Does the study provide a definition of well-being? 0: No, 1: Yes, but the definition is vague, 2: Yes, and the definition is detailed.

3. Results

3.1. Overview of Studies

The total number of student participants in the included articles was 26,858, and ranged from 89 [73] to 5423 [74]. The total number of teacher participants in the studies was 15 [66]. There were 6348 parents [58,74,78] and 23 staff members [72].

According to the country where the studies took place in this area, they were conducted in the UK and Norway (4/23), followed by the US and Spain (3/23), Sweden and Australia (2/23), Canada, Lithuania, Greek, Turkey, China and Denmark (1/23). Table 2 provides an overview of all the 23 data-based empirical articles that made up this review.

The age of the studied students ranged from the youngest, between 9 and 12 years [73], to the oldest, from 14 to 19 years [62].

3.2. Employed Grade Levels Selected

The most frequent grade levels for the student participants to investigate PW and other variables were those associated with secondary schools (14/23), followed by primary schools (4/23). Only one study emerged from combining middle and secondary schools (3/22), and finally primary and secondary schools (1/23). Four studies did not provide data.

3.3. Focus of the Studies and Context

Very disparate objectives have been identified throughout the review. We classified them into the following categories: study objectives for students, study objectives for teachers and study objectives for parents. In each one, psychological, emotional, health, social and economic variables are identified. Table 4 shows the objectives of the selected studies.

Study Objectives for Students	Number of Mentions	Research Number
PA	9	1, 2, 4, 12, 16, 20, 21, 23
Mood/emotion states	9	3, 4, 7, 13, 15, 18, 19, 22
BPN	8	1, 4, 6, 7, 8, 10, 12, 13
Health	8	2, 3, 4, 6, 12, 16, 22
Self-perception	6	2, 3, 15, 17, 22
Motivation	6	1, 8, 7, 12, 13, 21
Program's effectiveness	5	3, 15, 16, 18, 22
General well-being	5	3, 11, 15, 19, 23
Self-esteem	4	7, 14, 21, 22
Academic performance	4	2, 6, 8, 9
Autonomy	4	3, 15, 22
Social support	3	3, 15, 16
Economic resources	3	3, 15,
Physical well-being	3	3, 15, 16
School environment	3	2, 15, 16
Teaching climate	2	5, 10
Life satisfaction	2	8
Vitality	2	7
Quality of life	2	15, 20
Prosocial behaviors	2	17, 18
Locus of control	2	8, 12
Anthropometry	2	20, 21
Life skills	1	5
Self-regulation	1	9
Aspirations	1	22
Learning strategies	1	22
Emotional intelligence	1	8
Happiness	1	19
Active transport	1	19
Teacher achievement	1	6
Social physical anxiety	1	7
Need for teacher support	1	12
Future PA practice intentions	1	12
Норе	1	17
Self-efficacy in PA	1	21
Sedentary lifestyles	1	23

Table 4. Objectives of the selected studies.

Number of Mentions	Research Number
Number of mentions	Research number
1	11
1	17
Number of mentions	Research number
1	19
1	19
1	19
1	3
	Number of Mentions Number of mentions 1 1 Number of mentions 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

To simplify the table, the article number is given instead of the authors' names.

3.4. Types of Associated Variables

All the studies showed PW research or PW-related variables combined with other variables. The following table (Table 5) offers the variables studied in each article. The PW-related variables are differentiated according to the scientific literature and those linked mainly with education or physical-sports education.

Table 5. Types of variables.

Research	Well-Being Variable	Other Types of Variables
1. Bagøien et al. [56]	BPN Well-being	PE motivation Leisure PA
2. Barth et al. [57]	Well-being Self-Perception	PA Academic achievement
3. Berman et al. [58]	PW Mood state Self-perception Autonomy Friendships and social support	Physical wellness Parents' relationships and family life, school context Economic resources, parents' quality of life
4. Chu et al. [59]	BPN	Motivation Health Body composition
5. Cronin et al. [60]	Life skills	PE teaching climate
6. Earl et al. [61]	BPN Vitality	Academic performance Teacher's achievement, academic stress Negative affects
7. Erturan-Ilker [62]	BPN Self-esteem Subjective vitality	Motivation Social physique anxiety
8. Fierro-Suero et al. [63]	BPN Life satisfaction Emotional intelligence	Motivation Academic performance Locus of control
9. García et al., 2015 [64]	Self-regulation Subjective well-being Life satisfaction	Academic PE practice frequency
10. Garn et al. [65]	BPN Self-concept	PE teaching climate

Table 5. Cont.	
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Research	Well-Being Variable	Other Types of Variables
11. González et al. [66])	PW	Teacher's education style
12. Ha et al. [67]	BPN	MVPA Teacher's support needs PA motivation Locus of control PA future practice intention Physical condition
13. Lovoll et al. [68]	BPN	PE emotional patterns Motivation
14. Jančiauskas [69]	BP Self-esteem	Satisfaction with PE classes
15. Karasimopoulou et al. [70]	Psychological well-being Mood Self-perception Autonomy Friends and social support	Physical well-being effectiveness program Parents' relationships and family life School context and economic resources
16. Madsen et al. [71]	Psychological well-being Peers and social support	Physical well-being effectiveness program School environment
17. McDavid and McDonough [72]	Well-being Self-perception Hope	Social relationships with staff
18. Neave et al. [73]	Optimism and pessimism Prosocial behaviors	Effectiveness of a PE program
19. Ramanathan et al. [74]	Happiness Well-being	Active transport
20. Schmidt et al. [75]	Quality of life	Physical condition anthropometry
21. Smith et al. [76]	Well-being Self-esteem	Physical condition anthropometry Self-efficacy in training Autonomous motivation
22. Standage et al. [77]	Well-being Self-perception Self-esteem Acceptance	Effectiveness of a PE program Student learning strategies Changes in risky behaviors
23. Valadez et al. [78]	Well-being	PA Sedentary lifestyles

Several concepts regarding PW and other types of variables were identified. Related to PW, the most widely used concepts are linked with basic psychological needs, subjective well-being, and quality of life, while the most mentioned concepts related to other types or variables are linked with academic or educational area (teacher, school environment, academic performance), motivation and physical condition perception.

3.5. Definition of PW

Various definitions of PW can be found in research works. Many studies (9 out of 23, or 9/23) adopt the self-determination theory (SDT) [41,42] by indicating the existence of three basic needs for human beings (competence, autonomy, relationship) to achieve well-being [56,59,61–63,65,67,68,77]. A couple of studies (2/23) assume the multidimensional

model of PW proposed by Ryff [39,46], such as García et al. [64] and Fierro-Suero et al. [63]. Other studies identify well-being with concepts such as sustainable happiness in relation to how to travel to school [74] and quality of life [58,70,71,78] with PW indicators such as self-esteem, positive affect and life satisfaction [60], and also with a way to support young people's long-term well-being by building their strengths and assets [72]. Some studies are based on how PA influences well-being [75,76]. Of all the analyzed research works, two do not provide a clear definition of PW [69,73].

3.6. Research Results

As the results found in this review vary, we classified them into several sections.

3.6.1. Psychological Well-Being (PW)

PW is studied in relation to many variables and by considering different conceptions of PW and isolated variables. The selected studies may conclude a positive correspondence between the BP perceived by students with the educational styles and teaching methodology of PE teachers [66]. It is related positively to academic achievement or performance, and negatively to self-assessment [64]. Student motivational regulations are also mediated by BP [62]. Accordingly, students' autonomous motivation is positively associated with perceived competence and autonomous motivation in leisure time which, in turn, are related to PW [56]. Berman et al. indicate that older children manifest less well-being than younger children [58]. With all the variables they report using KIDSCREEN-27 to obtain lower levels for physical well-being compared to other dimensions, such as PW, relationships with parents, autonomy, social support, peers and school. As PW can be influenced by so many factors, other studies also show that PW improves with active transport to school [74] or how young people's perception of positive social relationships with staff also predicts well-being [72].

3.6.2. Results Related to BPN

Some research works argue that the students who report a satisfied BPN profile better perform psychologically [61]. In academic terms, students with high BPN profiles also perform better than those without them [61,63]. When autonomy, competence and relatedness develop together, PW and academic achievement significantly increase, and the highest satisfaction levels for each psychological need occur when the other two needs develop [61]. BPN also mediate autonomy and self-esteem, and physical self-concept directly influences BPN and self-esteem [65]. Positive correlations appear between BPN and the most self-determined types of motivation [62,63]: emotional intelligence and life satisfaction. BPN act as predictors of the most self-determined types of motivation and emotional intelligence [63]. Løvoll, Bentzen and Säfvenbom (2020) report results with an association linking the intensity of positive emotions, BPN satisfaction and quality of motivation. For people with low BPN levels, the intensity of their emotions and motivation also lower. In detail, competence is the most important BPN for predicting exertion and PW in males and females. The relationship predicts only PW in males, but both effort and PW in females. Autonomy does not predict any outcomes [59].

3.6.3. Academic Performance

Dissimilarities in this variable appear among authors. For some, the relationship between PW and academic performance is interesting, and their studies indicate positive correlations between both these variables [61,63,64]. However, for other authors [57], the results are inconclusive across the population, with an association only appearing between PW and PE performance in females.

3.6.4. Specific Programs

Standage et al. work with a school intervention program to foster positive physical, psychological and social development by empowering young people to be in charge of

their own personal development [77]. They study how the program affects students' well-being, self-perceptions, self-esteem, aspirations and learning strategies, as well as changes in modifiable health risk behaviors. Their work proves the effectiveness of an innovative child-centered approach and indicates improvements in eudaemonic PW and significant changes in lifestyles. Karasimopoulou et al. examine the effect of a health education and skills program set up for primary schoolchildren on their perceptions of quality of life (physical well-being, mental well-being, moods and emotions, self-concept, autonomy, economic resources, friends and school life and social acceptance) [70]. This program improved significantly for the control group PW, family life, financial aspects, friends, school life, social acceptance and autonomy. Another case is the intervention program called "11 for Health in Denmark", which has had a positive effect on females' physical well-being, but is not significant for males. A positive impact for PW scores appears on companionship and social support. However, when analyzed separately in the male/female subgroups, changes were not significant [71]. The Circus Skills Training (CST) program is a novel approach to encourage participation in exercise and to develop physical literacy, and is a non-competitive and supportive PA program. The children and adolescents who participate in the program obtain better physical and psychological wellbeing measures than those who do not [73]. Schmidt et al. implemented a multicomponent health promotion program, whose aim is to develop positive changes in PA levels in schools [75]. Their results show a group-by-time effect on PA at school, but not total PA, and also on physical fitness and vitality. Finally, Smith et al. started a resistance training intervention program for adolescents [76]. This intervention had no overall impact on adolescents' self-esteem and PW. Nonetheless, their findings support the self-efficacy of resistance training as a potentially important mechanism to underpin the impact of resistance training on global self-esteem.

3.6.5. Environment in PE Classes

The teaching climate is associated with higher levels of PW and life skills [60]. There is a relationship between the teacher's autonomy support in PE classes and student BPN satisfaction which, in turn, relates to autonomous motivation for participating in PE [56]. In addition, Janciauskas reports that self-esteem and PW in PE students are based on the premise that many students feel unsafe in PE classes because they are bullied by other children [69]. However, the results evidence that 41% of the children have high PW and self-esteem levels.

3.6.6. Exercise/PA

According to research results, increased exercise or PA practice improves PW [57,69], as well as academic achievement or performance [64], perceived competence and social acceptance [57]. The results obtained for self-esteem show positive associations in some studies [69], but no relationships in others [57]. Valadez et al. compare PA and PW between students in community samples and students with high abilities [78]. These authors report no significant differences between some subjects and others.

4. Discussion and Conclusions

The purpose of this review was to analyze the research that seeks to develop psychological well-being in schoolchildren through PE and school sports by also considering other variables according to their characteristics, objectives and results.

Regarding the first question, most interventions have taken place in secondary education (14/23 studies versus 4 in primary schools) and data fall in line with other research works in which interventions have occurred in the school environment [80,81].

So the higher incidence of studies in this education stage seems logical to us given the difficulty of finding validated instruments for younger children from primary education. Knowledge about what positive well-being in children really looks like and how to measure it is lacking [82].

Of the research objectives selected for this review, four play a more prominent role than the rest: explore physical activity, evaluate moods or emotions, analyze BPN and detect health. In works in the PE field, it is logical that this type of activity is analyzed at the same time as other aspects like those indicated, and they are directly or indirectly related to psychological well-being. We understand that other goals less frequently present in the review (i.e., motivation, self-perception, self-esteem, life satisfaction and vitality) also have that link. In the literature, systematic reviews of studies on well-being and physical activity in the school environment also reveal authors' interest in evaluating the incidence of PA on psychological or mental well-being [20,83]. There are others that analyze the effect of physical activity on aspects associated with psychological well-being, such as emotional or affective state [84,85], BPN [86,87] or self-esteem [88,89], to name just a few. It is also noteworthy that in various systematic reviews, external aspects (i.e., teaching climate, school environment or social support) are evaluated along with psychological well-being and PA, and this aspect comes over in other interventions next to motivation and autonomy [60,90]. Regarding the objectives towards teachers and parents, these are only analyzed in two articles each. Study objectives for teachers, educational styles and social relationships (similarly to other authors [91]) and regarding the study objectives for parents in the selected studies, analyze happiness, well-being, active transport and quality of life [92].

In relation to the variables linked to PA most considered by researchers in studies that also address PW, we find the following: motivation [93], fitness [94], practicing PE [95], the school environment [96], economic resources [97] and relationship with parents [98].

As for understanding psychological well-being, the systematic review detects a special role of identification of PW with the self-determination theory (SDT) [41,42], with interest being shown in other systematic reviews [99] and experimental performance [56]. However, the multidimensional model of psychological well-being is also present, as it is in other interventions where physical exercise is evaluated along with psychological well-being [60,100]. It is also noteworthy that heterogeneity in the understanding of psychological well-being, and also in its name (something to which a specific reference is made in the Introduction), also appear in the systematic review results. Proof of this lies in other studies having considered psychological well-being with a single indicator [101] or several indicators [56,90,102].

However, as the results show, many other factors can have a favorable impact, such as parents' transport to school [74], while others are not contemplated in the review, such as change in the environment in which PA is practiced with negative effects [103].

Concerning BPN, self-determination is associated with psychological well-being [87] and is also linked with fostered autonomy [56,90]. Of the analyzed research works, 8/23 aim to study BPN. In addition, indications of competition are also found as a predictor of BP [90]. In relation to academic results, some studies positively link this performance with psychological well-being and frequency or intensity of exercise [64]. However, other studies point out a negative relation between academic achievement and PA [104].

As for specific programs, many interventions appear in the corpus. Some show the potential to boost psychological or mental well-being and physical well-being [105,106]. There are also programs with a favorable impact on self-esteem [107] and relationships [108]. Other variables not shown in some of the programs included in our systematic review are environmental awareness [105], respect for others and diversity, and academic achievement [108].

We are aware that there are certain constructs, such as self-acceptance, personal growth, or purpose in life [40], which are not easy to assess and address with children and adolescents, and assessments may be more typical of adults and researchers themselves. However, when working with these children and adolescents, we must pay attention to the importance of learning through new experiences. So, as shown in the study by Bagøien et al. (2010 [56]), there is an association between teacher support for autonomy in PE classes and student BPN satisfaction, which is related to autonomous motivation for participation in PE. Like the study by Schmidt et al. (2020 [75]), we show how a multicomponent

It is important to point out how PE influences the psychological well-being of children and adolescents by showing positive results in academic performance [63,64] and in their independent mobility to go to school [74]. Positive changes are also seen in young adolescents' physical fitness, vitality and health-related quality of life [75].

On the environment in class, some intervention programs are associated with an improved climate to a greater or lesser extent [105,108]. Climate can have an effect on students' autonomy, as evidenced in this review, and also on their satisfaction with social relationships [90,109]. Regarding the benefits that derive from practicing exercise or PA, interventions improve PW [102,108], but not in all cases. No studies describe a direct impact of PE on PW [110], and a favorable incidence is not generalized to the sample in others [111]. About the effect of PA on academic achievement, we have already mentioned a disagreement in the literature, and the corpus does reinforce the value of actions to favor perceived competence [56] and self-esteem [107,112].

Regarding the presented information, it is worth noting that this review may allow policy makers, teachers, trainers, parents and researchers to understand how PW in PA context is being treated.

It is essential to understand from a global point of view what the work perception in this area is, and how research related to well-being has been done in this population. It is important to mention that, although research has attempted to link psychological well-being with many variables, not reaching a consensus about what PW means generates multiple responses, lines of work and results. The invitation is to understand that PW influences child psychological variables and that PW is also influenced by others, such as motivation and the satisfaction of basic psychological needs.

We propose identifying in future research which instruments are used to evaluate well-being and, perhaps from that perspective, aligning a conception that allows us to understand, in the PE and school sports context, the real impact that PW has on the child population, as well as which variables are directly linked and, therefore, need to be developed to have mentally healthy children.

First, we believe that those who carry out public policies and programs should, in the first place, bear in mind the scope of physical activity over well-being. Therefore, it should be borne in mind that not every intervention in PA generates well-being, and that the PW concept must be defined conceptually before intervening. Second, we propose simplifying interventions. To do so, it is necessary to consider a few variables when it comes to developing well-being. The breadth of concepts could be one of the factors that do not allow to obtain favorable results in interventions in certain cases. Finally, we propose interventions from a positive perspective using the eudaemonic approach by generating participants' self-determination and personal growth.

Supplementary Materials: The following are available online at https://www.mdpi.com/article/10.3 390/su14159231/s1, PRISMA 2020 Checklist [113].

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