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Developing and Implementing Self-Care Capability Training Package for Elementary Students' Health Promotion

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Abstract

Objective: This study aimed to design and apply a self-care training package for elementary students' health. According to the purpose of the study, two hypotheses were posed. The first hypothesis states that the self-care training package is effective for elementary students' health improvement, and the second hypothesis is that the self-care training package is effective in promoting the health components of elementary students.

Method: This research was experimental with a pretest-posttest and control group design. The statistical population was all elementary students of public schools in Tehran city in the academic year 2019-2020. In this study, the health questionnaire and a researcher-made self-care questionnaire were used to collect the required data. In compiling the training package, the topics were divided into eight dimensions or topics for self-care, including physical, nutritional, psychological, social, sleep, virtual, sexual, and health components.

Results: The results of the study showed that the self-care training package was effective in promoting primary students' health.

Conclusion: It also promotes each health component (physical health and mental health) in primary school students.

Keywords: Training package, Self-care, Health promotion, Physical health, Mental health.

Introduction

Following the rapid expansion of access to education around the world, the importance and role of students have recently received much attention (li et al., 2022). Formerly, schools focused on developing skills related to science and cognition and only aimed at providing a narrow-minded approach to human development. Their expectations from students focused only on the children's future and little attention has been paid to their mental well-being and mental health. But what is necessary for schools today is the student's development as "good human beings" (Arnett et al., 2020). Physical, mental, and social health are essential issues in children's lives. In particular, it is generally accepted that many problems that appear in the early stages of life will sustain over the years and appear in adulthood (Dí, 2020). In subjects related to education, having the necessary information and knowledge about students' health is significant because it determines how to treat and deal with them in different stages of development (Zari Moghadam, 2019). Health-promoting behaviors are among the main determinants of health and have been recognized as factors in preventing non-communicable and chronic diseases today. Maintaining and improving health and preventing disease are directly related to health behaviors, and health requires improvement and modification of lifestyle (Karimi et al., 2019).

Throughout the related literature, there is potential agreement on the importance of self-care. Self-care is

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the ability of individuals, families, and communities to promote health, prevent disease, and maintain health. When people cannot take care of themselves quantitatively and qualitatively, they need support from their families, social organizations, and health caregivers (Rubert et al., 2019). Self-care has been recognized as one of the health-promoting behaviors of all ages (Strömberg, 2021). Childhood is one of the most critical stages of life for mental health and well-being because of the abilities formed in this period that directly affect their mental health for the rest of their lives. On the other hand, schools are ideal environments for improving individuals' health and well-being and can provide a suitable platform for learning and practicing positive health behaviors (Garcia et al., 2020). Children spend a lot of time in school, so schools have the potential to influence their health, and promoting their health depends on empowering them in self-care (Miller et al., 2018).

Specific knowledge gaps have been identified in self-care research in future studies, such as the impact of habit formation on behavior change, flexibility in stressful events that interfere with self-care, the impact of culture on self-care decisions, difficulty in doing self-care for people with multiple chronic or severe mental illnesses, and the impact of others (caregivers, family, peer supporters, and health care professionals) on self-care. To adequately address this knowledge gap, researchers are challenged to improve the quality of research on self-care and the improvement of previous work (Jaarsma et al., 2021).

In different models, self-care is divided into various areas, which, according to research, are different based on the characteristics of the target community. The subjects that have been studied in self-care include nutritional care (Tabriz et al., 2018), health care (Karimi et al., 2019), physical care – sport and mobility (Tabriz et al., 2018), sleep care (Di Bendeto et al., 2020), psychological care (Grace Owens et al., 201 social care - individual risk factors (Karimi et al., 2019), virtual care - virtual and Internet risk factors for children (Bhargav et al., 2019), and sexual care and prevention of sexual abuse (Hajri Lu & Ghodrati, 2019). In a review study that comprehensively examined the relevant texts for the concept of health and the factors affecting it from the perspective of students, it was concluded that to have a healthy society, it is essential to discover children's and adolescents' perspectives on health, which in turn should be considered by health policymakers to develop effective intervention and prevention programs for children and adolescents (Parvizi et al., 2016).

Numerous studies show that physical activity, as one of the most important aspects of health-promoting behaviors in female students, is very unpleasant and only 36% of female students enjoy good physical activity (Karimi et al., 2019; Shahidi Joghan et al., 2020). Most overweight or obese children experience some health problems such as respiratory problems, and an increased risk of accidents such as fractures, and are prone to many non-communicable diseases such as diabetes. Childhood obesity may persevere to adulthood, increasing the risk of many co-morbidities, and premature death. Lifestyle changes accelerated by economic growth and urbanization affect changes in behavioral and environmental factors that expose children to the "obesity environment" (Mosha, 2021).

Another component of self-care in this study is sexual care. At present, in our country, the average age of puberty has decreased, and the age of marriage is increasing. Traditional beliefs are changing, and the development of mass communication has brought about far-reaching changes in sexual and social behavior; as a result, today, children and adolescents are more exposed to premature sex (Bazargan, 2017). Given the critical role of sex instruction in students and their need for education, planning for ongoing education courses seems necessary to improve their knowledge and attitude (Mohammadkarimi, 2016). Rising sexual harassment, sexual crimes, and sexual abuse against children and youth have

caused great concern in communities around the world and are defined as a chief public health problem and a severe human violation by the World Health Organization. Several studies have examined the views of elementary school teachers on sexual harassment, highlighting specific challenges in implementing prevention work in and out of school. Their respondents seem to act on their mental beliefs when responding to sexual behaviors and showed the need for training based on empirical findings. There is ample evidence that people, especially children, do not have accurate information about this, and learning resources for sexual care are unreliable among them. Usually, what children know about this matter is information they have learned from unqualified people (Mohammadkarimi, 2016).

Another component of self-care is sleep care. The major issues related to sleep arrangements include sleep problems and the child's behavioral-emotional state (Hosseini Khabar, 2016). The prevalence of sleep disorders is seen in children aged 1 to 5 years and older, and sleep disorders are one of the most common concerns in this period. The prevalence of sleep problems in the early years of childhood is reported to be between 10 and 30% (Fehr et al., 2019). Not only can sleep disorders in children be associated with other behavioral and emotional problems, but they can also have devastating effects on family life (Kim et al., 2017). Therefore, self-care training in sleep care, such as proper sleeping and its impacts on the body, and familiarity with appropriate sleep patterns from childhood can be helpful and sustainable.

Training packages are an appropriate tool to create a helpful setting for school students. In self-care training in Iran and the world, some training packages have been developed. For example, Tanaka and Tamura (2016) developed and implemented a training package on sleep self-care in Japan, sought the impact of this package on sleep health, and improved students' mental and physical health. Rahmani et al. (2017) developed a training package for sexual self-care that was designed and used for the effectiveness of adolescent sexual training based on Iranian culture and its effectiveness on the self-concept of junior high school students. Also, in this field, Karami (2020) developed a training package in sexual training for primary students aged 6 to 12. Amani (2015) designed and developed a training package intending to empower students and parents, focusing mainly on mental self-care and its effectiveness in improving the social competence and academic achievement of female adolescents. In the field of virtual self-care, Savadkoohi (2020) designed and implemented a training package based on the skills of effective use of virtual social networks based on Islamic Teachings and examined its effect on emotional and social adjustment and high-risk online behaviors in high school students. Also, in mental self-care, Aga Khani (2017) developed a training package and examined its effect on anxiety, depression, and stress in patients with myocardial infarction. Badleh et al. (2016), in the field of social self-care, examined the effectiveness of police multimedia training packages on attitudes toward social security in high school students. The distinguishing difference of the Iranian self-care training package for children in this study compared to the previous self-care training packages is that it is more comprehensive because it attempts to design eight areas of self-care. Another difference is that this self-care training package for Iranian children is made only for elementary students, that is, it is designed for a group to which most research has not paid much attention. Another distinctive point of this package is that it seeks to examine its impact on health promotion, meaning that it examines more variables. In terms of content, the Iranian children's self-care package has a variety of contents and includes practical and new exercises using various teaching methods. As mentioned, in preparing the training package in this research, the role of self-care training in promoting children's health has been considered. Many children are prone to high levels

of mental health problems in their future lives due to their living conditions because, with an inappropriate lifestyle and self-care pattern, potential dangers can always be with the child. Therefore, this study seeks to answer the question of whether the self-care training package is effective in promoting primary students' health and whether it affects the promotion of each health component (physical health and mental health) in primary students. A researcher-made self-care package that is based on research theories and consists of 8 sections was applied in this study.

Method

The research method was experimental in the form of a pre-test-post-test design with four groups. Experimental studies can inherently control the internal validity of variables. Due to the coincidence of the research time with the coronavirus outbreak, the right and wrong instructions available to the public in virtual environments and through mass media might have influenced the results, so the comparison group replaced the control group. Four groups participated in this study, including two experimental and two comparison (control) groups. The treatment, independent variable, has been provided to the experimental group; only one experimental group was given a pre-test to control the impact of maturation and pre-test. The comparison groups, which included two groups, were also given the instruction, one with a pre-test and the other without a pre-test. However, their training was not related to self-care, and only moral, cultural, and environmental issues were taught to neutralize the effect of the compensatory competition and the weakened morale of the control groups. Also, to control the impact of the trainer, novelty, and disorder, the researcher herself has personally carried out the training in the groups, and other colleagues, as the director of the virtual group, assisted the researcher in checking the assignments and feedback. Because the training sessions were virtual and the students were present in groups with their names and contact numbers, the training of the girls and boys was held separately and equally at the discretion of the principals and education officials. Accordingly, if we look at the results of this study obtained from the independent variable, we can be sure that the results are solely due to the independent variable and the observed differences are not affected by disturbing variables such as concurrent events, the sampling, measuring tools, and other suspicious variables. Using the random sampling method, the researcher placed the subjects in the research groups randomly. Finally, the collected data were compared within and between groups so that, in the case of significant differences, the researcher could ensure the effectiveness of the independent variable.

	Posttest	Independent variable	Posttest	Random choice
Experiment group	T2	X	T1	R
Comparison group	T2	-	T1	R
Experiment group 2	T2	X	-	R
Comparison group 2	T2	-	-	

Figure 1- Salmon four group design

The research population of the study consisted of all elementary school students studying in public schools in Tehran in the academic year 2020-202, whose number was 1,226,093 people.

The sampling method was a multi-stage cluster sampling. Initially, the city of Tehran was divided into five divisions: North, South, East, West, and Centre, and one district was randomly selected from each division, and one of the districts was chosen randomly. Then, a girls' and a boys' primary school in the first and second elementary schools were selected from among the public primary schools in each district, and from the list of classes in each school, one in each

grade was selected randomly. Finally, according to this method and considering inclusion and exclusion criteria, 160 girls and 160 boys in age groups were randomly selected and assigned to the groups. The inclusion criteria included: the subjects should be between 8 and 12 years old and study in elementary school, the level of education of their parents must be at least a diploma, the child should live with both parents and not be a divorced child, and should not be under medical or psychological treatment. In addition, the two groups were matched on the variables of children's age, parents' age, parents' education, and academic achievement transcript scores.

Ethical statement

After identifying the schools, classes, and students, with the help of the school's vice-chancellor, virtual meetings in the virtual groups on WhatsApp were organized to explain the procedure to the parents, then, the subjects were randomly assigned to each group.

Inclusion criteria for the subjects included the age range between 8 and 12 years old, i.e., they should be in the age of objective operations, studying at elementary school, the level of parents' education must be at least a diploma, living with both parents and not be a divorced child, and did not undergo medication or psychological treatment. The exclusion criteria for their departure were the unwillingness to continue cooperation by the subject or his parents and the absence of more than one session in training classes. Eventually, the two groups were homogeneous in the variables of children's age, parent's age, education, and academic achievement transcript scores.

Procedure

First, the questionnaires were answered by two groups (experimental group 1 and comparison group 1).

In the other two groups, no pre-test was performed. Next, the experimental groups were provided self-care training, and the comparison groups were given various ethical, cultural, and environmental training in a non-coherent way. The self-care training package for students was held weekly during ten virtual sessions on Thursdays. Due to the concurrence of the research with the prevalence of coronavirus, the training was conducted virtually through the Shad App. At the end of the training sessions, the self-care, health, life satisfaction, and self-efficacy scales were performed in all groups, and the pre-test and post-test results were compared.

The time of each session was approximately one and a half hours with a ten-minute break so as not to be boring for the students. In the study group, each session had a title, rules, and slogan appropriate to the topic of the session. At the beginning of each session, the assignments of the previous session were discussed, then training materials were presented to students. The exercises were practiced in the virtual classroom by students with the help of their instructor, and finally, students received their homework virtually. After doing their assignments, they sent them to the personal page of the researcher's colleague, who was the school's deputy director. Library and field methods were used to collect data. In the survey section of the study, the standard health questionnaire and the researcher-made self-care questionnaire were used. The health questionnaire has two main parts, which are presented in figure2.

Section	Item
Physical health	1, 3,4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16,18.19
Psychological health	17.20,22.21 23, 24, 25, 26, 27, 28, 29, 30, 31,32.33

Figure 2. Items of heath questionnaire

The validity and reliability of this questionnaire have

been confirmed in the Iranian population (Montazeri et al., 2005; Asghari & Faqehi,2003), and the internal consistency coefficients of its eight subscales were calculated between 0.70 to 0.85, and their retest coefficients with one-week interval were reported between 0.43 to 0.79. Also, this questionnaire can distinguish healthy people from sick people in all indicators (Asghari & Faqehi, 2003).

To construct the self-care questionnaire based on the theoretical framework of the health promotion model, a multi-section questionnaire was developed to examine different areas of self-care. To make this questionnaire, several studies that separately examined self-care sub-scales based on the health promotion model were used (Heshmati et al., 2013. Mohammadkarimi et al., 2016. Fathabadi & Sharifi, 2014. Bazargan, 2017. Hosseini, 2016. Asgari & Asgarani, 2016. Zari Moghadam et al., 2019. Kamali & Heidari, 2019). After a close review of the questionnaires made or used in the mentioned research, appropriate items were selected and provided to professors and experts in educational psychology. Finally, according to the experts' opinions, the final questionnaire was prepared and validated. To evaluate the reliability of the questionnaire, a pilot study was conducted on 30 students in one of the schools. The questionnaire was administered to them, and the collected data were entered into SPSS software to calculate its reliability through the Cronbach alpha coefficient for each dimension of the whole questionnaire, and its reliability was finally confirmed.

After the validity and initial reliability of the questionnaires, they were administered to a sample of 150 students randomly selected from the statistical population, and data were analyzed through factor analysis. Considering that the purpose of compiling the training package is to provide an appropriate guide for 7 to 12-year-old students in learning habits that are necessary for their self-care skills, the topics were divided into eight self-care dimensions (physical, mental, social, sleep, virtual, sexual, and health self-care). Then, according to the literature, the topics of each dimension were identified. After the compilation, the self-care packages were evaluated in two ways. The self-care packages were provided to related experts, including nutritionists, physical education, mental health, prevention of social harms, prevention and control of diseases, and safe community and medical education to review the scientific content of the package. This process continued until their scientific contents were verified by the experts.

The Salmon four-group design consists of a pre-test-post-test design with a control group and a post-test design with a control group. First, the data were done interactively in study and control groups with pre-test and without pre-test makeup and two-way analysis of variance. Then the data were arranged into four independent groups, and a one-way analysis of variance was performed for the difference between the four groups. In this way, a four-level independent variable was created for the post-test scores of the four groups (two experimental groups and two control groups, and after ensuring the significance of one-way analysis of variance and the application of Tukey or Scheffe multi-comparison methods, case comparisons were conducted. Finally, given that the researcher was not interested in making various comparisons and, on the other hand, was willing to use more sensitive tests to track significant differences, performed the comparison by conducting the t-test twice, once between the experimental and control groups done pre-test and the post-test, and once between the experimental and control groups who have not performed a pre-test. Therefore, three inferential tests were used to test each research hypothesis.

Data analysis

Table 1 represents the frequency and percentage of participants' gender and age. As can be seen, 50% of the subjects were girls, and 50% were boys.

In Table 2, descriptive indicators (mean and

Table 1. Frequency and percentage of subjects in terms of gender and age in the four groups

	Variable	Frequency (n=320)	Percentage	Frequency in groups			
				Experiment with pre-test (n=80)	Control with pre-test (n=80)	Experiment without pre-test (n=80)	Control without pre-test (n=80)
Gender	Boy	160	50	40	40	40	40
	Girl	160	50	40	40	40	40
Age	8	65	20.31	16	16	16	17
	9	58	18.12	14	14	14	16
	10	64	20	16	16	16	16
	11	79	24.69	20	19	20	20
	12	54	16.88	14	15	14	11

standard deviation) of pre-test and post-test scores of health components, including physical and mental health, are reported separately for the four research groups. According to the skewness and elongation coefficients reported in Table 2, the distribution of physical and mental health scores in all groups was normal.

and the homogeneity of variance in the different combinations of the groups in two independent variables. The dependent variables were continuous, and the independent variables were observations. The normality of the distribution of dependent variables was examined using skewness and elongation coefficients. The coefficients were in

Table 2. Descriptive indicators of health components by groups

Group conditions Mean		Pre-test			Post-test				
		SD	skewness	elongation	Mean	SD	skewness	elongation	
Experiment with pre-test	Physical health	52.75	4.48	-0.86	0.22	51.24	4.64	-0.40	-0.23
	Psychological health	70.80	9.75	0.76	-0.22	75.74	9.81	-0.73	-0.16
Control with pre-test	Physical health	52.10	4.73	-0.65	-0.31	49/19	4.82	-0.86	-0.04
	Psychological health	71.04	9.09	0.32-0.90	0.32	73.70	9.08	-0.68	-0.36
Experiment without pre-test	Physical health	-	-	-	-	50.14	4.84	-0.84	-0.21
	Psychological health	-	-	-	-	75.84	8.92	-0.82	0.26
Control without pre-test	Physical health	-	-	-	-	49.06	5.24	-0.70	-0.50
	Psychological health	-	-	-	-	73.61	9.23	-0.45	-0.51

Because the research design was a four-group Solomon, two-way ANOVA was used to examine the differences between the groups. Two-way ANOVA requires observing the assumptions such as the continuity of the dependent variable scale, the normality of the distribution of the dependent variable, the independence of the observations,

the appropriate range, so the normal distribution of dependent variables was observed. The homogeneity of variance was also assessed using the Levene test. Table 3 reports the results of the Levene test to examine the homogeneity of variance of scores of the main variables and the components of each in the groups. If the significance level of the Levene

test is greater than 0.05 or is not significant, the null hypothesis is confirmed, and we can consider the variance of the groups to be the same. As can be seen, the significance level of the Levene test for the self-efficacy variable is less than 0.05 and for the two components of sexual care and virtual care is less than 0.01; therefore, the assumption of the equality of variance of groups in the scores of these variables was rejected. Of course, the analysis of variance test is resistant to violating this assumption. If the data distribution is not two-dimensional and does not have much skewness, and also the size of the sample groups is the same, even if the highest variance of the groups is four times the smallest of them, the variance analysis can be used with confidence (Homan, 2019).

To test the hypothesis: "The self-care training package is effective in promoting the health of primary school students", the two-way ANOVA was used (Table 4).

As can be seen in Table 4, the result of the two-way ANOVA analysis between groups shows that the effects obtained for experimental and control groups ($P < 0.05$, F (316 and 1) = 6.72) are significant. In other words, the post-test scores of students' health are different in the experimental and control groups. The effects of the pretest ($P < 0.05$, F (316 and 1) = 0.18 F) and the interaction of the group and pretest ($P < 0.05$, F (316 and 1) = 0.08) are not significant. To compare the health post-test in the groups, one-way ANOVA was performed. The results are reported in Table 5.

The results of one-way ANOVA show that the within-group effects ($P < 0.05$, F (316 and 3) = 2.32) are not significant. Therefore, the mean health post-test is equal in the four groups.

A dependent t-test was used to compare the pre-test and post-test of health variables in experimental and control groups with the pre-test, the results of which are shown in Table 6.

Table 4. Results of two-way ANOVA of groups to examine the variables of students' health

Source	Total squares	df	Mean squares	F	Sig.
Width of origin	4970294.25	3	4970294.25	30579.62	0.01
Group	1091.50	1	1091.50	6.72	0.01
Pre-test	29/40	1	29.40	0.18	0.67
Group (with pre-test)	12/40	1	12.40	0.08	0.78
Error	51361.44	316	162.54		
Total	5022789.00	320			

Table 5. One-way analysis of variance comparing post-test health in four groups

	Total squares	Df	Mean squares	F	Sig.
Between-groyp effects	1133.31	3	377.77	2.32	0.07
Within-group effects	51361.44	316	162.54		
Total	52494.75	319			

Table 6. The Results of dependent t-test to compare pre-test and post-test health of experimental and control groups with pre-test

Comparing the post-test-pre-test of two groups	Groups' differences			
	Group	Mean	SD	Standard error mean
Health	Experiment	-3.42	3.63	0.41
	Control	0.25	3.89	0.43

The results dependent t-test show that in the experimental group ($p < 0.01$, $t = 8.44$), the null hypothesis is rejected; therefore, there is a significant difference between the mean of the pre-test and post-test of health variables in the experimental group. The negative of the t-test indicates that the mean of the post-test was significantly higher than the pre-test. In the control group ($p > 0.05$, $t = 0.57$), according to the value of the t-statistic and the corresponding level of significance, the null hypothesis is confirmed. Therefore, there is no significant difference between the mean of pre-test and post-test health in the control group.

The second hypothesis was: "Self-care training package is effective in promoting each health component (physical and mental health) in primary school students." To test this hypothesis and evaluate the effect of group (control and test) and pre-test (with pre-test and no pre-test) and group interaction and pre-test, the two-way ANOVA was performed for each of the health components (the results are shown in Table 7).

As can be seen, the results of two-way ANOVA between groups show that the effects obtained for the group (experimental and control) in both components of physical health ($P < 0.01$, $F (316 \text{ and } 1) = 8.16$)] and mental health ($P < 0.05$, $F (316 \text{ and } 1) = 4.23$) are significant. In other words, the mean scores for the post-test of physical and mental health are different in the experimental and control groups. The effects of the pretest and group interaction and pretest are non-significant for both physical and mental health components.

To compare the post-test results of the components of physical and mental health in the groups, one-way ANOVA was performed, and the results are reported in Table 8.

The results of one-way ANOVA show that the

Table 7. Results of two-way ANOVA between subjects to examine the health variables

Component	Source	Total squares	df	Mean squares	F	Sig.
Physical health	Width of origin	797002.81	1	797002.81	33292.52	0.00
	Group	195.31	1	195.31	8.16	0.00
	Pre-test	30.01	1	30.01	1.25	0.26
	Group (with pre-test)	19.01	1	19.01	0.79	0.37
	Error	7564.85	316	23.94		
	Total	804812.00	320			
Mental health	Width of origin	1786674.75	1	1786674.75	20791.99	0.00
	Group	363.38	1	363.38	4.23	0.04
	Pre-test	0.00	1	0.00	0.00	0.99
	Group (with pre-test)	0.70	1	0.70	0.00	0.93
	Error	27254.16	316	85.93		
	Total	1814193.00	320			

Table 8. Comparison of post-test mean of the variables of health components in groups

Componenr		Total squares	df	Mean squares	F	Sig.
Physical health	Between-group effects	244.34	3	81.45	3.40	0.02
	Within-group effects	7564.85	316	23.94		
	Total	7809.19	319			
Mental health	Between-group effects	364.08	3	121.36	1.41	0.24
	Within-group effects	27154.16	316	85.93		
	Total	27518.25	319			

within-group effects are significant only for the physical health component (P <0.05, F (316 and 3) = 3.40). So the null hypothesis is rejected. In other words, the means of post-test of physical health are different in the four groups. Between-group effects are not significant for mental health components (P <0.05, F (316 and 3) = 1.41). In other words, the mean scores of the post-test of mental health are the same in the groups. In other words, the mean scores of the post-test of mental health are the same in the groups.

To determine in which group the difference in the physical health component observed in the one-way ANOVA exists, post hoc tests were performed (the results are reported in Table 9).

As can be seen in Table 9, the result of the Tukey test and its significance level shows that the mean of the physical health component in the experimental group with a pre-test is higher than the mean of the control group without a pre-test (p <0.05) and also significantly higher than the mean of the control group with pre-test (P <0.05). Also, due to the significance level of the LSD test, the mean score of the physical health component in the experimental group with a pre-test was higher than the mean of a control group without a pre-test (p <0.01) and also significantly higher than the mean of the control group with pre-test (p <0.05).

A dependent t-test was used to compare pre-test and post-test self-efficacy components in experimental

Table 9: The results of the post hoc test to compare the mean differences between the two post-tests of the physical health component in the research groups

Post-hoc test	Group I	Group J	The mean difference between the two groups I and J	Standard error	Sig. level
TukeyHSD	Experiment with pre-test	Experiment without pre-test	1.10	0.77	0.49
		Control without pre-test	2.17	0.77	0.03
		Control with pre-test	2.05	0.77	0.04
	Control without pre-test	Experiment with pre-test	-1.10	0.77	0.49
		Control without pre-test	1.07	0.77	0.51
		Control with pre-test	0.95	0.77	0.61
	Control with pre-test	Experiment with pre-test	-2.05	0.77	0.04
		Experiment without pre-test	-0.95	0.77	0.61
		Control without pre-test	0.12	0.77	0.99
	Control without pre-test	Experiment with pre-test	-2.17	0.77	0.03
		Experiment without pre-test	-1.07	0.77	0.51
		Control with pre-test	-0.12	0.77	0.99
LSD	Experiment with pre-test	Experiment without pre-test	1.10	0.77	0.16
		Control without pre-test	2.17	0.77	0.00
		Control with pre-test	2.05	0.77	0.01
	Control without pre-test	Experiment with pre-test	-1.10	0.77	0.16
		Control without pre-test	1.07	0.77	0.17
		Control with pre-test	0.95	0.77	0.22
	Control with pre-test	Experiment with pre-test	-2.05	0.77	0.01
		Experiment without pre-test	-0.95	0.77	0.22
		Control without pre-test	0.12	0.77	0.87
	Control without pre-test	Experiment with pre-test	-2.17	0.77	0.00
		Experiment without pre-test	-1.07	0.77	0.17
		Control with pre-test	-0.12	0.77	0.87

and control groups with a pre-test, and the results are reported in Table 10.

Table 10. Results of dependent t-test to compare pre-test and post-test of health components in experimental and control groups

Comparing post-test-pre-test of two groups	Group	Groups' differences					t	df	Sig. level
		Mean	SD	Standard error mean	confidence level of 95%				
					Low level	High level			
Physical health	Experiment	1.51	3.20	0.36	0.80	2.22	4.23	79	0.00
	Control	2.91	2.12	0.24	2.44	3.38	12.26	79	0.00
Mental health	Experiment	-4.94	1.64	0.18	-5.30	-4.57	-26.79	79	0.00
	Control	-2.66	3.13	0.35	-3.36	-1.97	-7.61	79	0.00

The results of the dependent t-test show that in the experimental group, the mean components of physical health ($p < 0.01$, $t = 4.23$) and mental health ($p < 0.01$, $t = -26.79$) in pre-test and post-tests are significantly different. According to the statistical sign of the t-test, the physical health pre-test and the mental health post-test are higher. Also, in the control group, the mean components of physical health ($p < 0.01$, $t = 12.26$) and mental health ($p < 0.01$, $t =$ 7-61) in the pre-test and post-test were significantly different. According to the t-test results, the physical health score is higher in the pre-test, and the mental health score is higher in the post-test. According to the statistical sign of the t-test, physical health in the pre-test and mental health in the post-test is higher.

Discussion

The hypothesis test results show that the self-care training package impacts the health promotion of primary students. This result is in line with Mirmansouri's study (2015), in that self-care training programs affect the students' general health. It is also in line with the results of research by Prizmachuk et al. (2014) showed that a self-care program affects the mental health of children and youth and developed a model in this field. Other studies that are in line with this research include the research of Sun (2019), Aghakhani et al. (1396), Jatmika and Maulana (2018), Nagai Penz (2020), as well as Zainp Aydin Sanbul (2018) showed that teachers suggested oral hygiene as a priority that needs to be further considered as a valuable oral health training resource. In their research, Ningsih et al. (2018) showed that self-care training improves the attitudes and skills of caregivers for children with physical disabilities. Dai et al. (2019) also demonstrated that the integration of mindfulness training programs as part of the student curriculum is of great importance to students' mental health. Explaining this result, we can say that today, all over the world, instead of focusing only on treatment strategies, they are trying to promote health by planning and educating people in the community. Thus, health promotion, to a large extent, is dependent on the relationship between three factors: health training, health protection, and disease prevention. Self-care instruction teaches the student the skills of using one's health resources and, ultimately, leads to health improvements and physical and mental health in children; thus, we can confidently say that self-care training could be effective in students' mental health. The results also showed that each health component (physical health and mental health) affects primary school students' health. Experimental findings confirm this relationship.

The present study is consistent with Khoshmaram's research (2018) which showed that the training package to promote self-care behaviors is effective

in mental and physical health. The results of Zari Moghadam et al. (2021, 2019) and Amini (2019) also showed that mental self-care training affected students' mental health. Barimnejad (2014), in her research, showed that instructional interventions and increasing self-care capacity have a positive effect on the quality of life in patients with asthma. Explaining this result, it can be said that today, self-care as a series of health-promoting behaviors has attracted wide attention. The concepts of health promotion and self-care have common roots. Both reflect new thinking about the role of the professional sector in health care. However, these two concepts were fully developed. Self-care has evolved to the same level of legitimacy and stability as health promotion, which has evolved from an alternative approach to dominating traditional disease prevention to a rapidly evolving health field. Self-care is logically correlated with health promotion with a critical function in optimizing health-related behavior. Due to the fundamental nature of self-care for practice across areas, careful consideration of systematic self-care skills in childhood has the potential for far-reaching long-term benefits.

Therefore, coping skills development as the best way to build a strong and flexible self-concept in children pointed out that it facilitates the individual's adaptation to new conditions and is considered a preventive and short-term intervention to increase self-esteem and self-efficacy in students. It includes a wide range of internal and external behaviors and reactions in dealing with a stressor or any cognitive and behavioral effort that effectively reduces or tolerates internal or external stress issues. Lifestyle is a unique pattern of characteristics, behaviors, and habits that each person shows, and if it is defective, the person is at risk of diseases or problems. The training aimed at preventing high-risk behaviors and unhealthy habits in life in the early years of life should emphasize learning a healthy lifestyle because an unhealthy lifestyle is the cause of many diseases and disorders. Several layers are involved in self-care, from biological aptitude to supportive and environmental caregivers. Children who learn self-care skills need supportive relationships and direct instruction in developing self-care skills. Just like literacy, there are individual differences in development that require different levels of support. Based on the results of this study, suggestions are presented. Given that the results showed that self-care behaviors could be taught and schools have an essential role in teaching them, it is better to start teaching these behaviors in schools, and to achieve it, determining the educational needs of children is the first step. It is suggested that the self-care curriculum in primary school be developed according to these results and implemented by education to provide students with health.

Since this study was the basis for designing a self-care educational package for Iranian children and its effect on improving the level of mental health, life satisfaction, and self-efficacy of primary school children (12-7 years old) to be investigated, it was not possible to generalize the results to other educational levels. Also, the chief problem in conducting this research was collecting questionnaires in the survey part, hence, a lot of time was spent collecting questionnaires because schools were absent due to the corona epidemic. The other main problem in this study was the lack of a comprehensive questionnaire to assess self-care among primary school children. Therefore, with extensive study, the researcher by considering the dimensions of self-care, developed a questionnaire and by performing it in a pilot group, its validity and reliability were obtained using factor analysis, and then it was implemented widely, which was very time-consuming and time-consuming. Another limitation of this study was the coincidence of conducting this study with the coronavirus epidemic. At first, the classes were grouped in person, and after a week of school closure, it took a long time before all the formal school education in Iran was conducted virtually. The researcher had to wait until the new academic year to hold face-to-face

classes, but still in the academic year 2020-2021, the classes were held virtually, so the finding might not be accurate in terms of teaching and feedback. Because training was virtual, the questionnaires were compulsorily performed twice in the pre-test, and grouping and sampling were done twice, which was very time-consuming. In this way, in grouping and performing the first pre-test after entering the information, it was observed that all students scored strangely high in all cases and dimensions, and their parents answered the questionnaires believing that the implementation of this plan would affect their formal education score. Therefore, the researcher was grouped before the training and sampled and grouped again, and before the pre-test, a justification was held for the parents of the virtual classes to know that their children's score has no effect on their formal education and to allow the children themselves freely to respond the questionnaires by themselves.

Conclusion

The corona epidemic and the increase in the level of public awareness and students about health and nutrition issues, to some extent, affect the results of the research, and, likely, the amount of knowledge of students about health and nutrition issues has increased compared to before the corona pandemic.

Given the nature of self-care for performance across areas, careful consideration of systematic self-care skills in childhood has potential long-term benefits. Based on the results of this study, some suggestions are provided.

Self-care behaviors are teachable, and schools have an essential role in teaching them. It is better to start teaching these behaviors in schools, and to achieve it, determining the educational needs of children is the first step. Given that students play a significant role in community health, and as they are the future group of the community and the family, it is recommended that interventions be made to promote proper lifestyles and self-care practices in specific target groups.

According to the results, the use of educational methods to promote self-care, in addition to improving knowledge and changing students, played a significant role in enhancing self-efficacy behaviors and the life satisfaction. School-based self-care programs are most effective when training is combined with active follow-up training to control and monitor behaviors. Supporting the self-care of future generations is seen as a commitment that must be fulfilled by parents, teachers, school principals, and all health professionals.

Finally, instead of using traditional methods of educating students, it is recommended to use educational approaches in which students participate and are active in formal education. It is recommended that other training methods such as the use of visual media in educational programs be used to make self-care training more effective. It is also suggested that the self-care curriculum in primary school be developed according to the findings of the present study and implemented by education to provide the background for students' health. Individual differences of children in learning self-care training must be taken into account because with the intervention and support of children in line with their needs, they can effectively acquire skills to manage their thoughts, feelings, and behavior.

Researchers should expand their research into child self-care within the family and provide interventions for parents experiencing high levels of stress or adversity to examine the effects of parental self-care on the family.

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