Research Article

The Association of Mental Health with Family Relationships and High-Risk Behaviors in Female Students of South-Eastern Iran

Fariba Shahraki-Sanavi [1], Fatemeh Rakhshani [2], Alireza Ansari-Moghaddam [3] and Mahdi Mohammadi [3, *]

[1]Public Health Department, Health Promotion Research Center, Zahedan University of Medical Science, Zahedan, Iran
[2]Public Health Department, Safety Promotion and Injury Prevention Research Center (SPIPRC), Shahid Beheshti University of Medical Sciences, Tehran, Iran
[3]Epidemiology and Biostatistics Department, Health Promotion Research Center, Zahedan University of Medical Sciences, Zahedan, Iran

Corresponding author: Zahedan University of Medical Sciences, Doctor Hesabi Sq, ZIP Code: 9817667993, Zahedan, Iran, Tel: +-98-9156407880, Email: memohammadi@yahoo.com

Abstract

Objectives: The current study aimed at examining the association of mental health with family relationships and high-risk behaviors among female students in Iran.

Methods: The current cross sectional study was conducted on 457 10th-grade students from four public female high schools in South-Eastern Iran. Information was collected using the General Health questionnaire-28 (GHQ-28) of mental health and Self-report questionnair of family relationships and high-risk behaviors with good content validity and reliability (α) 0.71. Data were analyzed by linear and binary logistic regression using SPSS version 15.

Results: The mean scores of mental health and high-risk behaviors of the subjects were 31.06 ± 16.44 (of maximum 84), and 18.03 ± 3.72 (of maximum 78), respectively. The most prevalent problems were associated with social performance scale. Binary logistic regression showed a statistically significant relationship between mental disorders and communication with parents, as well as relationship with opposite gender and sleeping time. A significant correlation was also observed between mental health, family behaviors, relationship with opposite gender, nighttime sleep, being abused by parent, and high-risk behaviors ($P < 0.01$).

Conclusions: The results suggest that parent the education and counseling programs should be designed and implemented to protect adolescents and prevent socio-mental problems and high-risk behaviors in them. Such program should also be used as a basis for healthy growth of students.

Keywords: Mental Health, Student, Parent, High-risk Behavior

1. Background

Emotional and mental disorders are increasingly important factors in morbidity, disability, and reduced quality of life within all communities (1). Mental, social, and physical health is intertwined like deeply interdependent strands. According to the latest World Health Organization (WHO) report, one out of five young people under 18 have an advanced form of behavioral or emotional problems. Furthermore, it is expected that neurological and mental damage increase about 50% and account for 15% of the global burden of disease by 2020 (2). According to released statistics, mental and behavioral disorders are highly common so that 20% - 25% of all people may be afflicted with such disorders at some times in their lives (3).

Adolescence is a critical period in individual's mental and social development. The phenomenon of puberty and specific crises during this period, as well as the feelings of confusion and low self-esteem highlight this stage of life in terms of mental health (4). Unfortunately, the evidence indicates a high prevalence of mental disorders in adolescence (5-8); 50% of youth and adult mental disorders are rooted in childhood and adolescence (9). According to UNICEF, 20% of adolescents have mental health problems (10). In this regard, the percentage of adolescents with mental disorders varies from 12% to 29% based on a WHO report (11). The prevalence of mental disorders in Iran varies from 10% to 40% in different regions (12, 13). Additionally, data suggest a high prevalence of mental disorders in females compared to males due to biological factors, gender roles, environmental stress, Limited source of satisfaction and limitation of social participation of females in society (12).

On the other hand, behavior, social, economic, and cul-

tural conditions of families may play an important role in their mental health ([14]). Studies show that behavioral problems and distortions are mostly rooted in homes and a large proportion of all offender adolescents are from families with poor parents model ([15]). In fact, parents play a very important role in the transition from this period and the degree of support and warmth of parents affect their health; if they feel accepted by their parents, they would be happier and healthier. The kind behavior of parents works as a major factor in mental health. Moreover, behavioral science experts emphasize that children need love, and deprivation from love, especially maternal love, may deeply annoys the spirit of children ([13]).

In addition, some researchers believe that the tendency of adolescents toward high-risk behaviors that is increasing every day is a reflection of cognitive and emotional problems they face. Therefore, some major causes of the tendency of the majority of adolescents toward high-risk behaviors are to deal with feelings of depression, anxiety, inefficiency, loss of self-confidence, lack of satisfaction with life, inability to accept oneself, etc. The results of the studies indicated that the likelihood of an increase in high-risk behaviors in people with mental health problems. The feelings of depression, loneliness, and isolation in adolescents are often directly associated with high-risk behaviors such as suicide attempt, and similarly high self-esteem and strong social support sources are among protective factors of adolescents against high-risk behaviors ([16-18]).

Accordingly, in addition to potential benefits in the area of health, promoting the mental health of adolescents is one of the known methods to prevent high-risk behaviors and strengthen social security. On the other hand, communities and families that have adolescents with mental disorders bear significant therapy costs and dropouts, as well as business and future life failure ([19]). Furthermore, for females, 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 due to their two-fold role within the health of the community and impeding generations' health. Therefore, due to the importance of adolescence in human life as a basis for present and future health, the current study aimed at examining the association of mental health with family variables, sleeping time, and high-risk behaviors in female students of South-Eastern Iran. Logically, investigation of mental health problems and preventive measures, as well as early interventions, would lead to subsequent cost savings.

2. Objectives

The current study aimed at assessing the mental health concerning family relationships and high-risk behaviors in female students of South-Eastern Iran, and applying the results for designing and implementing intervention and consultation programs in schools.

3. Methods

The current cross sectional study was conducted in Zahedan, South-Eastern Iran, from October to November in 2015. Sample size was estimated based on the pilot study and the following formula with P = 0.2, d = 0.04, and α = 0.05:

$$n = \frac{pqz^2}{d^2} \tag{1}$$

Due to unisexuality in Iranian schools, at first a list of females' schools was prepared and four public high schools were randomly selected. Then all 10th-grade students (n = 457) were enrolled. Subjects were included in the study voluntarily and they were assured about the confidentiality of their information.

Mental health was assessed by the General Health questionnaire-28 (GHQ-28) that is a self-administered instrument measuring four basic factors including physical status, anxiety or insomnia, social function. This questionnaire undergoing psychometrics in more than 70 countries ([20-22]) possesses the highest reliability, sensitivity, and specificity. Persian version of the questionnaire also has a criterion validity coefficient of 0.87 and split-half reliability of 0.90 as well as Cronbach's alpha of 0.97 ([23]). The items are multiple-choice questions (no, a bit, high, and very high) scored based on the four-point Likert scale from zero to 3. Finally, based on the cutoff point, subscales were categorized into four groups of low (score 0-6), mild (score 7-11), moderate (score 12-16), and severe (score 17-21).

The second questionnaire included demographic and family connections (four items), and high-risk behavior (14 items) questions; i.e., safe and violent behaviors within the month before the study, going out and leaving home without notice, smoking hookah, chewing tobacco, drinking alcohol, using drugs, and having sex during the student life. Answers to multiple-choice items, response rate, and mean scores of high-risk behaviors were calculated. The questionnaire had good content validity ratio (CVR) and content validity index (CVI), with reliability (α) of 0.71.

The study protocol was approved by the Ethics Committee of Zahedan University of Medical Sciences (code no.: IR.ZAUMS.REC.1394.251). In order to collect information,

research method, questionnaires completing method, attracting cooperation, trusting, and ensuring the confidentiality of responses were explained to the participants. All 10th-grade students attending the schools were enrolled in the study, and only one student was excluded from the study due to unwillingness. The average time to complete the questionnaire was approximately 30 minutes. The collected data were analyzed by SPSS version 15. Descriptive statistics were used to report the findings and the data were expressed as mean ± standard deviation or frequency and percentage. Binary logistic regression, and liner regression were used to analyze data and P values less than 0.05 were considered significant.

4. Results

The current study was conducted on 457 10th-grade students, aged 14 - 17 years, mostly with a birth rank of 1 - 3. Half of the fathers were employee and had high school diploma, and their mothers were housewife and had high school diploma. The majority of subjects described their socioeconomic condition of their families as moderate to good.

The mean score of total mental health (score range 0 - 84) of the subjects was 31.06 ± 16.44. As can be observed in Table 1, the most prevalent problems belonged to social functioning (26.7%), followed by anxiety and sleep problems (23.2%), depression (23.2%), and physical symptoms had the lowest prevalence.

The overall mean score of health-risk behavior (score range 14 - 78) in the subjects was 18.03 ± 3.72. The most frequent high-risk behaviors were sitting in a care while the driver sends or reads messages or emails (42.3%) and failing to wear a seat belt (21.9%); almost 9% of them smoked hookah, and had physical fights in or out of school (Table 2).

Compared to children with frequent contact with parents, never talking increased the risk of somatic symptoms (OR = 6.6), anxiety (OR = 4.8), social dysfunction (OR = 4.3), and depression (OR = 6.0). Children who never shared their feelings with their parents were at risk of anxiety 2.2 times more than the ones who did it. Lack of participation in decision-making increased the risk of social dysfunction 2.3 times more than the ones who were always involved in decision-making. Sexual relationship with opposite gender increased the risk of depression 3.7 times more than having no relationship. Children with extra nighttime sleep (10 hours or more) were at higher risk of anxiety (OR = 3.9), social dysfunction (OR = 3.6), and depression (OR = 3.8) than the ones with normal sleeping hours (7 - 9 hours) (Table 3).

Table 1. The Prevalence of Mental Health Subscales and Overall Mean Score[a]

Mental Subscale	Values
Somatic symptoms	
Low	209 (46.1)
Mild	154 (34.0)
Moderate	71 (15.7)
High	19 (4.2)
Anxiety/insomnia	
Low	209 (46.2)
Mild	138 (30.5)
Moderate	72 (15.9)
High	33 (7.3)
Social dysfunction	
Low	105 (23.2)
Mild	227 (50.1)
Moderate	108 (23.8)
High	13 (2.9)
Depression	
Low	271 (59.8)
Mild	77 (17.0)
Moderate	58 (12.8)
High	47 (10.4)

[a] Values are expressed as No. (%).

A statistically significant relationship was observed between mental health, family behaviors, relationship with opposite gender, nighttime sleep, being abused by parent, and high - risk behaviors (Table 4).

5. Discussion

The findings of the current study showed that about a quarter of the students in the study had moderate to severe mental problems and the most prevalent problems were related to social functioning. Also, mean scores of mental health and high - risk behaviors of the subjects were 31.06 ± 16.44 (of maximum 84), and 18.03 ± 3.72 (of maximum 78), respectively. Moreover, female students who never talked to their parents were more at risk of mental disorders in all four studied dimensions. Moreover, non - participation in decision - making process was associated with social dysfunction; relationship with the opposite gender was associated with depression, and sleep disorders with anxiety, social dysfunction, and depression. In addition, the high - risk behaviors of adolescents had a statistically significant relationship with mental health, fam-

Table 2. The Prevalence of High-Risk Behaviors and Overall Mean Score[a]

Variable	Values	Variable	Values
Going out without notice		**Physical fight at school**	
Yes	422 (92.5)	Never	414 (90.8)
No	34 (7.5)	1 time	22 (4.8)
Leaving home without parental notice		2 - 3 time	8 (1.8)
Yes	408 (89.5)	4 - 5 time	1 (0.2)
No	48 (10.5)	≥ 6 time	11 (2.4)
Wearing seat belt in the car		**Using cigarettes**	
Always	64 (14.0)	Never	446 (97.8)
Often	81 (17.8)	1 - 9 d	10 (2.2)
Sometimes	114 (25.0)	10 - 19 d	-
Rarely	97 (21.3)	20 - 29 d	-
Never	100 (21.9)	30 d	-
Sitting in a car while the driver uses mobile phone while driving		**Using chewing tobacco**	
Never	263 (57.7)	Never	455 (99.8)
1 - 9 d	157 (34.4)	1 - 9 d	1 (0.2)
10 - 19 d	15 (3.3)	10 - 19 d	-
20 - 29 d	6 (1.3)	20 - 29 d	-
30 d	15 (3.3)	30 d	-
Carrying a weapon out of school		**Using hookah**	
Never	430 (94.3)	Never	410 (89.9)
1 d	14 (3.1)	1 - 9 d	39 (8.6)
2 - 3 d	6 (1.3)	10 - 19 d	2 (0.4)
4 - 5 d	-	20 - 29 d	2 (0.4)
≥ 6 d	6 (1.3)	30 d	3 (0.7)
Carrying a weapon in school		**Drinking alcohol**	
Never	446 (97.8)	Never	434 (95.2)
1 d	5 (1.1)	1 - 9 d	21 (4.6)
2 - 3 d	4 (0.9)	10 - 19 d	1 (0.2)
4 - 5 d	1 (0.2)	20 - 29 d	-
≥ 6 d	-	30 d	-
Physical fight out of school		**Using substance**	
Never	415 (91.0)	Never	449 (98.5)
1 time	17 (3.7)	Experimental	7 (1.5)
2 - 3 time	12 (2.6)	Current use	-
4 - 5 time	3 (0.7)	**Having sexual intercourse**	
≥ 6 time	9 (2.0)	Never	450 (98.7)
		With prevention	-
		Without prevention	6 (1.3)

[a] Values are expressed as No. (%).

ily variables, relationship with opposite gender, and nighttime sleep as well as.

Reviewing American literature from 2005 to 2011 showed that 11.3% of children under 17 had an advanced emotional or behavioral problem and at least one mental problem was observed in about half of 13 - 18 - year - old adolescents and severe mental problems in 28% of adolescents. The prevalence of behavioral problems in the age group of 12 - 17 years was 5.7%, and depression and anxiety 8.1% and 6.6%, respectively (24). The prevalence of mental problems in French adolescents was 12.5% (25) and the results of a study in Vietnam showed that anxiety 22.8% of adolescents had anxiety, 41.1% depression, and 26.3% suicide attempt (26).

Furthermore, the prevalence of anxiety and depression were 19.01% and 19.74% in Iranian female students, respectively (12). Results of other studies on students in Iran also showed the highest prevalence in social functioning, followed by anxiety, depression, and physical problems. The overall prevalence of mental problems is reported 39% - 62% in different regions of Iran (13, 27). Consistent with other studies, the present study indicated that the lowest level of mental health was in social functioning scale, making up more than a quarter of students studied. The results of the study by D'Arcy and Siddique (31), on the social functioning of a group of Canadian adolescents was also in line with the results of the current study.

The findings suggested that mental disorders of ado-

Table 3. Binary Logistic Regression Between Mental Symptom and Relationships with Family, Opposite Gender, and Nighttime Sleep[a]

Variable	N	Mental Subscales[b] OR (95% CI)					
		Social Dysfunction			Depression		
		Values	Univariate	Multivariate	Values	Univariate	Multivariate
Talking with parents							
Always	206	30 (14.6)	Reference 0.001	Reference 0.001	27 (13.1)	Reference 0.001	Reference 0.001
Sometimes	226	81 (35.8)	3.2 (2.0 - 5.2) 0.001	2.6 (1.6 - 4.3) 0.001	68 (30.1)	2.8 (1.7 - 4.6) 0.001	2.4 (1.4 - 4.1) 0.001
Never	22	11 (50.0)	5.8 (2.3 - 14.7) 0.001	4.3 (1.6 - 11.5) 0.003	11 (50.0)	6.6 (2.6 - 16.7) 0.001	6.0 (2.3 - 15.9) 0.001
Sharing feeling with				NS			NS
parents	214	43 (20.1)	Reference 0.008		37 (17.3)	Reference 0.013	
Brother and Sister	127	40 (31.5)	1.8 (1.1 - 3.0) 0.018		34 (26.8)	1.7 (1.0 - 2.9) 0.038	
Nobody	113	39 (34.5)	2.0 (1.2 - 3.4) 0.005		35 (31.0)	2.1 (1.2 - 3.6) 0.005	
Participation in decision-making							NS
Always	241	42 (17.4)	Reference 0.001	Reference 0.006	43 (17.8)	Reference 0.005	
Sometimes	183	66 (36.1)	2.6 (1.7 - 4.1) 0.001	2.1 (1.3 - 3.3) 0.002	51 (27.9)	1.7 (1.1 - 2.8) 0.014	
Never	30	14 (46.7)	4.1 (1.8 - 9.1) 0.001	2.3 (0.9 - 5.4) 0.052	12 (40.0)	3.0 (1.3 - 6.8) 0.006	
Relationships with opposite gender				NS			
None	302	75 (24.8)	Reference 0.352		51 (16.9)	Reference 0.001	Reference 0.003
Online	65	17 (26.2)	1.0 (0.5 - 1.9) 0.824		20 (30.8)	2.1 (1.1 - 4.0) 0.011	1.9 (1.0 - 3.6) 0.037
Telephone	71	24 (33.8)	1.5 (0.8 - 2.6) 0.125		27 (38.0)	3.0 (1.7 - 5.3) 0.001	2.4 (1.3 - 4.4) 0.003
Physical	16	6 (37.5)	1.8 (0.6 - 5.1) 0.263		8 (50.0)	4.9 (1.7 - 13.7) 0.002	3.7 (1.3 - 10.9) 0.014
Nighttime sleep, h							
7 - 9	225	56 (24.9)	Reference 0.034	Reference 0.029	43 (19.1)	Reference 0.011	Reference 0.021
≤ 6	208	55 (26.4)	1.0 (0.7 - 1.6) 0.712	0.9 (0.6 - 1.5) 0.982	53 (25.5)	1.4 (0.9 - 2.2) 0.112	1.3 (0.8 - 2.1) 0.264
≥ 10	21	11 (52.4)	3.3 (1.3 - 8.2) 0.010	3.6 (1.3 - 9.6) 0.01	10 (47.6)	3.8 (1.5 - 9.6) 0.004	3.8 (1.4 - 10.1) 0.006

Variable	N	Mental Subscales[c] OR (95% CI)					
		Somatic Symptom			Anxiety/Insomnia		
		Values	Univariate	Multivariate	Values	Univariate	Multivariate
Talking with parents							
Always	206	27 (13.1)	Reference 0.001	Reference 0.001	28 (13.6)	Reference 0.001	Reference 0.001
Sometimes	226	53 (23.5)	2.0 (1.2 - 3.3) 0.006	2.0 (1.2 - 3.3) 0.006	67 (29.8)	2.6 (1.6 - 4.4) 0.001	2.2 (1.3 - 3.7) 0.002
Never	22	11 (50.0)	6.6 (2.6 - 16.7) 0.001	6.6 (2.6 - 16.7) 0.001	11 (50.0)	6.3 (2.5 - 16.0) 0.001	4.8 (1.8 - 12.7) 0.002
Sharing feeling with				NS			
parents	214	34 (15.9)	Reference 0.112		31 (14.6)	Reference 0.001	Reference 0.020
Brother and Sister	127	31 (24.4)	1.7 (0.9 - 2.9) 0.054		33 (26.0)	2.0 (1.1 - 3.5) 0.010	1.5 (0.8 - 2.7) 0.142
Nobody	113	26 (23.0)	1.5 (0.8 - 2.8) 0.115		42 (37.2)	3.4 (2.0 - 5.9) 0.001	2.2 (1.2 - 4.0) 0.005
Participation in decision-making				NS			NS
Always	241	40 (16.6)	Reference 0.140		44 (18.3)	Reference 0.027	
Sometimes	183	43 (23.5)	1.5 (0.9 - 2.4) 0.077		53 (29.0)	1.8 (1.1 - 2.8) 0.011	
Never	30	8 (26.7)	1.8 (0.7 - 4.3) 0.178		9 (30.0)	1.9 (0.8 - 4.4) 0.134	
Relationships with opposite gender				NS			NS
None	302	51 (16.9)	Reference 0.122		59 (19.5)	Reference 0.006	
Online	65	16 (24.6)	1.6 (0.8 - 3.0) 0.146		15 (23.1)	1.2 (0.6 - 2.3) 0.519	
Telephone	71	20 (28.2)	1.9 (1.0 - 3.5) 0.031		24 (34.3)	2.1 (1.2 - 3.7) 0.008	
Physical	16	4 (25.0)	1.6 (0.5 - 5.2) 0.407		8 (50.0)	4.1 (1.4 - 11.4) 0.007	
Nighttime sleep, h				NS			
7 - 9	225	41 (18.2)	Reference 0.255	Reference 0.001	45 (20.1)	Reference 0.007	Reference 0.020
≤ 6	208	43 (20.7)	1.1 (0.7 - 1.8) 0.520	2.0 (1.2 - 3.3) 0.006	50 (24.0)	1.2 (0.7 - 1.9) 0.323	1.1 (0.7 - 1.8) 0.596
≥ 10	21	7 (33.3)	2.2 (0.8 - 5.9) 0.102		11 (52.4)	4.3 (1.7 - 10.9) 0.002	3.9 (1.5 - 10.2) 0.005

Abbreviation: NS, not significant.
[a] Values are expressed as No. (%).
[b] The outcome variable for logistic regression was mental health disorder at two levels (low and mild, moderate and high) low and mild symptom was taken as reference level.
[c] The outcome variable for logistic regression model was mental health disorder at two levels (low and mild, moderate and sever) low and mild symptom was taken as reference level.

Table 4. Relationship Between High-Risk Behaviors and Risk Factor by Multiple Linear Regression

High-Risk Behavior	Independent Variable				
	Unstandardized Coefficient		Standardized Coefficient	t	P Value
	B	Std. Error	Beta		
Mental health	0.06	0.01	0.26	6.05	0.001
Family behavior	0.73	0.16	0.19	4.60	0.001
Relationships with opposite gender	0.70	0.18	0.16	3.88	0.001
Family structure	1.56	0.55	0.11	2.78	0.006
Nighttime sleep	0.69	0.26	0.10	2.59	0.010
Abused by parents	0.54	0.23	0.10	2.37	0.018

lescents could be associated with a wide range of features including physical and cognitive health, mental functioning, social environment, family features, and stressful life events (32). When there is a warm relationship between parents and adolescents, a healthy environment is created to develop adolescents (15, 33). The results of the current study demonstrated that the less the quality of the relationship between parents and children, the more the symptoms of depression and anxiety in children (34, 35) and poor social support was associated with greater risk of mental problems in adolescents. Families with more intimate relationships and less struggles possess adolescents with higher mental health (36, 37). Investigating Iranian adolescents indicated a significant relationship between their mental health and family communication patterns (38). Family communication patterns have a significant relationship with anxiety and depression in adolescents and orientating family dialogue is a significant negative predictor of anxiety and depression in children (39). The current study indicated that adolescents that never talk to their parents and do not participate in decision - making process were more at risk of mental disorders. Also, adolescent with high - risk behaviors in their families (e.g., addiction, smoking, etc.), experiences of being abused by parent, or live with other relatives were more at risk of high - risk behaviors; therefore, when the family environment provides more comfortable conditions for conversation about a wide range of subjects, children can achieve personal and intellectual maturity as well as healthiness.

In recent years, there was a rapid increase in friendship with the opposite gender among adolescents and youth of Iran. This is while friendship with the opposite gender is not accepted in Iranian culture. Such relationships are associated with mental and physical problems and conflict with parents, and are not suggested (40). In addition, a romantic relationship in adolescence is a predictor of anxiety, depression, and anger, particularly among

females (41). The current study also identified increased risk of depression and high - risk behaviors among females reporting relationships with the opposite gender. In contrast, some studies show an increase in pleasure, well - being, and mental health, and a decrease in high - risk behaviors in students managing friendship with opposite gender (42).

Findings of the current study showed a significant relationship between high - risk behaviors and mental health of the subjects. Indeed, with a decrease in mental health, participation in high - risk behaviors increased. The study on American high school students revealed that stress and depression were associated with increased drug use, violence, assault, unsafe sex, and unhealthy diet (16). Also, reduction of negative emotions such as depression and anxiety was among the causes of adolescent smoking; in fact, smoking is more common in people with depression and mood disorders (43). On the other hand, studies illustrated that females were more inclined to inner destructive behaviors such as anxiety, depression, and suicide attempt. Female participation in high - risk behaviors had an emotional nature related to their stress and depression as well (44).

In line with the results of the current study, previous studies showed that sleep difficulties and hours of sleep were significant predictors of a number of substance - related problems (45) and mental problems (46). It might be useful to educate adolescents about the importance of sleeping time and the potential consequences of sleep hours on mental health and risky behaviors.

5.1. Conclusions

Therefore, it can be concluded that authorities of educational affairs and families should consider that a significant number of students lack mental health and its continuation would have negative consequences for society and families. Therefore, raising awareness about sleep hygiene

and mental health, supplying healthy recreational facilities, establishing counseling and planning centers, and planning for prevention, are amongst the most important measures to prevent mental disorders and decrease high - risk behaviors in adolescents. Therefore, basic planning and policymaking are required to improve mental health of students.

5.2. Limitation

Potential bias: Subjects of the current study were limited to the public schools and grade 10, as well as female gender; therefore, they were not representatives of all adolescents in this age group. Missing values were only 2% of the participants for each variable. In addition, data collection was based on a self - administered questionnaire completed anonymous.

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Footnotes

Authors' Contribution: All authors have contributed significantly and meet criteria for authorship. All the authors read and approved the final copy of the manuscript.

Conflict of Interests: There was no conflict of interest.

Ethical Approval: The study protocol was approved by the Ethics Committee of Zahedan University of Medical Sciences (ethical code: IR.ZAUMS.REC.1394.251).

Informed Consent: Informed consent was obtained from all the participants.

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