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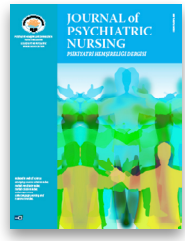

Systematic Review

School-based mental health programs for improving psychosocial well-being in children and adolescents: Systematic review

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Abstract

Objectives: This systematic review aims to evaluate the results of school-based randomized controlled trials conducted to improve psychosocial well-being in children and adolescents. Moreover, it aims to evaluate the contribution of nurses to this field.

Methods: Randomized controlled studies involving school-based mental health programs published between 2010 and 2019 were screened in PubMed, Scopus and CINAHL databases using the combination of the keywords "school mental health," "nurses," "school-based," "intervention," "mental health promotion," "school mental health services," and "school-based mental health interventions." Note that 16 studies were included in this systematic review.

Results: The study results revealed the benefits of programs focused on improving positive mental health and psychological well-being. Current results demonstrate that psychosocial well-being programs improve targeted social emotional skills, life skills, communication skills, problem-solving skills, self-awareness, flexibility, anger management, self-esteem, self-efficacy, life satisfaction, positive body perception and mental health literacy. It was observed that the use of interactive methods such as games and small group work in programs was more effective than didactic information teaching methods. Moreover, it was reported that nurses did not adequately take part in these programs. In the methodological quality assessment, there were studies with questionable methodological features.

Conclusion: Based on these results, we recommended that nurses should conduct school-based mental health programs with high methodological quality to improve community mental health.

Keywords: Adolescent; child; psychosocial well-being; school-based mental health; systematic review.

World Health Organization (WHO) defines health as "not just the absence of disease or disability,

but a state of well-being in terms of physical, mental and social aspects," and mental health as "a state of well-being in which the individual can realize his own abilities, cope with the normal stress of life, work productively and efficiently, and contribute to the community."[1,2]

The literature shows that the definition of mental health includes well-being. In this respect, terms such as well-being, quality of life, self-esteem and happiness are defined as a positive mood. Furthermore, communication and psychological flexibility are included in this definition as they improve mental health skills and capacity.[3]

In health-related professions, well-being is addressed as the protection, improvement and maintenance of health.[4] Protection, improvement and maintenance of health is closely associated with healthy lifestyle behaviors performed by individuals.[5] Mental health is the basis of quality of life.[6] To summarize, there is a close relationship between healthy lifestyle behaviors and well-being.

It is considered beneficial to provide education to children and adolescents at an early age, which will provide them with com-

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What is presently known on this subject?

- Programs focusing on improving positive mental health and well-being are more effective than programs focusing on reducing mental health problems and programs that encourage social and emotional development in schools should be increased.[3,7]

What does this article add to the existing knowledge?

- Nurses participated in 5 of 16 randomized controlled studies in this systematic review;[16,23,24,26,27] although providing positive results, psychosocial well-being programs did not have any effect on empathy and stigma variables, and there were studies with risky aspects identified by methodological quality assessment.

What are the implications for practice?

- Based on these results, it is recommended that nurses should conduct school-based mental health programs with high methodological quality that focus on positive psychosocial well-being.

petences that will increase their life skills and well-being.[4] In this respect, schools play an important role for preparing students for life.[7] Moreover, schools can improve positive mental health and well-being and provide psychological flexibility.[3] Promoting social and emotional learning in schools will make an important contribution to the well-being of young people and society. Social-emotional competence improves learning, motivation, self-confidence and self-efficacy of young people.[6] Furthermore, programs that encourage social and emotional development in schools should be increased.[7] It is stated that these programs should be aimed at developing life skills such as problem-solving, critical thinking, communication, interpersonal relationships, empathy and coping skills, and creating positive mental health in children and adolescents.[3,7–9] Positive mental health practices provide life skills, support, and resources for young people to identify their identity and cope with problems.[10] This contributes to the well-being of societies.[6] In general, the effectiveness of mental health promotion programs such as coping and stress management skills are emphasized.

Furthermore, school-based mental health promotion programs implemented through intersectoral collaboration, including school nurses, teachers, administrators, students, parents and non-governmental organizations, were reported to be effective.[11] Positive mental health outcomes were reported in a quasi-experimental study conducted by nurses, counselors and teachers aimed at improving the mental health of high school students by improving their self-efficacy, psychological flexibility and coping skills.[12] This systematic review's purpose is to evaluate the effectiveness of school-based mental health programs aimed at improving the psychosocial well-being of children and adolescents as well as the contribution of nurses to this field. The research question of this systematic review, which will reveal the involvement of nurses in studies conducted to improve mental health and guide nurses working in the field of mental health in the provision of effective programs, is planned as "Are school-based mental health programs effective on improving psychosocial well-being in children and adolescents?"

Materials and Method

In this systematic review conducted by following the Center for Reviews and Dissemination 2009 (CRD) guideline, "Preferred Reporting Items For Systematic Reviews And Meta-Analyzes Statement-PRISMA" guideline was taken as basis for summarizing the data.[13,14]

Inclusion Criteria

This systematic review included randomized controlled studies on school-based mental health programs for healthy children and adolescents. The studies were written in English conducted in the last decade with full text available in the scanned databases. The studies included are aimed at improving psychosocial well-being and include topics such as social-emotional skills, self-esteem, empathy, positive thinking, positive body perception, assertiveness, psychological flexibility, effective communication skills, social participation-sense of belonging, social sensitivity, social support, mental health literacy, prevention of stigma, self-efficacy, self-awareness, self-regulation, self-confidence, motivation, problem-solving-decision-making and coping skills, stress management and anger management (Table 1).

Exclusion Criteria

Based on this literature review, irrelevant and non-randomized controlled studies were excluded. Among these studies, programs for participants with any developmental problem or mental health problem and diagnosis (Down's syndrome, autism spectrum disorder, hyperactivity) (2 studies), studies on university students (medical school and military school) (2 studies), studies in schools conducted only for educators and parents (2 studies), studies for substance abuse and serious behavioral problems (high-risk students such as bullying, suicide, expulsion, violence, theft, vandalism) (7 studies) and one study that was accepted in 2019 and published in 2020 were excluded from the review.

Review Methodology

Betweeen October and December 2019, "Pubmed", "Scopus" and "CINAHL" databases were screened using a combination of the keywords "school mental health," "nurses," "school-based," "intervention," "mental health promotion," "school mental health services," "school-based mental health interventions," and "randomized controlled trial." All studies reported by this search were examined for eligibility for inclusion based on the title or abstract. Full texts were examined for studies that could not be sorted based on the title and the abstract. The two researchers evaluated the included studies together for eligibility for the selection criteria.

Methodological Evaluation

To assess the methodological quality of the research articles included, the 10-item checklist of Joanna Briggs Institute (JBI) critical assessment tool (JBI- Meta analysis of statistics assessment and review instrument- MAStARI) was used.[15] The bias assessment for the checklist is shown in Figure 1 and Table 2.

Table 1. Studies included in the review

Study no	Author and year	Country	Program applied and duration	Study design and sample	Outcome variables on the subject	Results obtained	Applied by
1.	Bermejo-Martins E, Mujika A, Iriarte A, et al. 2019.	Spain	The health education program (CRECES) consists of 8 sessions (40-50 minutes), 2 times a week after school. Data were collected at baseline, immediately after the intervention (posttest) and 7 months later.	Randomized controlled, 5-6 years old; experiment: 19, control: 18	Emotional awareness (perception), self-efficacy, emotional regulation, emotional independence, social skills and life skills, perception of health	Positive effects on emotional perception and psychological flexibility were found in children in the intervention group.	Mental health nurses and other professional groups
2.	Swartz K, Musci RJ, Beth Beaudry M, et al. 2017.	USA	The adolescent depression awareness program (ADAP) lasts for 3 hours and is designed to be delivered in 2 or 3 consecutive health classes over a school term. Data were collected at baseline, 6 weeks (post-test) and 4 months after intervention.	Randomized controlled, 14-16 years old; experiment: 27 schools, 3681 studenta; Control: 27 schools, 2998 students	Perception (stigma) about people with mental illness, students' attitudes to seek help about depression and illness (adolescent depression literacy)	The program was found to be an effective public health exercise in improving depression literacy.	Mental health nurses and other professional groups
3.	Coelho VA, Marchante M, Jimerson SR. 2017.	Portugal	Positive Transition program for students moving from 4th grade (last grade of primary school) to 5th grade (first grade of secondary school). Data were collected at the beginning, middle and end of Grade 4 and 5.	Randomized controlled, about 12 years old; experiment: 825; control: 322	Five dimensions of self-concept (academic, social, emotional, physical and family) and self-esteem.	The results provide preliminary evidence to support the effectiveness of such programs during the transition to secondary school.	Other professional groups
4.	Wood C, Angus C, Pretty J, et al. 2013.	UK	Exercise program while viewing scenes of natural and built environments. Participants took a 15-minute exercise test on 3 consecutive days. Data were collected at the beginning and at the end of the intervention.	Total number of people participating in the randomized controlled study 25	Self respect, psychological well-being	Exercise had a significant effect on mental health and self-esteem. However, there was no effect of watching different environmental scenes.	Other professional groups
5.	Warschburger P, Zitzmann J. 2018.	Germany	School-based eating disorder prevention program (POPS); It is a program that is applied to adolescents between the ages of 12 and 16, lasts 45 minutes per week, and consists of 9 consecutive sessions that also include home practices. Data were collected at baseline (T0), 3 months after application (T1) and 1 year later (T2).	Cluster randomized control, experiment: 3 schools, 568 students; control: 3 schools, 544 students	Eating attitude, eating disorder (Bulimia), body dissatisfaction, emotional elements of exercise, perfectionism, physical appearance comparison (problem solving to cope with general and appearance-related stress, self-esteem, self-confidence development, positive body perception)	It was found that the program successfully reduced risk factors related to mental health such as body satisfaction (negative body perception), perceived media pressure, perfectionism, and emotional elements of exercise.	Other professional groups

Table 1. Studies included in the review *(continue)*

Study no	Author and year	Country	Program applied and duration	Study design and sample	Outcome variables on the subject	Results obtained	Applied by
6.	Eickmana L, Bettsa J, Pollackb L, et al. 2018.	USA	The program (Rebel) is a peer-led multi-component school-based program consisting of 30-minute meetings that continue throughout the academic year and posts that support positive body perception on social media, including modules focusing on the topics in outcome variables. Data were collected at the beginning and end of the program.	Randomized controlled, experiment: 48; Control: 23	Eating attitudes and behaviors (eating disorder), sociocultural attitudes towards appearance - positive body perception, self-esteem and self-worth, mood	The students participating in the intervention showed statistically significant improvements compared to the control group. However, attitudes towards obese people were not found to be statistically significant when compared with the control group.	Other professional groups
7.	Morgan PJ, Saunders KL, Lubans DR. 2012.	Australia	PALS (Physical Activity Leaders) program is a multi-component school-based program that includes resistance training, handbook, seminars, and sports sessions. Data were collected at baseline and at 3 and 6 months.	Randomized controlled, experiment: 50; control: 50	Body perception, self-esteem and literacy related to physical activity.	Significant effects of the program were found for self-worth and perceived physical condition.	Other professional groups
8.	Puskar KR. 2015.	USA	"Teaching Children How to Cope With Anger" training program; 8 weekly sessions once a week. Data were collected at baseline, after the intervention, 6 months and 1 year after the end of the intervention.	Randomized controlled, 14-18 years old; experiment: 93; control: 86	Anger, anger control, verbal expression of anger (coping with emotional, behavioral and social aspects of anger)	As a result of the positive effects of the program, it was emphasized that psychiatry-mental health nurses provide health education to evaluate and cope with the anger problems of young people through screening.	Mental health nurses and other professional groups
9.	Sharpe H, Patalay P, Vostani P, et al. 2017.	England	Mental health promotion through booklets and / or a multi-component program (TaMHS), containing information and practices related to mental health such as self-management and seeking help Data were collected at baseline (before school-level randomization) and 1 year after intervention.	Cluster randomized controlled, Both TaMHS and booklets: 162 schools; TaMH S only: 162 schools; booklets only: 76 schools; control group: 77 schools	Mental health, quality of life, help-seeking behavior, self-management, effectiveness of presenting the booklets alone or with the Targeted Mental Health Program (TaMHS)	It was found that widely presenting the booklets is not an effective strategy.	Other professional groups

Table 1. Studies included in the review *(continue)*

Çalışma no	Yazar ve yıl	Ülke	Uygulanan program ve süresi	Çalışma tasarımı ve örneklem	Konuyla ilgili sonuç değişkenleri	Elde edilen sonuçlar	Uygulayan
10.	De Lijster GPA, Felten H, Kok G, et al. 2016.	Nether-lands	The interactive school-based program took place between January 2011 and June 2012. Per school, the duration of the program ranged from 4 to 6 weeks. Data were collected at baseline (t0), immediately after the end of the program (posttest; T1), and 6 months after the end of the program (follow-up; T2).	Cluster randomized controlled, aged 12-16 years; experiment: 14 schools, 431 students; control: 11 schools, 384 students	Attitude towards perceived social norm-gender roles, self-efficacy, attitude towards media influence and sexual self-esteem, attitude towards sexual harassment (teaching social and sexual behavior skills and flexibility)	Higher self-efficacy to report and deny sexual harassment.	Other pro-fessional groups
11.	Kaesorns-amut P, Sitthimon-gkol Y, Williams RA, et al. 2012.	Thailand	1 hour (14 hours total) session, twice a week for 7 weeks. Data were collected at baseline and after the intervention.	Randomized control, experiment: 30; control: 30	Increasing the sense of belonging by improving interpersonal social skills (sense of worthiness and adaptation to interpersonal relationships)	Increased sense of belonging in the sociey in people in the intervention group compared to those in the control group.	Nurses and other pro-fessional groups
12.	McNaugh-ton DB, Cowell JM, FAAN, et al. 2015.	USA	Mother-child communication intervention: 6 sessions of 2 hours each = 12 hours, adapted for Latin immigrant mothers and fourth, fifth, and sixth graders from the United States. Data were collected at baseline and 24 weeks after intervention.	Randomized controlled, experiment: 2 schools, 28 mothers, 28 children; Control: 2 schools, 25 mothers, 25 children	Self-concept, mother-child communication, family problem-solving communication (Communication skills development)	The program increased the problem solving skills of the children and decre-ased family conflict, but no improvement was found in the total com-munication scores.	School nurses and other pro-fessional groups
13.	Lewis KM, DuBois DL, Bavarian N, et al. 2013.	USA	Positive Action (PA) is a school-based educatio-nal program that inclu-des lessons on social-e-motional learning and health promotion. Data was collected at 7 time points in 6 years at the beginning of 3rd grade (autumn 2004) until the end of 8th grade (spring 2005, autumn 2005, spring 2006, spring 2007, autumn 2008, spring 2009, and spring 2010).	The total number of students participating in the cluster randomized controlled study is 1170; experiment: 7 schools; control: 7 schools	Life satisfaction, positive impact, social-emotional and character development	The results show that the program can benefit the emotional health of young people.	Other pro-fessional groups

Sample

The number of studies identified in the scanned databases was 306, and the number of articles after duplicates were re-moved was 299. The number of articles after exclusion of pilot study, protocol, irrelevant and/or non-randomized controlled trials was 269. Moreover, 14 of the 30 examined studies were

Table 1. Studies included in the review *(continue)*

Study no	Author and year	Country	Program applied and duration	Study design and sample	Outcome variables on the subject	Results obtained	Applied by
14.	Hashim HA & Zainol NA. 2015.	Malaysia	30 minutes of progressive muscle relaxation training was given as 6 sessions to a group and 12 sessions to a group with a relaxation CD. The normal health education course was given to the control group. Data were collected at baseline and after the intervention.	Randomized controlled, 10-11 years old; 6-session experiment: 48 students; 12-session experiment: 44; control group = 40	Emotional distress depression, anxiety, stress	No significant effect of the progressive muscle relaxation program was found in terms of reducing and coping with anxiety, depression, stress and emotional distress.	Other professional groups
15.	Haden SC, Daly L, Hagins M. 2014.	USA	1.5 hours three times a week (36 sessions) for 12 weeks; intervention group, yoga program, control group physical education lessons. Data were collected at baseline and after the intervention.	Randomized controlled, sixth grade; experiment: 15 students; control: 15	Child problems reported by parents, positive-negative effect, (reducing emotional problems) self-esteem, emotional functions (affect, self-perception)	The intervention had no significant effect.	Other professional groups
16.	Clarke AM, Bunting B, Barry MM. 2014.	Ireland	Zippy's Friends program is a 24-session universal school-based program for children aged 5-8. Data were collected at baseline (T1), immediately after (T2), and 12 months after administration (T3) (follow-up).	Cluster randomized controlled, 7-8 years old: type 1 experiment: 15 schools, 267 students; type 2 experiment: 15 schools, 277 students; control: 14 schools, 222 students	Emotional literacy, self-awareness, self-regulation, motivation, empathy and social skills, emotional skills	It was found that the program generally provided improvement in mental health / psychological well-being skills and was ineffective in reducing psychiatric symptoms.	Other professional groups

excluded from this review as they were published in 2020 (1 article), contained participants with diagnosis (2 articles), conducted with only parents or teachers (2 articles), contained participants with substance use and severe behavioral disorders (7 articles) and conducted on university students (2 articles). This review was completed with 16 studies.

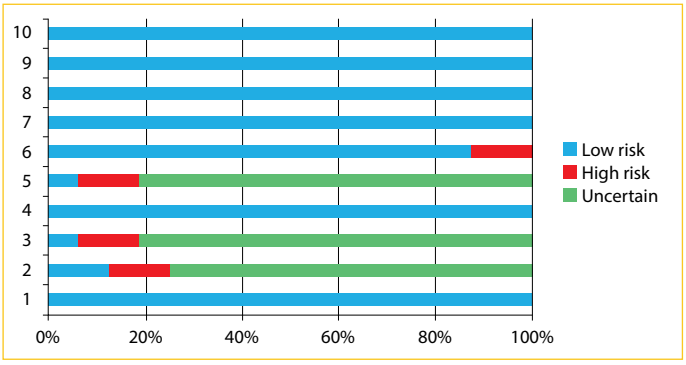

Figure 1. Joanna Briggs Institute (JBI) MAStARI Critical Assessment Tools, bias assessment.

Data Analysis

The data of the articles included in the study were analyzed under seven headings, as shown in Table 1: the authors and the year of the study, the country where the study was conducted, the program applied, number of sessions, number of follow-up, study design and sample size, outcome variables related to the subject, findings of the study and the researcher.

The publications included in the study were summarized and evaluated using the PRISMA Flow Chart[14] (Fig. 2).

Results

First, general information is provided about the participant population of the studies included in this review (Table 1),

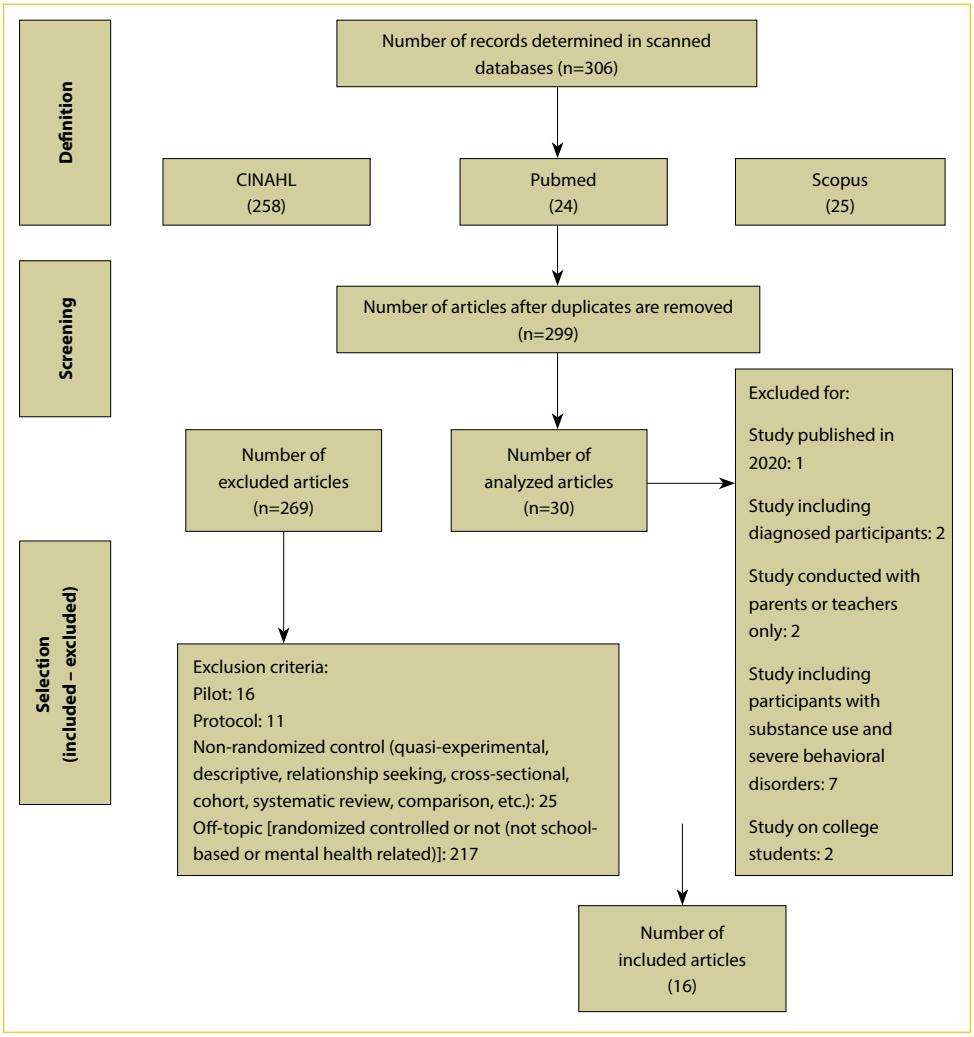

Figure 2. PRISMA Flow Chart.

study designs, the content of the programs and the occupational groups performing these studies. Then, the geographical location where the programs are maintained and the number of sessions and follow-up times/durations are mentioned. Finally, study results and methodological quality assessment (Fig. 1 and Table 2) are presented.

Overview

In the 16 randomized controlled studies conducted in the last decade, the number of students ranged from 25 to 14,690. Furthermore, 31% of these were cluster randomized controlled studies (Table 1). Studies examined generally focused on improving psychosocial well-being and included topics such as social-emotional skills, self-esteem, empathy, positive thinking, positive body perception, assertiveness, psychological flexibility, effective communication skills, social participation-sense of belonging to society, social sensitivity, social support, mental health literacy, stigma prevention, self-efficacy, self-awareness, self-regulation, self-confidence, motivation, problem-solving and coping skills, stress management and anger management.

To evaluate the contribution of nurses to school-based randomized controlled mental health studies, the occupational groups implementing the programs were examined. The studies were conducted by nurses and other professional groups (such as teachers, psychiatrists, psychologists, and social workers). It was determined that 31% of the studies included nurses (Table 1).

While the programs implemented in 50% of the studies examined were effective on the variables studied,[16–23] the programs had no effect on certain variables in 31.25% of the studies[9,24–27] and the program was not effective on the variables in 18.75% of the studies.[28–30]

Geographical Location of the Programs

Six studies were conducted in the USA,[16,17,24–26,28] other studies were conducted in Spain,[27] The Netherlands,[18] England,[29] the United Kingdom,[19] Australia,[20] Germany,[21] Portugal,[22] Ireland,[9] Malaysia,[30] and Thailand[23] (Table 1).

Table 2. Bias risk summary

Study/Control list	1	2	3	4	5	6	7	8	9	10
Bermejo, Martins (2019)	1	0 (B)	0 (H)	X	0 (H)	1	1	1	1	1
Swartz (2017)	1	0 (B)	0 (B)	1	0 (B)	1	1	1	1	1
Coelho (2017)	1	0 (B)	0 (B)	1	0 (B)	1	1	1	1	1
Wood (2013)	1	1	0 (H)	X	0 (H)	1	1	1	1	1
Warschburger, Zitzmann (2018)	1	0 (B)	0 (B)	1	0 (B)	1	1	1	1	1
Eickmana (2018)	1	0 (H)	0 (B)	1	0 (B)	0 (H)	1	1	1	1
Morgan (2012)	1	0 (B)	0 (B)	X	0 (B)	1	1	1	1	1
Puskar (2015)	1	0 (H)	0 (B)	X	0 (B)	1	1	1	1	1
Sharpe (2017)	1	1	0 (B)	1	0 (B)	0 (H)	1	1	1	1
De Lijster (2016)	1	0 (B)	0 (B)	1	0 (B)	1	1	1	1	1
Kaesornsamut (2012)	1	0 (B)	0 (B)	X	0 (B)	1	1	1	1	1
McNaughton (2015)	1	0 (B)	0 (B)	1	0 (B)	1	1	1	1	1
Lewis (2013)	1	0 (B)	0 (B)	1	0 (B)	1	1	1	1	1
Hashim (2015)	1	0 (B)	0 (B)	X	0 (B)	1	1	1	1	1
Haden (2014)	1	0 (B)	1	X	1	1	1	1	1	1
Clarke (2014)	1	0 (B)	0 (B)	1	0 (B)	1	1	1	1	1

Scoring: For each item in the JBI-MAStARI checklist, the answer "Yes" is scored 1 point, "No (N)", "Unspecified (B)" and "Not applicable (UD)" is scored 0 points.

Session and Follow-up Times

In certain reviewed studies, the number of sessions is not specified.[17,18,20,22,24,25,29] When the studies with specified number of sessions were examined, the number of sessions was between 3 and 36 and the session duration varied between 15 and 90 min.

In one study, data were collected seven times in six years from the participating students; once at the beginning of third grade and each year until the end of the eighth grade. In another study, data were collected five times from students passing to fifth grade; at the beginning of fourth grade, and in the middle and at the end of fourth and fifth grade.

Furthermore, there are studies where students were evaluated immediately and 1.5 months after the application, or 3, 4, 6, 7 and 12 months after the application. The number of studies that made follow-up measurements 12 months after the application was four (Table 1).

Findings of School-Based Studies on Improving Psychosocial Well-being

Bermejo-Martins et al. (2019) conducted an 8-session health education program aiming to develop social and emotional competence in children. An increase was observed in the mental health literacy and psychological flexibility levels of the students participating in the intervention group. No significant effect of the program was reported in terms of improving social and emotional skills.[27]

Swartz et al. (2017) conducted a program to increase awareness of depression, reduce stigmatization and facilitate help-seeking behavior among adolescents. A significant increase in depression literacy was observed; it was found that girls' literacy level was higher than boys. Furthermore, it was determined that there was a significant increase in the level of literacy in the four-month follow-up after the program, but the program did not have a significant effect on stigmatization.[24]

The transition program was implemented by Coelho et al. (2017) to support the transition process of fourth grade students to secondary school and to protect their mental health increased the self-esteem of the students participating in the intervention group.[22]

Wood et al. (2013) performed a three-session program on adolescents by exercising in natural and created environments to improve their mental health, as well as observed that self-esteem increased and tension decreased in adolescents who participated in exercises. However, different environmental settings were not reported to have a significant effect on improving mental health.[19]

Warschburger and Zitzmann (2018) conducted a nine-session training program to create a positive body perception, develop problem solving skills, and improve self-esteem and self-confidence. The program significantly reduced the body dissatisfaction (negative body perception) of the students participating in the intervention group and created a positive body perception. Although the results were promising for both genders, it was determined that girls benefited more from the program in terms of regular nutrition.[21]

Eickmana et al. (2018) conducted a peer-led program to create positive body perception, increase self-esteem and improve mental health. A significant decrease was observed in negative body perception and weight gain anxiety of students par-

ticipating in the intervention group; moreover, an increase in self-esteem and positive sociocultural attitude towards body perception was observed. However, no statistically significant difference was reported between the intervention and control groups in reducing stigmatizing attitudes towards obese people.[25]

Morgan et al. (2012) conducted a multi-component training program to create a positive body image and improve self-esteem and psychosocial well-being, as well as observed that the students participating in the intervention group developed positive body perception, developed self-efficacy in performing physical activity, and their self-esteem increased.[20]

In the one-year follow-up measurement of the eight-session coping with anger training program conducted by Puskar et al. (2015), a significant difference was reported between the intervention and control groups in favor of the intervention group in the anger index subscale score. It was concluded that the program helps to cope with the emotional, behavioral and social aspects of anger.[16]

Sharpe et al. (2017) developed a program for distributing booklets containing information and practices related to mental health in schools to improve students' mental health self-management and increase help-seeking behavior. It was found that the majority of students (~80%) who participated in the application stated that they reported the booklets very useful. However, it was determined that the booklets did not have a significant effect in terms of improving mental health management, quality of life and help-seeking behavior.[29]

De Lijster et al. (2016) developed an interactive education program that includes information and practices on social skills, coping skills and psychological flexibility to improve the mental health of adolescents. Post-test and follow-up test measurements of adolescents participating in the program demonstrated a significant increase in their ability to deny sexual harassment and their self-confidence compared to the adolescents in the control group. It was also determined that the ability to say "no" to sexual harassment and sexual self-esteem levels were higher than the control group in the six-month follow-up.[18]

Kaesornsamut et al. (2012) conducted a study to improve interpersonal skills and increase mental well-being and reported that as a result of the 14-session interpersonal relations training program, the students participating in the intervention group increased their ability to establish positive relationships, resulting in a significant increase in their sense of belonging to the society and their level of adaptation to society.[23]

McNaughton et al. (2015) conducted a six-session program to improve children's relationships with their peers and families, including group activities aimed at improving communication skills and mental health, with the participation of parents. It was determined that there was a significant increase in problem-solving skills in children participating in the intervention group compared to those in the control group; moreover, a moderate effect size increase was observed in their self-esteem. Mothers participating in the intervention group reported that problem-solving skills increased and family conflicts decreased in the post-test. However, no improvement was reported in the total communication scores of the children and mothers participating in the program.[26]

Lewis et al. (2013) conducted an education program including courses on social emotional learning and health promotion and reported that there was a significant decrease in the levels of depression and anxiety of the students participating in the intervention group compared to the control group. Furthermore, the program was reported to have a significant effect on life satisfaction.[17]

The six and twelve-session progressive muscle relaxation training program conducted by Hashim et al. (2015) to increase coping with stress and protect and improve mental health did not have a significant effect on the stress coping levels of participants.[30]

Haden et al. (2014) conducted a 36-session yoga program. There was no significant difference in emotional skill development between children participating in yoga (intervention group) and physical education lessons (control group). However, children participating in the yoga program reported experiencing increased negative emotions while children in the control group reported a decrease in negative emotions.[28]

As a result of the 24-session school-based education program conducted by Clarke et al. (2014) to develop emotional literacy, self-awareness, self-regulation, motivation, empathy and social emotional skills, an increase was observed in self-awareness, self-regulation and social and emotional skills, as well as emotional competence and motivation of students participating in the program. However, the program had no significant effect on developing empathy.[9]

Methodological Quality Assessment

Because of the methodological quality assessment, it was determined that two studies were high-risk because the participants knew about the intervention, two studies were high-risk because the participants knew what group they were in, and two studies were high-risk because the intervention and control groups did not have similar characteristics at the beginning (Fig. 1).

Discussion

Current results show that psychosocial well-being programs have positive effects on targeted social emotional skills, life skills, communication skills, problem-solving skills, coping skills, self-awareness, self-regulation, psychological flexibility, sense of belonging to society, anger management, self-esteem, self-efficacy, emotional competence, life satisfaction, positive body perception, motivation and mental health literacy.

However, the programs do not have any effect on the empathy variable investigated by Clarke et al. (2014),[9] on the stigmati-

zation variable investigated by Swartz et al. (2017)[24] and Eickmana et al. (2018),[25] the communication variable investigated by McNaughton et al. (2015),[26] and the social-emotional skills variable investigated by Bermejo-Martins et al. (2019).[27] Furthermore, the program conducted by Haden et al. (2014) [28] was ineffective on improving emotional skills investigated, the program conducted by Sharpe et al. (2017)[29] was ineffective on improving mental health management, quality of life and help-seeking behavior, and the program conducted by Hashim et al. (2015)[30] was ineffective on coping with stress.

Geographical Location of the Programs

When the geographical location of the programs is examined, management–coping, and reported the benefits of programs focusing on positive mental health. Moreover, it was stated that follow-up was made for at least six months after the programs.[8] It is important to maintain school-based mental health promotion programs.[3]

Among the studies examined, there are three studies where no follow-up measurement was made, and data were collected from the participants only in the post-test. Wood et al. (2013) conducted a three-day program to investigate the effects of exercise in natural and created environments on mental health and reported that the program increased self-esteem and decreased tension in adolescents in the intervention group.[19] However, there was no significant effect of watching different environmental scenes on mental health improvement. Kaesornsamut et al. (2012) conducted a 14-session study with a session length of 1 h and reported that the sense of belonging to the community significantly increased in the students participating in the intervention group compared to the control group; however, the persistence of this effect after 6–12 months was unknown.[23] Hashim et al. (2015) conducted a 6–12 session program with a session length of 30 min and did not report a significant effect of the program. Similarly, Haden et al. (2014) conducted a 36-session program with a session length of 1.5 h and did not find any significant effect.[28,30] Except for one study,[29] studies with follow-up measurements at least 3 and at most 12 months after the program were reported to be effective.

The study of Sharpe et al. (2017) comprises a program that aims to improve mental health with booklets containing information and practices related to mental health such as self-management and seeking help.[29] According to results of some reviews in the literature, teaching methods influence program effectiveness. It has been concluded that the use of interactive methods such as games and small group work in programs is more effective than didactic and information-only teaching methods.[3] The benefits of programs that target attitudes, values, feelings and behaviors, rather than just information, have been reported.[3] We can attribute the ineffectiveness of the study of Sharpe et al. (2017) to this situation.

As multi-component studies in which parents and school personnel participate in the program with students are more complex and comprehensive and require more careful planning, it was reported that the depth and focus will be reduced and students' interaction with these programs will decrease. [8] Haden et al. (2014) argued that the school staff participating in the yoga class with the students could have affected the students and could be among the reasons for the ineffectiveness of the yoga program.[28] This conclusion fits with the above information.

Because nurses are in constant contact with students in the school environment, they can take an active role in the early diagnosis, referral and follow-up of students with mental health problems and/or in requirement of mental health services. Furthermore, nurses can make important contributions to the implementation of mental disease prevention and mental health promotion programs.[32]

Based on the results of this systematic review, it is seen that nurses took part in 5 of the 16 randomized controlled studies. [16,23,24,26,27] These five studies focused on mental health development skills such as mental health literacy, anger management, problem-solving skills, communication skills, psychological flexibility and social emotional skills, and reported positive results. The programs implemented in two of these studies[16,23] were effective on the variables; however, the program applied in three studies[24,26,27] was not effective on certain variables. Based on these results, it is stated that school nurses are required to conduct interactive activities (workshops, group work) with teachers and other professional groups with a team mentality to improve psychological well-being (self-awareness, psychological resilience, emotional literacy, and stress management).[6]

Methodological Quality

Studies reviewed as per the 10-item checklist of the Joanna Briggs Institute (JBI) MAStARI Critical Assessment Tools for experimental and quasi-experimental studies have a low risk in terms of random assignment, post-test and follow-up measures of the programs applied as well as statistical analysis (Fig. 1, Table 2).

As reported in Table 2, studies according were categorized as high risk, low risk and uncertain according to the items in the checklist. Two studies[16,25] were categorized as high risk and two studies[19,29] were categorized as low risk in terms of participants knowing about the intervention. Moreover, 12 studies[9,17,18,20–24,26–28,30] were uncertain in terms of this bias assessment. Two studies[19,27] were categorized as high-risk and one study[28] was categorized as low-risk in terms of researchers performing the randomization and evaluation of the results knowing which group the participants were in. 13 studies[9,16–18,20–26,29,30] were uncertain in terms of this bias assessment.

Two studies[25,29] were categorized as high risk as the intervention and control groups did not have similar characteristics at baseline. In 14 studies,[9,16–24,26–28,30] the intervention and control groups had similar characteristics at baseline and therefore were categorized as low risk.

In seven studies,[16,19,20,23,27,28,30] no participants dropped out of the program. Other studies[9,17,18,21,22,24–26,29] indicated the numbers and percentages of the participants who dropped out until the post-test and follow-up measurements, and therefore have a low risk. Regulations are required in collecting both outcome and research process data, as well as in the design and presentation of future studies.[31]

Limitations of the Study

Including only English studies and not scanning the gray literature can be mentioned as limitations of this systematic review. Furthermore, the results of this review can be generalized to the students of kindergarten, primary school, middle school and high school. However, the results cannot be generalized to those who are in this age group and have any developmental problems.

Conclusion

Because of the systematic analysis of the studies included in this review, results regarding the benefits of school-based programs that focus on improving positive mental health-well-being have emerged. However, it was determined that the interventions in the programs were not effective on empathy[9] and stigma[24,25] variables. Regarding this result, it is stated that developing empathy and reducing stigmatizing attitudes are variables that can be developed over time and that the programs performed aim to raise awareness of the prejudices, thoughts and feelings of individuals.[33,34] In this respect, it is recommended to have reminder sessions and follow-up measurements at certain intervals after raising awareness with the programs and letting awareness turn into behavior over time. In the methodological quality assessment, there were risky studies because the participants knew about the intervention and which group they were in; moreover, the intervention and control groups did not have similar characteristics at the beginning. Based on these results, it is recommended that participants should be randomly assigned to the groups, studies should be single- or double-blinded, there should be no difference between groups in terms of individual characteristics at the beginning, and attention should be focused on other methodological quality assessment factors. There is a requirement for both universal and targeted studies with a high level of evidence in this field.[35] Furthermore, it has been observed that the participation of nurses in these studies is inadequate. Based on these results, nurses are recommended to conduct school-based mental health studies with high methodological quality in which reminder sessions and follow-up measurements are performed.

According to the search criteria, scanned databases revealed no studies conducted in Turkey or by Turkish authors on school-based programs for improving mental health. To address this limitation in Turkey, it is recommended to conduct school-based mental health studies for the benefit of science and society and share the results in the international literature such that the studies are visible.

The aim of this systematic review was to systematically examine and share the results of the studies on the subject in the literature. In this manner, we believe that our study will shed light on the creation of nurse-led programs to meet the psychosocial requirements of children and adolescents studying at schools in our country. The study contributes to Turkish culture in this direction.

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