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RESEARCH

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Effect of health education program on improving knowledge and atitude towards mental health stigma and professional help-seeking among adolescents

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Abstract

Background Engaging adolescents in mental health education programs can markedly improve their knowledge, decrease stigma, and enhance professional help-seeking. Two-step study was carried out. The first step was applied to 416 secondary school students in two Egyptian Governorates, using an adapted version of a questionnaire used to survey beliefs and attitudes towards mental illness and professional help-seeking. The second step, a health education program, was implemented upon 224 students; they were classified into intervention and control groups. The program was done to improve their knowledge and attitude.

Results About 8% of participants had positive findings suggestive of mental illness; the commonest disorder was anxiety disorder (3.9%). Although most of the participants had a positive attitude towards a mentally ill person, 70.7% of them considered mentally ill persons dangerous, and 60.3% will be ashamed if they/their relatives have a mental illness. The main station of seeking help if having a mental trouble was friends (38.9%). The intervention succeeded to change the belief that mental illness is like any other illness from 46.4 to 96.4%. It decreased the belief that mental illness is an evil spirit from 38.4 to 6.3%. Attitude was improved after intervention for all items except in the point of marrying a person with mental illness. Help-seeking from family members or healthcare workers was significantly improved after the intervention.

Conclusions Anxiety was the commonest mental disorder among the studied group. Negative attitude and wrong beliefs can be changed with health education. Low professional help-seeking may arise the need for more effective professional interventions.

Keywords Mental illness, Stigma, Attitude, Professional help-seeking

Background

Globally, 14% of youth (10–19 years) experience mental health conditions [1]. In Egypt, the overall prevalence of mental disorders was 16.9% among adults [2]. It prevailed in 15.2% among adolescents, where anxiety followed by depression represented the commonest disorders [3].

Mental health stigma is defined as shaming, discrediting, devaluing, and social disapproval of individuals with a mental health problem. Stigma may be public or self-stigma [4]. Stigma represents the most important reason

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that contributes to the wide treatment gap and rejection of help-seeking for mental illness. To avoid being labeled as "mentally ill," more than 50% of the individuals who might normally use mental health services reject it [5]. Adolescents are facing many concerns and challenges as puberty, forced adaption to society, and building the base of the future serious relationships making them more exposed to mental disorders [6].

World Mental Health Report "2022" declared that it is a priority to change attitudes, actions, and approaches to promote mental health, and to provide care for those in need [7]. Limited knowledge about mental health and stigma is considered the main barriers to delaying or rejecting seeking care [8].

Anti-stigma interventions can change attitudes and beliefs for the better. These interventions tend to fall into one of three categories: education, contact, and protest strategies [9].

Good mental health for adolescents is a cornerstone for a better future, so increasing awareness and changing beliefs and attitudes can decrease the prevalence of mental illnesses and help them to overcome it and help others to deal with it.

Objectives

- To determine the most common mental illnesses among adolescents
- To assess their knowledge and attitude towards mental illness
- To identify help-seeking and preferences in case of having a mental disorder
- To study the effect of health education program in improving the knowledge and attitude towards mental illnesses

Methods

Study design

Cross-sectional-interventional study (The study was implemented through 2 steps (1st step, a cross-sectional study to assess attitude and belief; 2nd step, to implement a health education program).

Settings and duration

El Sharkia and El Ismalia Governorates during the year 2022.

Sampling

A representative sample of governmental secondary school students was selected by a multistage cluster sample design. First, two governorates (El Sharkia and El Ismalia Governorates) were selected randomly from a list of all governorates. One district was selected randomly from a list of all districts in each selected governorate. Then, two governmental secondary schools were randomly selected from a list of schools in each district, one from an urban area and the second from a rural area. All random selection was done by using a simple random sampling technique. The sample size was calculated using Version 2.3.1. of the Epi Info software program [10].

Stage I

According to population size, the number of students enrolled in all governmental general secondary schools in Egypt in the academic year 2021–2022 was 1,578,913 students [11]; in Egypt, the overall prevalence of mental disorders among adolescents was 16% [2], confidence limit 5%, and confidence interval level 95%; and the sample is 208 students. With effect size 2 to compensate for the error of the estimate encountered using cluster sampling instead of simple random sampling, the sample was 416 students. According to proportional allocation of number of students registered in governmental general secondary schools in the academic year 2021–2022 in El Sharkia and El Ismalia Governorates (2:1), the sample was 277 students from El Sharkia Governorate and 139 students from El Ismalia Governorate which were randomly selected for inclusion in the study from within classrooms starting from secondary one to secondary three randomly.

Stage II

At 95%confidence interval, 80% power, 16% percent of change [12], and a margin of error 5%, the sample size was 224 participants (112 students in each interventional and control group).

Study methods

Phase I: Assessment phase

This phase aimed to achieve the objectives till the third one.

- MINI international neuropsychiatric interview for children and adolescents (Arabic version) [13]: the questions cover the commonest psychiatric disorders as depressive disorders, anxiety disorders, suicidality, obsessive compulsive disorder bipolar disorders, post-traumatic stress disorder, ADHD, alcohol abuse, substance abuse, tic disorders, disruptive disorders, eating disorders, psychotic disorders, and pervasive developmental disorders. Each section of these disorders includes screening and diagnostic questions. All questions were answered with a "yes or no". The participant passes the diagnostic questions only if

screening questions were positive. The validity of this Arabic version was tested by Ghanem et al. [14].

- An adapted version of the questionnaire used to survey beliefs and attitudes towards mental illness [15] consisted of four parts:

1. Demographic characteristics (such as age, sex, living/financial status of the parents).
2. Beliefs about mental illness: mainly about the etiology and treatment of mental illness.
3. Attitudes towards individuals with mental illness. Questions in this section focused on the students' willingness to interact with individuals with mental illness and any stigmatizing behavior.
4. Help-seeking preferences: treatment preferences and the direction they may go to if complaining of mental illness.

The answers for beliefs, attitude, and help-seeking fall into three categories; yes, no, I don't know. Depending on the statement, a "yes" or "I don't know" answer may reflect poor or good awareness about mental illness. Multiple answers were suitable only for the section exploring help-seeking and treatment preferences.

Phase II: The intervention

Random selection of 224 participants was done using their questionnaires as pre-test.

The health education sessions were done by researchers. The classes were randomly allocated to either the intervention group or the control group who did not receive the education program. No one in the classes knew in which group they fall before deciding to participate. Participants were followed up after 6 months for the post-test.

The intervention curriculum was delivered within 1 month, three sessions per week, time of each session was modified according to the content (ranging from 20 to 30 min each). The curriculum involved a didactic component, group discussion, and homework exercises. Topics addressed the definition, causes, and consequences of stigma; ways to end stigma; an overview on the definition, description, causes, and treatments of mental illness; and barriers to treatment seeking; and specific mental disorders like attention-deficit/hyperactivity disorder, anxiety disorders, depression, schizophrenia, and bipolar disorder. Videos with an explanation of the curriculum's purpose, lectures, slide shows, and panel discussions were used. Teaching materials and content were developed in accordance with educational objectives and derived from credible sources certified by the Egyptian Ministry of Health.

Six months after completing the teaching intervention, both groups completed the post-test.

Prior to the study, a pilot study (10% of the total sample) was conducted to assess the content validity and reliability of the questionnaires. No administrative or technical obstacles were found (the total sample included the pilot sample). Cronbach's Alpha formula was used to determine the reliability to calculate the internal consistency of the instrument's items, which was 0.84. The questionnaire was translated from English to Arabic by an expert translator, then back-translated by another expert translator, and finally, to ensure validity, the original and translated by another bilingual expert were compared.

Data management

It was conducted using the software SPSS (Statistical Package for the Social Sciences) version 26. The qualitative data was summarized using frequency and percentages. Statistical differences between groups were tested using the chi-squared test. Change within each group was assessed using the McNemar test. Statistical significant level was set as 5% ($p<0.05$).

Results

The current study included 416 adolescents with an age range from 13 to 18 years with mean age of 15.51 years. Female represented 39.2% of them, 63% came from urban area, and 42.1% and 34.6% had low and middle SES (Table 1).

On applying MINI interview, 7.9% of participants had positive findings suggesting mental disorders. The commonest was anxiety disorder (3.9%). Mood disorders prevailed in 2.6% (Table 2).

Regarding beliefs of mental illness causes, chemical imbalance in the brain and stress were the commonest

Table 1 Baseline data of the studied adolescents

	N=416	%
Sex		
Male	253	60.8%
Female	163	39.2%
Age		
Mean ± SD	15.51 ± 1.36	
Range	13–18	
Residence		
Urban	262	63.0%
Rural	154	37.0%
SES		
Low	175	42.1%
Middle	144	34.6%
High	97	23.3%

Table 2 Frequency of psychiatric disorders among the studied group using MIMI interview

	N=416	%
Anxiety disorders		
GAD	4	1%
Agoraphobia	3	0.7%
Social phobia	4	1%
OCD	5	1.2%
Post-traumatic stress	2	0.5%
Mood disorders		
Major depression	3	0.7%
Dysthymia	5	1.2%
Premenstrual dysphoric disorder	3	0.7%
Suicidality	**3**	**0.5%**
Somatoform disorders		
Body dysmorphic disorder	**1**	**0.2%**
Psychotic	**1**	**0.2%**
Bulimia nervosa	**4**	**1%**
Binge eating disorder	**7**	**0.5%**
Overall	**33**	**7.9%**

(65.1%, and 62.3% respectively). More than half of the participants believed that mental illness is like any other disease, but 77.4% of them believed that medications used may cause addiction (Fig. 1).

Most of the participants had a positive attitude towards mentally ill persons, as they can work with them (67.5%) and have children and regular jobs (61.5%). 70.7% saw that mentally ill persons are dangerous and 60.3% of them may be ashamed of having a mental illness (Fig. 2).

About 64% of participants will not seek any help if having suicidal thoughts, compared to 41.6% if having other mental illnesses. Friends and parents were the most common preferences upon having a mental illness (38.9 and 31.7% respectively). In suicidal thoughts, religious leaders and family member were the commonest preferences (27.6 and 20.2% respectively) (Fig. 3).

There is a statistically non-significant difference between studied groups regarding beliefs before intervention (Table 3). The difference became significant after intervention regarding beliefs for all aspects except for medication cause adherence.

In the intervention group, there was a statistically significant increase in items reflecting positive beliefs and a significant decrease in negative beliefs.

There is statistically non-significant difference between studied groups regarding attitudes before intervention. The difference became significant after intervention regarding attitudes for all aspects except for marrying patient with mental illness (Table 4).

In the intervention group, there was a statistical significant increase in items reflecting a positive attitude and a significant decrease in a negative attitude.

There was a statistically significant decrease in participants who will not seek help from anyone (from 47.3 to 10.7% in mental illness and from 67 to 23.2% in suicidal

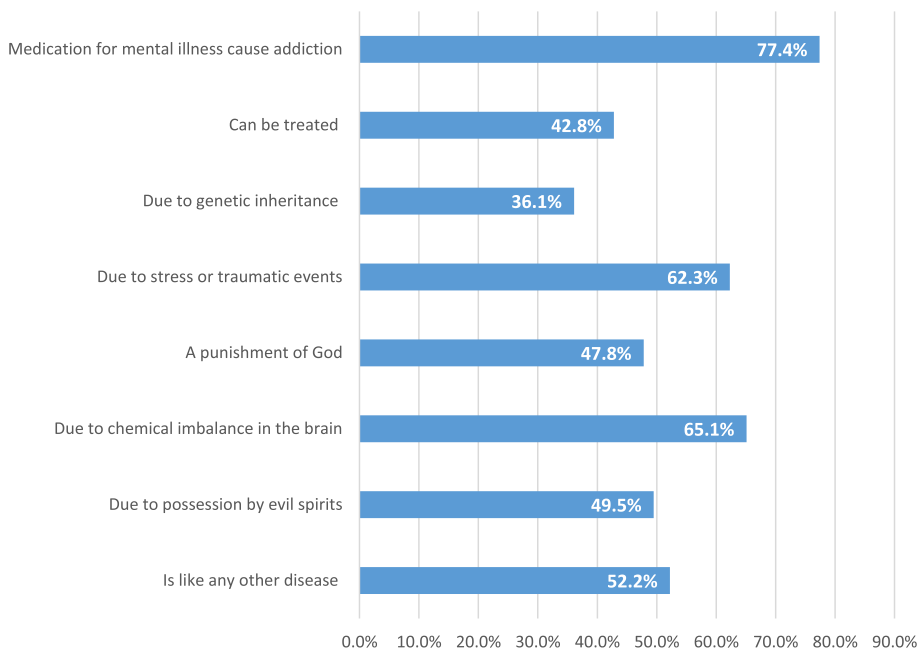

Fig. 1 Beliefs towards mental illness among the studied adolescents

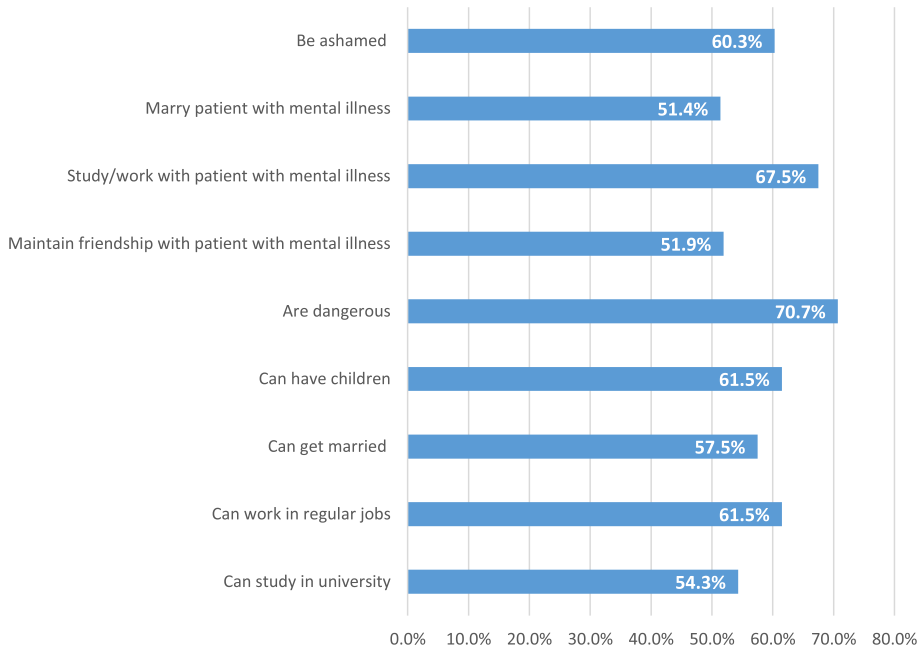

Fig. 2 Attitudes towards mental illness among the studied adolescents

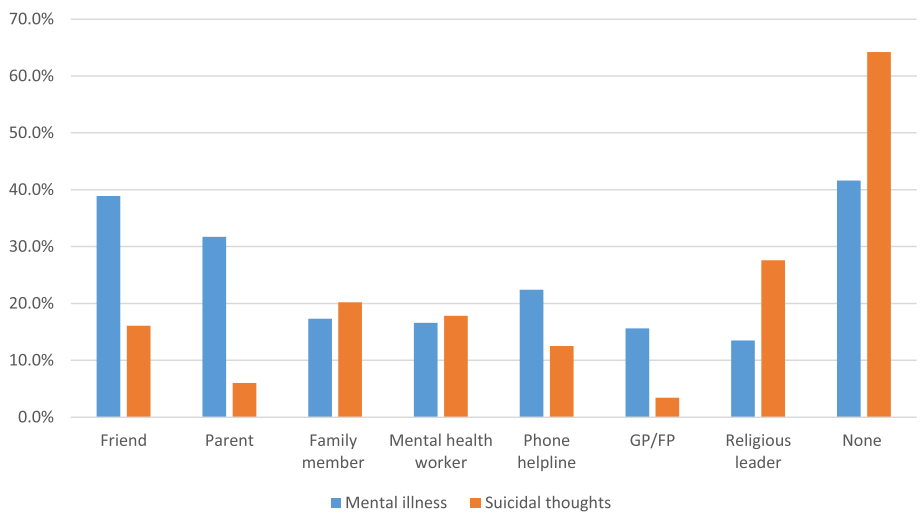

Fig. 3 Help-seeking preferences upon having mental problem among the studied group

thoughts). Seeking help from mental health workers increased significantly after intervention in case of mental illness (19.6 to 56.3%) and suicidal thoughts (18.8 to 58.9%) (Table 5).

Discussion

Upon screening, 7.9% of the students had positive findings suggestive of mental illness; anxiety was the commonest followed by mood disorders. That may be explained by the nature of this age in terms of change (social, emotional, physical), challenges, stressors, devastating technological advances, and peer pressure. In accordance, previous research noted that the prevalence of mental disorders among students aged from 12 to 19 years was 15.5%, with high anxiety rate (6.3%) [3]. In contrast, Osman and colleagues noted that the rate of mental illnesses among youth was higher (45%) (Emotional and behavioral disorders were the commonest) [16]. In prior meta-analysis, the prevalence of mental illnesses among adolescents was 25%. Differences in

Table 3 Differences in beliefs towards mental illness between intervention and control groups (yes)

	Intervention group	Control group	$p^{¥}$
Is like any other disease			
Before	52 (46.4%)	64 (57.1%)	0.109
After	108 (96.4%)	67 (69.8%)	<0.001**
P^{MCN}	**<0.001****	**0.375**	
Due to possession by evil spirits			
Before	43 (38.4%)	51 (45.5%)	0.279
After	7 (6.3%)	46 (41.1%)	<0.001**
P^{MCN}	**<0.001****	**0.125**	
Due to chemical imbalance in the brain			
Before	72 (64.3%)	73 (65.2%)	0.889
After	88 (78.6%)	73 (65.2%)	0.02*
P^{MCN}	**0.002***	**>0.999**	
A punishment of God			
Before	42 (37.5%)	52 (46.4%)	0.176
After	22 (19.6%)	50 (44.6%)	<0.001**
P^{MCN}	<0.001**	0.5	
Due to stress or traumatic events			
Before	74 (66.1%)	65 (58%)	0.215
After	93 (83.0%)	66 (58.9%)	<0.001**
P^{MCN}	<0.001**	>0.999	
Due to genetic inheritance			
Before	50 (44.6%)	40 (35.7%)	0.173
After	72 (64.3%)	43 (38.4%)	<0.001**
P^{MCN}	<0.001**	0.375	
Can be treated			
Before	52 (46.4%)	54 (48.2%)	0.789
After	88 (78.6%)	57 (50.9%)	<0.001**
P^{MCN}	<0.001**	>0.999	
Medication cause addiction			
Before	91 (81.3%)	84 (75%)	0.258
After	76 (67.9%)	84 (75%)	0.237
P^{MCN}	**<0.001****	**>0.999**	

P^{MCN}, for McNemar test;
$^{¥}p$, for chi-square test
* $p < 0.05$ is statistically significant
** $p = 0.001$ is statistically highly significant

Table 4 Differences in attitude towards mental illness between intervention and control groups (yes)

	Intervention group	Control group	p
Can study at university			
Before	56 (50%)	67 (59.8%)	0.14
After	84 (75%)	69 (61.6%)	0.031*
P^{MCN}	<0.001**	0.824	
Can work in regular jobs			
Before	68 (60.7%)	69 (61.6%)	0.891
After	99 (88.4%)	70 (62.5%)	<0.001**
P^{MCN}	<0.001**	>0.999	
Can get married			
Before	61 (54.5%)	69 (61.6%)	0.279
After	92 (82.1%)	71 (63.4%)	0.002*
P^{MCN}	<0.001**	0.5	
Can have children			
Before	70 (62.5%)	68 (60.7%)	0.783
After	98 (87.5%)	70 (62.5%)	<0.001**
P^{MCN}	<0.001**	0.5	
Are dangerous			
Before	82 (73.2%)	75 (67%)	0.307
After	59 (52.7%)	76 (67.9%)	0.02*
P^{MCN}	<0.001**	>0.999	
Maintain friendship with patient with mental illness			
Before	57 (50.9%)	58 (51.8%)	0.894
After	74 (66.1%)	59 (52.7%)	0.041*
P^{MCN}	**<0.001****	**>0.999**	
Study/work with a patient with a mental illness			
Before	75 (67%)	76 (67.9%)	0.887
After	89 (79.5%)	75 (67%)	0.035*
P^{MCN}	**<0.001****	**>0.999**	
Marry a patient with a mental illness			
Before	55 (49.1%)	61 (54.5%)	0.422
After	68 (60.7%)	61 (54.5%)	0.344
P^{MCN}	**<0.001****	**>0.999**	
Be ashamed			
Before	63 (56.3%)	76 (67.9%)	0.073
After	59 (52.7%)	76 (67.9%)	0.02*
P^{MCN}	**0.481**	**>0.999**	

P^{MCN} for McNemar test
$^{¥}p$ for chi-square test
* $p < 0.05$ is statistically significant
** $p = 0.001$ is statistically highly significant

prevalence may be referred to the difference in sample size and nature [17].

More than half of students believed that mental illness may be attributed to chemical imbalances in the brain and stress. Many studies tried to find out the perception of youth about the causes of mental illness. Some referred it to stress [18]; others referred it to societal changes, adopting western values, and loss of simple life [19].

The effect of culture appeared in 49.5%, who saw mental illness as possession by evil spirit and punishment from God. Similarly, spiritual, punishment of God, and supernatural causes were the commonest as reported by Liu et al. [20]. More than half of the sample perceived that mental illness is like any other disease, but the majority (77.4%) believed that treatment of such conditions led to addiction. This may be an important reason for delaying seeking medical care. Different studies agreed with us that mental illness can be treated like any other disease, with a focus on social support and spiritual treatment

Table 5 Differences in help-seeking preferences between intervention and control groups (likely)

Seeking help	Intervention group	Control group	*p*
A friend			
Before	43 (38.4%)	46 (41.1%)	0.682
After	52 (46.4%)	45 (40.2%)	0.345
P^{MCN}	0.137	>0.999	
Parent			
Before	55 (49.1%)	48 (42.9%)	0.284
After	66 (58.9%)	49 (43.8%)	0.023*
P^{MCN}	0.052	>0.999	
Family member			
Before	22 (19.6%)	17 (15.2%)	0.378
After	36 (32.1%)	17 (15.2%)	0.003*
P^{MCN}	<0.001**	>0.999	
Mental health worker			
Before	22 (19.6%)	23 (20.5%)	0.783
After	63 (56.3%)	23 (20.5%)	<0.001**
P^{MCN}	<0.001**	>0.999	
Phone helpline			
Before	32 (28.6%)	22 (19.6%)	0.118
After	39 (34.8%)	22 (19.6%)	0.011*
P^{MCN}	0.065	>0.999	
GP/family physician			
Before	20 (17.9%)	13 (11.6%)	0.187
After	66 (58.9%)	14 (13.5%)	<0.001**
P^{MCN}	**<0.001****	**>0.999**	
Religious leaders			
Before	16 (14.3%)	12 (10.7%)	0.419
After	21 (18.8%)	13 (11.6%)	0.136
P^{MCN}	**0.383**	**>0.999**	
No one			
Before	53 (47.3%)	39 (34.8%)	0.057
After	12 (10.7%)	35 (31.3%)	<0.001**
P^{MCN}	**<0.001****	**0.125**	
If had suicidal thoughts I will seek help from			
A friend			
Before	28 (25%)	20 (17.9%)	0.193
After	38 (33.9%)	20 (17.9%)	0.006*
P^{MCN}	<0.001**	>0.999	
Parent			
Before	4 (3.6%)	9 (8%)	0.153
After	32 (28.6%)	10 (8.9%)	**<0.001****
P^{MCN}	0.002*	>0.999	
Family member			
Before	22 (19.6%)	27 (24.1%)	0.419
After	40 (35.7%)	28 (25.0%)	0.081
P^{MCN}	0.001**	>0.999	
Mental health worker			
Before	21 (18.8%)	23 (20.5%)	0.737
After	66 (58.9%)	25 (22.3%)	<0.001**
P^{MCN}	<0.001**	0.5	
Phone helpline			
Before	9 (8%)	18 (16.1%)	0.065
After	18 (16.1%)	16 (14.3%)	0.710
P^{MCN}	0.004*	0.5	
GP/family physician			
Before	4 (3.6%)	3 (2.7%)	0.701
After	**43 (38.4%)**	**5 (4.5%)**	<0.001**
P^{MCN}	**<0.001****	**0.5**	
Religious leaders			
Before	41 (36.6%)	35 (31.3%)	0.397
After	44 (39.3%)	34 (30.4%)	0.161
P^{MCN}	**0.375**	**>0.999**	
No one			
Before	75 (67%)	68 (60.7%)	0.33
After	26 (23.2%)	64 (57.1)	**<0.001****
P^{MCN}	<0.001**	0.125	

P^{MCN}, for McNemar test, ¥*p*, for chi-square test, *$p<0.05$ is statistically significant, **$p\leq0.001$ is statistically highly significant

[18, 21]. However, the main fear of seeking treatment was stigma of madness rather than addiction [22].

Positive attitude towards mentally ill people was common; the majority of students believed that mentally ill person can study, work, marry, and get children and friends; however, 70.7% believed that they are dangerous and 60.3% thought that it is shameful to be mentally ill. This contrast may be attributed to the stereotype of a mentally ill person as just a mad one and the inherited stigma of mental illness. Attitude towards mental illness markedly varies according to culture and the level of knowledge among the population [23]. In a previous study, more than 80% of their participants had a positive attitude towards mentally ill persons except in terms of being able to have true friendships and being a threat to the community [24]. In contrast, all participants in a study by Shuqdar and colleagues described patients with mental illness as insane [25]. In a Saudi Arabian study, authors noted that 62.3% of respondents thought that mentally ill should have the same rights as anyone else, and they maintain a friendship with them. But 24.4% believed that they should not get married and should not have children [26].

Unfortunately, on asking about seeking help preferences, 41.6% and 64.2% of students will not seek any help if having a mental illness or suicidal thoughts. That may be explained by the previous study result that 60.3% of the participants perceived mental illness as a shameful issue. The same explanation was given by Villatoro et al. [27] who referred low help-seeking to stigma. In a study

done by Sarah et al. [28], they noted that 57% of participants were low help seekers and referred it to a low level of information about mental illness and available services.

Friends were the first choice in help-seeking that may reflect the peer effect that has the same way of thinking. But this may be a double-edged weapon as they should have good advice; otherwise, they will be a guide to hill. The low role of professional help-seeking may be due to a lack of promotion about the available services. Suzanne and colleagues noted that the role of friends in help-seeking was the most important rather than parents or formal ways [29]. So Byrn and co-authors recommended more and more education of youth about mental health to be safe gateway providers to formal health care services [30]. Religious leaders were the preference of help-seeking in suicidal thoughts, which returns the role of culture back to the scene.

On designing the intervention, researchers tried to focus on the primary findings of the study. The intervention significantly strengthened the positive attitudes and beliefs and decreased the negative points, especially stigma. Additionally, it succeeded in a significant decrease in a number of students who will not seek any help and increasing the number of those seeking professional help. Many studies highlighted the important role of health education in improving knowledge and changing beliefs and attitude towards mental illness with failure to decreasing stigma [31, 32]. On a school-based intervention, the program shows a strong effect on knowledge, a moderate one on stigma, and a weak effect on help-seeking intentions [33].

For ethical consideration, the control group received the same education program given to the intervention group after finishing the study.

This study was implemented in two governorates which may be a chance for generalization of the results, which represented a strength point. Tailored program based on assessing baseline knowledge, attitude, and belief is another strength point. The young age of participants, missing taking the whole participants in intervention, and fear of participation were limitations of the study.

Conclusions

Anxiety and mood disorders were the commonest disorders among participants. Although the positive beliefs and attitude towards mentally ill persons, however, stigma and no help-seeking were very common. An education intervention is an important step in the strategy of mental health promotion. It can improve knowledge, change attitude, and help-seeking if having any mental problem. It is very important to raise awareness towards seeking help from healthcare workers and family physicians.

Recommendations

- Regular screening of youth for mental health problems.
- Scheduled and regular health education interventions.
- Promoting and advertising mental health services and ways for connection.
- Availability of mental health services with easy, private confidential contact.

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Authors' contributions
EA was the idea generator, wrote the introduction and discussion sections, and shared in the data analysis. MA analyzed the data statistically, designed the tables and figures, and shared in manuscript writing. AE shared in writing the discussion and editing the manuscript. All authors read, revise, and approved the final manuscript.

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Availability of data and materials
The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
Informed consent was obtained from each participant prior to data collection. All participants were informed about the content, goals, and confidentiality of the research. They were informed about the voluntary nature of their participation, that data will be stored safely and anonymously, and that they can withdraw from participation without any drawback.
Prior to the implementation of the study, approval was obtained from the Institutional Review Board (IRB) for Medical Research Ethics, Zagazig University, Faculty of Medicine (ZU-IRB # 9719). Approval from the schools of the two mentioned governorates was obtained.

Consent for publication
Not applicable

Competing interests
The authors declare that they have no competing interests

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