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

Fariba Shahraki-Sanavi¹, Alireza Ansari-Moghaddam², Mahdi Mohammadi², Nour-Mohammad Bakhshani³, Hamid Salehiniya⁴,⁵

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.⁴,⁵

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.⁶ 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.⁶,⁷ These programs not only identify mental health complaints but also offer diagnosis and treatment in schools. Therefore, schools must have counselors and psychiatrists to

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provide useful interventions for students with mental health problems.[9] 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.[6] 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.

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

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...
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7 (5.8)
40 (13.4)
15 (12.6)
36 (30)
73 (24.4)
29 (24.4)
14 (4.7)
52 (43.4)

Posttest

Control

12 (10.1)
42 (35)
37 (31.1)
19 (16)
29 (24.4)
51 (17)
22 (7.3)
25 (21)
25 (20.8)
26 (21.7)
85 (28.4)
23 (7.7)
51 (42.5)
8 (2.7)
51 (42.9)
64 (21.4)
175 (58.3)
5 (1.7)
48 (16)
10 (3.3)
34 (28.3)
7 (2.3)
45 (37.8)
6 (1.9)
36 (12)
7 (2.1)
15 (5)

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

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)

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]
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.

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Conflicts of interest
There are no conflicts of interest.

References

1. US Department of Health and Human Services. Office of Disease Prevention and Health Promotion Healthy People 2010: National Health Promotion and Disease Prevention Objectives. US Public Health Service. Washington, DC: US Government Printing Office; 1990.

2. US Department of Health and Human Services. Healthy People 2020: An Opportunity to Address Societal Determinants of Health in the US. Secretary’s Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2010. US Department of Health and Human Services; 2020.

3. Merikangas KR, Merikangas KR, Nakamura EF, Kessler RC. Epidemiology of mental disorders in children and adolescents. Dialogues in clinical neuroscience 2009;11(1):7-20.

4. US Department of Health and Human Services. The Mental and Emotional Well-being of Children: A Portrait of States and the Nation. Rockville, MD, USA: U.S. Department of Health and Human Services; 2007.

5. Fazel M, Hoagwood K, Stephan S, Ford T. Mental health interventions in schools 1: Mental health interventions in schools in high-income countries. Lancet Psychiatry 2014;1:377-87.

6. Taras HL, American Academy of Pediatrics Committee on School Health. School-based mental health services. Pediatrics 2004;113:1839-45.

7. Kutash K, Duchnowski AJ, Lynn N. School-based Mental Health: An Empirical Guide for Decision-Makers. Tampa: University of South Florida, Louis de la Parte Florida Mental Health Institute, Department of Child and Family Studies, Research and Training Center for Mental Health; Tampa, Florida; 2006.

8. Nazari I, Hosseinpour M. The effects of social skill on anxiety and self-esteem among second grade girl’s high school in BAGHMALEK. J Soc Psychol (New Findings In Psychol) 2008;2:95-116.

9. Maghsoodi J, Sabour NH, Yazdani M, Mehrabi T. The effect of acquiring life skills through humor on social adjustment rate of the female students. Iran J Nurs Midwifery Res 2010;15:195-201.

10. Power AK. Transforming the nation’s health: Next steps in mental health promotion. Am J Public Health 2010;100:2343-6.

11. Bayer AM, Gilman RH, Tsui AO, Hindin MJ. What is adolescence? Adolescents narrate their lives in Lima, Peru. J Adolesc 2010;33:509-20.

12. Mundy LK, Simmons JG, Allen NB, Viner RM, Bayer JK, Olds T, et al. Study protocol: The Childhood to Adolescence Transition Study (CATS). BMC Pediatr 2013;13:160.

13. Belfer ML. Child and adolescent mental disorders: The magnitude of the problem across the globe. J Child Psychol Psychiatry 2008;49:226-36.

14. Rabeeb H. Coping strategies for stress used by adolescent girls in Riyadh, Kingdom of Saudi Arabia. Pak J Med Sci 2014;30:958-62.

15. World Health Organization, World Psychiatric Association, International Association for Child and Adolescent Psychiatry and Allied Professions. Atlas: Child and Adolescent Mental Health Resources: Global Concerns, Implications for the Future. World Health Organization; 2005.

16. Sadeghian E, Moghaderi Kousha M, Gori S. The study of mental health status in high school female students in Hamadan City. Sc J Hamadan Uni Med Sci Health Serv 2010;17:39-45.

17. Zareipour MA, Eftekhar Ardebili H, Kamal A, Movahed E. Study of mental health and its relationship with family welfare in pre-university students in Salmas City in 2010. J Res Dev Nurs Midwifery 2012;9:84-93.

18. Paternite CE. School-based mental health programs and services: Overview and introduction to the special issue. J Abnorm Child Psychol 2005;33:657-63.

19. Greenberg MT, Weissberg RP, O’Brien MU, Zins JE, Fredericks L, Resnik H, et al. Enhancing school-based prevention and youth development through coordinated social, emotional, and academic learning. Am Psychol 2003;58:466-74.

20. Erfani Khanghahi M, Shafei F, Tavakoli R. The effect of mental health education on pre university high school girls concerning their attitude beliefs, and the knowledge towards the subject. J Health Admin 2004;7:57-63.

21. Goossens FX, Lamers J, Onrust SA, Conrod PJ, de Castro BO, Monshouwer K. Effectiveness of a brief school-based intervention on depression, anxiety, hyperactivity, and delinquency: A cluster randomized controlled trial. Eur Child Adolesc Psychiatry 2016;25:659-48.

22. Rafee Far S. From Health Education to Health. 1st ed. Tehran: Tandees; 2005.

23. Goldberg DP, Gater R, Sartorius N, Ustun TB, Piccinelli M, Gureje O, et al. The validity of two versions of the GHQ in the WHO study of mental illness in general healthcare. Psychol Med 1997;27:191-7.

24. Banks MH. Validation of the general health questionnaire in a young community sample. Psychol Med 1983;13:349-53.

25. Goldberg D. Screening psychiatric disorders. In: Williams P, Wilkinson G, editors. The Scope of Epidemiological Psychiatry. London: Routledge; 1989.

26. Ebrahimi AE, Moulavi H, Mousavi SG, Bornamanesh A, Yaghoubi M. Psychometric properties and factor structure of general health questionnaire (GHQ-28) in Iranian psychiatric patients. J Res Behav Sci 2007;5:5-12.

27. Jolaei S, Mehrdad N, Bahrami N, Moradi Kalboland M. A comparative investigation on health behaviors of students in primary schools with and without health educator. J Hayat 2004;10:55-62.

28. Zareipour M, Sadaghiannfar A, Valizadeh R, Aliejad M, Noorani S. The effect of health promoting school programs in improving the health status of schools in Urmia, north west of Iran. Int J Pediatr 2017;5:4319-27.

29. Schulte-Körne G. Mental health problems in a school setting in children and adolescents. Dtsch Arztebl Int 2016;113:183-90.

30. US Department of Health and Human Services. The Mental and Emotional Well-Being of Children: A Portrait of States and the Nation. Select here to Read Report on Line and Click on Any Chapter such as. U. S. Department of Health and Human Services; 2007.

31. Ghaemi SZ, Khakshour A, Abasi Z, Hajikhan Golchin NA. Effectiveness of school-based program to preventing mental disorders in school age children. Rev Clin Med 2015;2:118-24.
32. Brown C, Dahlbeck D, Sparkman-Barnes L. Collaborative relationships: School counselors and non-school mental health professionals working together to improve the mental health needs of students. Prof Sch Couns 2006;9:332-5.

33. Ranjeh Bazoo K. Mistakes in training and education. Inform Bull 2008;3:12-5.

34. Walker Z, Townsend J, Oakley L, Donovan C, Smith H, Hurst Z, et al. Health promotion for adolescents in primary care: Randomised controlled trial. BMJ 2002;325:524.

35. Ozer EM, Brindis CD, Millstein SG, Knopf DK, Irwin CE. America’s Adolescents: Are they Healthy. San Francisco, CA: University of California, National Adolescent Health Information Center; 1998.

36. Weisz JR, McCarty CA, Valeri SM. Effects of psychotherapy for depression in children and adolescents: A meta-analysis. Psychol Bull 2006;132:12-49.

37. Sabella RA. A reaction to counseling psychology and school counseling an underutilized partnership. Couns Psychol 2004;32:263-9.

38. Smith B. Why Students Need Guidance Counselors with Real life Experiences. USA: Helam Inc.; 2007.

39. Gilman R, Fuurlong ML, Huebner ES. Handbook of Positive Psychology in Schools. New York: Oxford University; 2009.

40. Stice E, Shaw H, Bohon C, Marti CN, Rohde P. A meta-analytic review of depression prevention programs for children and adolescents: Factors that predict magnitude of intervention effects. J Consult Clin Psychol 2009;77:486-503.

41. Lopez MA, Basco MA. Effectiveness of cognitive behavioral therapy in public mental health: Comparison to treatment as usual for treatment-resistant depression. Adm Policy Ment Health 2015;42:87-98.

42. Hofmann SG, Asnaani A, Vonk IJ, Sawyer AT, Fang A. The efficacy of cognitive behavioral therapy: A review of meta-analyses. Cognit Ther Res 2012;36:427-40.

43. Gaete J, Martinez V, Fritsch R, Rojas G, Montgomery AA, Araya R. Indicated school-based intervention to improve depressive symptoms among at risk Chilean adolescents: A randomized controlled trial. BMC Psychiatry 2016;16:276.