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Quick Response Code:

Website: www.jehp.net
DOI: 10.4103/jehp.jehp_421_19

Effectiveness of school-based mental health programs on mental health among adolescents

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Abstract:

AIM: This study aimed to investigate the effect of school-based interventions on mental health among adolescents in the southeast of Iran.

METHODS: This interventional quasi-experimental study included a total of 420 adolescent girls studying 10th grade in the public schools of Zahedan, Iran. Data were collected using general health questionnaire-28 questionnaire. After pretest, multidimensional interventions (individual education, group education, individual consultations, modern education, and parents' educational packages) were given to the intervention group from October 2015 to June 2016. After a 3-month interval, the posttest was conducted in October 2016. Data were analyzed by covariance analysis.

RESULTS: There was a significant statistical difference between the changes in the mental health scores after the intervention among the two study groups ($P < 0.05$). Furthermore, after the intervention, moderate-to-severe mental health problems decreased considerably among the students in the intervention group compared to controls. The greatest impact was on individual psychological counseling.

CONCLUSIONS: The results of the study showed that by applying group training and individual counseling in the schools improves mental health. Therefore, identifying student problems and parent-teacher cooperation as well as consulting with specialist counselors can be effective in providing practical and effective solutions in this regard. Therefore, findings suggest that prioritizing mental health and taking action on the field are of utmost importance.

Keywords:

Adolescent, Iran, mental health

Background

At present, chronic non communicable diseases is a major cause of death, raising concerns in the healthcare systems worldwide. The World Health Organization (WHO) introduced "Healthy People 2020" within the framework of providing community healthcare, thus promoting health outcomes and establishing health equity. Accordingly, a number of leading health indicators, e.g., ensuring mental health, have been introduced for having healthy people.^[1,2]

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Mental disorders of adolescents could be associated with a wide range of features, including physical and cognitive health, mental functioning, social environment, family features, and stressful life events.^[3] To this end, it is essential to provide and develop mental health programs and services in schools for identifying the specific needs of students who face innumerable mental health issues every day.^[4,5] These programs not only identify mental health complaints but also offer diagnosis and treatment in schools. Therefore, schools must have counselors and psychiatrists to

How to cite this article: Shahraki-Sanavi F, Ansari-Moghaddam A, Mohammadi M, Bakhshani NM, Salehiniya H. Effectiveness of school-based mental health programs on mental health among adolescents. *J Edu Health Promot* 2020;9:142.

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Received: 16-10-2019
Accepted: 28-01-2020
Published: 30-06-2020

provide useful interventions for students with mental health problems.^[6] In addition, they must refer these students to community mental health services for further care and treatment if it is needed.^[7]

In addition, puberty and its specific crises, e.g., confusion and decreased self-esteem, further differentiate this period in terms of mental health.^[8] Unfortunately, evidence suggests a high prevalence of mental disorders among adolescents.^[9-12] Fifty percent of adult mental disorders are originated in childhood and adolescence.^[13] The UNICEF reported a prevalence of mental health disorders in adolescents as 20%;^[14] according to the WHO, 12%–29% of adolescents suffer from mental disorders in different countries,^[15] and the prevalence of mental disorders in Iran is also reported to be 10%–40% by various studies.^[16,17]

Consequently, schools should not ignore their determinant role in decreasing mental health problems. Schools can offer security and Privacy for students. It also provides parents and teachers partnerships for cognitive, behavioral, and emotional-functional supports for all students.^[18] Studies demonstrated the effectiveness of school interventions in promoting mental health.^[19-21] Moreover, the results of some studies emphasize direct educational methods and some indirect educational methods. According to this evidence, individual education and counseling were positive and had a great impact on the behavior of individuals.^[22]

Further, data suggest a high prevalence of mental disorders in females compared to males due to biological factors, gender roles, environmental stress, and limitation of satisfaction source and social participation of females in society.^[16] Furthermore, for girls, adolescence is the foundation of their future that guides the next stages throughout their lives and directly affects their future, family, and children. Then, investigating female adolescents' mental health status is essential because of their twofold role within the health of a community and impending generations' health.

Therefore, due to the importance of adolescence in human life as a basis for the present and future health, the present study was conducted to examine the effectiveness of school-based mental health programs on adolescents in Southeast Iran.

Methods

This interventional quasi-experimental study purposively included four public high schools that were similar in terms of social, economic, and environmental factors from among public girl's high schools in Zahedan, Iran.

Participants

Accordingly, selected schools were divided into experimental ($n = 2$) and control groups ($n = 2$). Using the census method, all the tenth-grade students were initially included in the study. Based on the early results of the study and the formula given below, in each group, 90–171 (total 342 students) sample size was estimated.

$$N = \frac{\left(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta} \right)^2 (s_1^2 + s_2^2)}{(x_1 - x_2)} \quad \alpha = 0.05$$

$$\beta = 0.05$$

All 10th-grade students attending school were enrolled in the study, and only students who moved from these schools or had long absences from school were excluded from the posttest phase. In the end, 420 students (300 in the experimental and 120 in the control groups) participated in the study.

Instruments

Mental health was assessed by a general health questionnaire-28 questionnaire with the most reliability, sensitivity, and specificity.^[23-25] Persian version has also a criterion validity coefficient of 0.87 and reliability (α) of 0.90 of 0.97.^[26] The questions were multiple-choice (no, a bit, high, and very high) which is scored based on the Likert scale (0-1-2-3). Finally, subscales based on the cut-off line for scores in each subscale were categorized into four categories of lowes (score 0–6), mild (score 7–11), moderate (score 12–16), and severe (score 17–21). The questionnaire was completed in 30 min.

Procedure

Before data collection, the participants were given information on the research method, questionnaire completion, collaboration, trust, and confidentiality of responses. After obtaining informed consent from the students and their parents according to the ethical codes (IR.ZAUMS.REC.1394.251), the students` were enrolled. Further, a code was assigned to each participant for the confidentiality of the information. First, we administered the pretest. After analyzing the pretest results, the experimental group of adolescents who belonged to the "severe" category in each subscale was identified based on their codes.

After arrangements were made with high-school principals and assistants, the students' names and class numbers were identified without the type of disorder. Afterward, counseling sessions in the high schools were planned according to the class schedules and the number of sessions required for each

student (four individual sessions for each disorder) based on the date and time.

The main investigator and three counselors had a joint meeting to determine the number of students and sessions for each counselor. Then, they were provided with the session dates and schedules, as well as the students' codes and types of problems. To protect the student's anonymity, the counselors had access only to the codes.

In a meeting in each high school, teachers were encouraged to collaborate for the counseling sessions. During the counseling period, if some students were absent on the specified dates or the session overlapped with midterm examinations, a make-up session was scheduled.

Each counseling session lasted for 45 min. The questionnaires were self-administered, and to avoid response bias, based on the type of problems, the counselors administered more accurate psychological tests on the first sessions, and the sessions continued if the identified problem was confirmed.

Information on mental health, mental problems, and solutions to the problems was published on the websites of experimental-group high schools. Moreover, 150-min workshops were held on mental health in all the intervention high schools. Every workshop included theoretical education, PowerPoint presentation, and video clips (100 min); question and answer, role-playing (30 min); and overall evaluation (20 min). In addition, as most adolescents complained of stress-related problems, we displayed posters on how to control stress in the intervention of high schools.

Mental health programs were implemented for the intervention group from October 2015 to June 2016 and the posttest was administered 3 months later in October 2016.

Data analysis

The data were coded and then analyzed in SPSS 15 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to categorize the data and determine the level of mental disorders. In addition, the effectiveness of interventions was examined using ANCOVA with 95% of a confidence interval.

Results

In total, 420 tenth-grade students participated in the study. Half of the fathers were employees, while the mothers were homemakers and had high-school diplomas. In addition, most students in both groups

lived with both parents and were the first to the third child. They described the socioeconomic status of their families as moderate to good.

The moderate-to-severe mental health problems of the students showed 1.6% and 5% increase in physical problems, 6.1% decrease and 6.9% increase for anxiety and sleep disorders, 3.4%, and 0.5% decrease in impaired social functioning, and 4.8% and 3% decrease for depression among the experimental and control groups, respectively [Table 1].

The mean scores of intervention group were pre-test and post-test, respectively 28.7 (15) and 26.7 (14.8) and for the control group 35.8 (17.8) and 37 (19.5) (Range of scores: 0-84). Based on Table 2, the mean and standard deviation of changes in the mental health scores of students significantly differed across groups, showing a decrease of 2 points in the experimental group.

Discussion

Schools are one of the most important human societies and one among the targets of healthcare systems. Along with families, schools play a role in preventing behavioral problems and enhancing the social capabilities of adolescents.^[27-29] Therefore, the provision and development of mental health programs and services in schools seem to be essential for identifying the specific needs of students who face innumerable mental health issues every day.^[30,31]

Table 1: Distribution of absolute frequency and percentage of mental health among the students of experimental and control groups over the past month

Mental subscales	Group and time			
	Intervention		Control	
	Pretest	Posttest	Pretest	Posttest
Somatic symptoms				
Low	145 (48.5)	143 (47.7)	51 (42.5)	45 (37.8)
Mild	104 (34.8)	102 (34)	36 (30)	33 (27.7)
Moderate	40 (13.4)	48 (16)	26 (21.7)	29 (24.4)
Severe	10 (3.3)	7 (2.3)	7 (5.8)	12 (10.1)
Anxiety/insomnia				
Low	152 (50.8)	175 (58.3)	42 (35)	37 (31.1)
Mild	85 (28.4)	81 (27)	46 (38.3)	42 (35.3)
Moderate	48 (16.1)	36 (12)	18 (15)	25 (21)
Severe	14 (4.7)	8 (2.7)	14 (11.7)	15 (12.6)
Social dysfunction				
Low	73 (24.4)	89 (29.7)	25 (20.8)	26 (21.8)
Mild	159 (53.2)	154 (51.3)	52 (43.4)	51 (42.9)
Moderate	64 (21.4)	52 (17.3)	34 (28.3)	29 (24.4)
Severe	3 (1)	5 (1.7)	9 (7.5)	13 (10.9)
Depression				
Low	193 (64.5)	212 (70.7)	59 (49.2)	53 (44.5)
Mild	55 (18.4)	51 (17)	16 (13.3)	25 (21)
Moderate	28 (9.4)	22 (7.3)	27 (22.5)	19 (16)
Severe	23 (7.7)	15 (5)	18 (15)	22 (18.5)

Table 2: Univariate analysis of variance of mental health score between group

Source	Type III sum of squares	Df	Mean square	F	Significant
Corrected model	904.524 ^a	1	904.524	3.836	0.051
Intercept	52.553	1	52.553	0.223	0.637
Group	904.524	1	904.524	3.836	0.051
Error	98334.383	417	235.814		
Total	99733.000	419			
Corrected total	99238.907	418			

The mean of pretest scores was significantly different between two groups with independent t-test ($P=0.001$), covariate variable: pre-test scores, ^a $F^2=0.009$, $\eta^2=0.04$

Findings suggest that schools must be equipped with certain facilities to determine the students' emotional, behavioral, and social needs. Moreover, having counseling centers outside the schools is an important step toward realizing this goal.^[32] School counseling activities aim to resolve the students' social, family, educational, behavioral, and mental problems and pathologies, with counselors' playing the central role in this regard.^[33] Moreover, consultations can improve various aspects of their health including mental and physical health.^[27,34,35] Some studies indicated the effectiveness of counseling services for the students.^[36,37]

Smith concluded that the students require real experiences and dislike being advised. Although advice may be actually helpful for them, they need tangible examples of real and difficult situations and counselors who would help them with encountering and understanding real-world situations.^[38] In fact, students require guidance, encouragement, and practice, while no satisfaction is achieved if their needs are not structurally discovered.^[39] Evidence suggests that individual education and counseling have a remarkable positive effect on individuals' behavior.^[22] The results of the present study also demonstrated an improvement in the mental health scores of students who had received individual counseling.

A study on the effectiveness of brief school-based interventions on depression, anxiety, attention deficit hyperactivity disorder, and excessive alcohol consumption showed that the 12-month intervention positively affected emotion and negatively affected depression among students with negative thoughts. Depression was decreased in students with anxiety in both groups, although the effects were stronger in the intervention group.^[21]

According to a meta-analysis, cognitive-behavioral approaches are more effective on people at risk of mental disorders.^[40-42] In Chile, a clinical trial was conducted on adolescents from poor families. Results showed that school-based interventions based on a cognitive-behavioral model reduced the signs of depression in high-risk adolescents, such that after

3 months of intervention, the experimental group improved 10% more than the control group.^[43]

In line with other studies, the present study offered a school-based intervention on mental health and individual counseling for students with specific mental health problems. Following the intervention, the moderate-to-severe anxiety and sleep disorders, impaired social functioning, and depression were significantly reduced in the experimental group compared to the controls.

Limitations

One limitation of the current study was the students who participated in this study were of the female public schools and grade 10 and therefore are not representative of all adolescents in this age group. In addition, the data collected were based on a self-administered questionnaire.

Weak and strong points of the study

- Time management
 - Strong – Plans adequate time to completed assignments and study
 - Weak – Restrictions on making sustainable behavioral changes in students in this limited time period.
- Collaboration
 - Strong – Good cooperation of the education organization, directors, teachers, and students
 - Weak – Poor parenting follow-up.

Conclusions

Authorities and health policymakers should acknowledge that the number of students suffers from severe mental health problems.

To sum up, the results indicated the high impact of minimum counseling sessions for each problem on students with mental health problems. In this regard, the education organization can benefit from the capacity of students' studying psychology.

On the other hand, given the importance of the family in Iran and due to the emotional dependency of adolescents

to families in this age range, the strong impact of family in mental health is logical. Therefore, to provide mental health, the participation of school counselors and parent education seems necessary.

Acknowledgments

This article was part of Ph.D., thesis with code 2772 in Zahedan University of Medical Science We would like to express their gratitude to the Zahedan Medical Sciences University, the Health Promotion Research Center, the District Department of Education, and the school heads, teachers, and students who helped conduct this study.

Financial support and sponsorship

Zahedan University of Medical Science.

Conflicts of interest

There are no conflicts of interest.

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