

Effectiveness of holistic group health promotion program on educational stress, anxiety, and depression among adolescent girls – A pilot study

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ABSTRACT

Background: Academic stress is one of the major stresses among adolescents and it has been associated with poor mental health. **Aim:** Evaluate effectiveness of holistic intervention on educational stress among adolescent girls. **Materials and Methods:** Randomized controlled design was adopted and study was conducted at selected colleges of Dharwad city, India. 60 adolescent girls were randomly assigned to either experimental or control group. All subjects were initially assessed for educational stress, depression and anxiety. The experimental group subjects received 8 sessions of holistic intervention. No intervention was given to control group subjects. Post intervention assessments were done at the end of 1st, 2nd and 3rd months. **Results:** Experimental group subjects showed statistically significant decrease in educational stress, depression and anxiety over 3 months follow-up compared to control group subjects. **Conclusion:** This study provided evidence of integrating a holistic intervention in reducing stress.

Keywords: Adolescent girls, anxiety, depression, education stress, holistic group health promotion program

Introduction

In today's world of excellence, almost everyone experiences various degrees of stress in their daily lives. Even children are not an exception to it as they are experiencing greater stress on account of rising expectations at both school and home to perform beyond their natural ability. India accounts for 21% of adolescent population worldwide. Stress resulting from academic schedules though prevalent in adolescents worldwide seems to be more severe among their Asian counterparts.^[1] Asian students are pressured with high academic burden,^[2] suffer greater academic stress,^[3] have low satisfaction relating to their

academic performance, and high expectations.^[4] Literature shows that academic pressure causes various mental and behavioral disorders such as depression, frustration, anxiety, helplessness, and suicidal behavior; these are more common emotional disorders in adolescents.^[5,6] School related factors that result in depression among adolescents are poor academic performance, stressful events at school, and negative feedback from teachers and parents.^[7,8]

As adolescent girls of today are mothers of tomorrow, their health is the foundation for future generations.^[9] They are more vulnerable to stress than adolescent boys^[10] because of the inherent physiological changes, their social upbringing,^[11] and a feeling of greater pressure to achieve good academic grades at an

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early age.^[12] Although anxiety and depression affect boys and girls almost similarly, the adolescent girls are much more vulnerable. Recently, subjective stress related mental health complaints such as pain, sleeping problems, and anxiety have increased among older adolescents, especially girls.^[13] Furthermore, depression is more common among adolescent girls.^[14] Previous literature has revealed that there is high prevalence of depression, suicidal attempts, anxiety, and stress related symptoms among adolescent girls when compared to boys, which affects the girls health status and accomplishments.^[15,16] Poor psychological health can have several effects on adolescent girls such as poor eating habits, physical health, and coping skills. It also leads to school dropout, drug dependence, unprotected sex, and adolescent pregnancy.^[17]

This advocates the need for early and effective identification of depression, stress, and anxiety, which can prevent many psychiatric disorders at their nascent stage. The implementation of stress management strategies such as deep breathing, progressive muscular relaxation, positive self talk, etc., at this stage are not only relevant to manage stress at a very young age but also very significant in improving school achievement and emotional well-being among adolescents.^[18] Although school programs targeting stress management are effective in reducing stress among children,^[19] only a few are available specifically for adolescent girls.

Background of the Study

As stress can affect health, emotional state, and academic performance, it is important that students develop effective strategies to manage stressful situations.^[20] A systematic review revealed that holistic mental health promotion programs conducted by involving family members, school faculties, and community members result in not only an improvement in their mental health but also the social, academic, work performance, and general health components. These programs provide the adolescents with important life skills, help in achieving their full potential, and overcome difficulties.^[21] Such integrative programs deal with multiple student behavioral problems and effectively reduce the burden on schools and teachers.^[22] Such integrative programs have also proved to be efficient.^[23,24] The present day adolescents need psychological treatment that goes beyond teaching or talk therapy. These holistic stress management interventions devote on wellness of body, mind, and spirit. Adolescents thrive with a holistic approach to care that not only focuses on individual symptoms or behavior but also on their physical, emotional, and spiritual needs equally. Evidence suggests that conventional stress management that focuses on stress symptoms is of very little benefit as the integrated approach is more ideal to treat the underlying causes of emotional distress.^[25] Although there is lot of literature on stress related studies, academic stress, stress adjustment problems, and need for guidance and counseling, management of stress for the students is not addressed sufficiently, especially in India.^[26] It is known that earlier the adolescents learn to deal with their stress, the better will be their psychological and physical health as an adult.^[6] Several

studies demonstrated that only by holistic changes in daily routine one can alleviate multiple emotional sufferings and promote positive psychophysical attributes.^[27] Certainly schools or colleges have a vital responsibility in improving student's positive mental health^[28] as it has a bearing on their academic performance.^[29]

The present study has been taken up against the above background with a purpose to measure the effectiveness of holistic group health promotion program on the educational stress of adolescent girls. We hypothesized that subjects in the experimental group will experience a greater reduction in academic stress, depression, anxiety, and perceived stress compared to the participants in the control group at follow-up assessments.

Materials and Methods

The main objective of the study was to assess the effectiveness of holistic group health promotion program in reducing academic stress anxiety and depression among adolescent girls. The present study used experimental pre-post control group design with 3-months follow-up. Study was approved by Institutional Ethics Committee. The ethical considerations were addressed by explaining the participants and their parents their ethical rights both in words and writing. The purpose, nature, time duration of the study, the researchers contact information, confidentiality, and their right not to participate, or to withdraw at any stage were also informed. Subsequent to explanation of the purpose, risks, and benefits of the study, the subjects and their parents gave their written consent.

The age inclusion criteria was 16 to 19 years, and the study excluded subjects who had undergone or were undergoing other forms of counseling or relaxation therapies (psychological counseling and or any other stress reduction programs) and also a significant physical or psychological health problems that could interfere with their participation in the proposed therapy.

After obtaining formal permission from the appropriate institutional authority, recruitment of subjects took place at selected colleges. All these colleges are co-educational institutions with an average of 50 to 60 students per class, 50% of them being girls. Data were collected between June 2017 and October 2017. A total of 130 students were approached of which 14 students expressed their unwillingness as the session timings were not convenient to them. Of the remaining 116 adolescent girls who were initially screened using a stress sub scale of depression, anxiety, and stress scale, 100 adolescent girls met the criteria of cut-off score above 14. From this sample, 60 subjects were randomly selected and assigned to experimental and control groups using computer generated random table method with each group constituting of 30 subjects [Figure 1].

Initially, the data collector approached each participant and assessed them for baseline data using self report methods such as socio-demographic data sheet, personality inventory, IQ assessment,

educational stress scale for adolescents, depression, anxiety, and stress scales. Later, the researcher (first author) randomly assigned 60 subjects to experimental and control groups. Control group subjects did not receive any intervention. Experimental group subjects participated in holistic group health promotion program. The intervention involved a total of eight sessions with 2 weekly sessions for 4 weeks; each session lasting for 90 to 120 min. Intervention was given as a group approach by the first author, who underwent Body-Mind-Spirit practitioner training at center on behavioral health, the University of Hong Kong, Hong Kong. Each group consisted of 8 to 15 participants. A total of 3 groups completed the 4 weeks intervention. The holistic group health promotion program was based on Body-Mind-Spirit model originally developed by Chan (2001)^[30], which emphasizes a holistic concept of health. This model focuses on establishing a dynamic balance of inter-relationships among mind, body, and spirit through psychoeducational strategies on emotional management; stress reduction techniques such as acupressure exercises, breathing techniques, and meditation; connecting to spiritual; and self-healing resources such as utilizing strengths and appreciating abilities.

In the present study, holistic group health promotion program was implemented over eight sessions: (a) concept of holistic health; (b) understanding my own stress; (c) identifying stressors; (d) how do I respond to stress; (e) emotions and well-being; (f) loving myself; (g) my growth and strength, my

support and network, and (h) transformation of self. The details of these sessions are described in Table 1.

Post assessment was done using educational stress scale, depression, anxiety, and stress scales at 1 month, 2 month, and 3 month intervals. During each follow-up, the experimental group subjects were encouraged and reinforced to practice holistic techniques along with routine follow-up assessments, whereas the control group subjects had only follow-up assessments without any intervention [Table 2].

Measures

The subjects responded to the Depression, Anxiety and Stress Scale, (DASS-21) and Education Stress Scale for Adolescents (ESSA). The outcome measures were assessed at baseline (T0) and at three follow-up assessments in the 1st (T1), 2nd (T2), and 3rd (T3) months.

1. Depression, Anxiety and Stress Scale (DASS-21) was developed by Lovibond, S.H.; Lovibond, P.F. in 1995.^[31] It is a short version of a 42-item self-report instrument consisting of three 7-item subscales designed to measure the emotional states of depression, anxiety, and stress. Each scale includes seven items, with a total of 21 items rated on 4-point scale ranging from 0–3 (0-denoting did not apply to me at all and 3-denoting applied to me most of the time). The overall scores for the three subscales are calculated as the sum of scores for the relevant seven items multiplied by two. The Cronbach’s alpha for stress subscale is 0.77, depression is 0.77, and anxiety is 0.80 among adolescents^[32]
2. Education Stress Scale for Adolescents (ESSA) was developed by Sun, Dunne, Hou, and Xu (2011).^[33] It is a self-report instrument containing 16 items designed to measure educational stress on five components that includes study pressure (4 items), workload (3 items), worry on grades (3 items), self expectation (3 items), and dependency (3 items) rated on 5-point scale 1 to 5 (1-strongly disagree to 5-strongly agree) with higher score indicating greater educational stress. Scores range from 16 to 80. The Cronbach’s alpha for ESSA five subscales were .81, .74, .71, .66, and .75. indicating moderate to good internal consistency among East Asian adolescents.^[33]

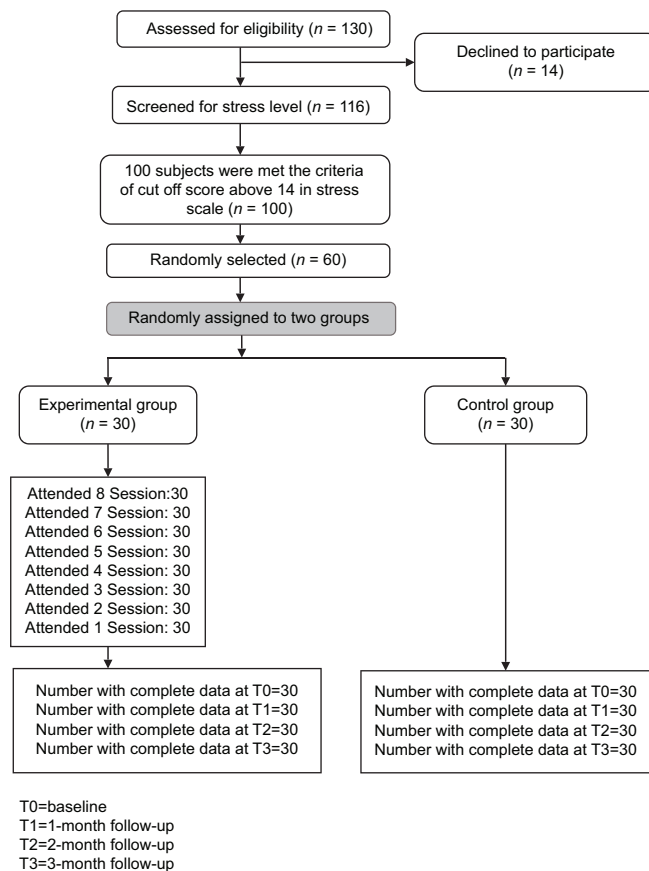


Figure 1: Flow chart showing distributions of participants in experimental and control group

Intervention development

The content validity of the intervention module was ensured by a panel of eight subject experts. The appropriateness of each session for use among adolescent girls was rated by the panel members. Their recommendations relating to theme drawing and topics for group discussion were incorporated to better suit the needs of the participants.

Data analysis

Data were analyzed using statistical package for the social sciences software package (Version 23), and results were presented in a table form. Baseline characteristics of the experimental and control

Table 1: Details of holistic group health program

Session number and theme	Objectives	Activities involved
Session I: Concept of holistic health	Enable the participants to understand the concept of holistic health	Illustration of holistic group health promotion program and learning goals Abdominal breathing exercises Assessing strengths of the participants Encouraging to share their expectations of the program
Session II: Understanding my own stress	Enable the participants to understand their own stress Teach the participants stress relief exercises	Mini lecture on concept of eustress and distress; signs and symptoms of stress, maintaining stress diary Singing activity Hand swinging exercises Stress test
Session III: Identifying stressors	Participants will identify their own stressors Demonstrate stress relieving exercises	Breathing exercises Ten techniques of longevity exercises Answering the stress questionnaire Discussion on stress diary Clay therapy
Session IV: How do I respond to stress	Explain concept of No Pain No Gain and explanation on Gain vs. Loss help Develop positive thinking among participants	Mini lectures on concept of No Pain No Gain and explanation on Gain vs. Loss Meditation Acupressure exercises Craft work Stress sorting exercise - focusing on stressful situation, their reaction, and ways of coping
Session V: Emotions and well-being	Teach participants ways to master their emotions and positive thinking	Meditation Therapeutic writing Drawing
Session VI: Loving myself	Develop a readiness to love self	Self love techniques Mirror exercises Therapeutic writings Drawings Group sharing activities
Session VII: My growth and strength, my support and network	Enable the participants to identify their strength and support network	Therapeutic writings on identifying personal strengths and support network Progressive muscle relaxation Story telling
Session VIII: Transformation of self	Assist in transformation at the individual and interpersonal level	Preparation of daily time tables for forthcoming examination Group sharing activities on concepts learnt in each session Meditation Mindful eating Therapeutic writing on my growth

Table 2: Schematic presentation of study design

Group	Baseline	Intervention	1 month	2 month	3 month
Experimental Group <i>n</i> =30	O1	X	O2	O3	O4
Control Group <i>n</i> =30	O1		O2	O3	O4

groups were compared using one-way ANOVA or independent *t* tests or χ^2 test. The changes in the outcome variables from baseline to 3-month follow-up were compared using two-way RM-ANOVA.

Results

Pre-intervention comparison

At pre-intervention level, there were no statistically significant differences between experimental and control group subjects

in all baseline variables such as age, residence, religion, type of family, number of siblings, birth order, family income, type of college, percentage of marks in previous class, number of homeworks, study hours per day, percentage of IQ, and type of personality [Table 3]. Both the groups were similar in all the outcome variables [Table 4].

Intervention effects

Two-way repeated measures ANOVA were conducted to know the variation in the outcome variables from baseline to 3-month follow-up. There were significant holistic group health promotion intervention effects in all the outcome variables between the experimental and control group subjects [Table 5].

Compared to the control group, the experimental group showed statistically significant decrease in educational stress ($F = 500.90$, $P < 0.001$, $\eta^2 = 0.90$), depression ($F = 222.73$, $P < 0.001$,

Table 3: Pre-intervention group comparison of socio-demographic and outcome variables

Socio-demographic Characteristics	Group		t/F/ χ^2 Value	P
	Experimental group	Control group		
Residence				
Rural	17	23	0.001	0.977
Urban	13	7		
Religion				
Hindu	25	28	0.429	0.513
Christian	5	2		
Type of family				
Joint	13	17	2.874	0.579
Nuclear	17	13		
No of siblings				
0	8	8	8.636	0.071
1	11	12		
>1	11	10		
Birth order				
First child	15	8	9.529	0.146
Middle child	6	11		
Last child	9	11		
Type of college				
Government	16	9	3.087	0.079
Private	14	21		
IQ%				
95%	5	5	0.764	0.68
90%	8	11		
75%	17	14		
Personality				
Extrovert and neuroticism	14	9	4.989	0.288
Introvert and neuroticism	7	11		
Ambivert and neuroticism	9	10		
Mean age (SD)	17.13 (.57)	17.13 (.81)	0.00	1.0
Mean monthly family income (SD)	11933.33 (3128.6)	13466.6 (4847.5)	-1.4	0.151
Mean percentage of marks in previous class (SD)	63.06 (9.3)	60.6 (9.40)	1.019	0.313
Mean number of homework hours (SD)	3.500 (1.5702)	2.867 (1.1059)	1.806	0.076

Table 4: Pre-intervention group comparison on outcome variables

Socio-demographic characteristics	Range	Group		t -Value	P
		Experimental group Mean (SD)	Control group Mean (SD)		
Education stress	1-80	52.7 (8.6)	52.9 (8.5)	-0.060	0.952
Depression	0-42	20.4 (5.6)	21.2 (4.6)	0.991	0.324
Anxiety	0-42	19.4 (4.4)	20.4 (4.1)	0.056	0.814
Stress	0-42	21.4 (4.6)	22.06 (4.5)	0.087	0.769

$\eta^2 = 0.79$), anxiety ($F = 224.67, P < 0.001, \eta^2 = 0.80$), and stress ($F = 277.09, P < 0.001, \eta^2 = 0.82$) over 3 months follow-up [Table 4]. The effect size of the holistic group health promotion intervention effects was consistently large for all the outcome variables in experimental group subjects compared to control group subjects.

Discussion

On the whole, subjects in experimental group showed a marked decreased in educational stress, depression, anxiety, and stress in

3 months follow-up compared to control group which did not receive any intervention. The follow-up results indicated that the effect continued and persisted even after 3 months. This justifies the integration of holistic stress management program for adolescent girls within the school setting to effectively reduce stress levels. These findings are similar to previous research results,^[34-36] which highlighted that providing mind-body interventions or mindfulness interventions on adolescents at school setting significantly reduced anxiety, depression, and stress. This study provides research evidence for group based holistic health promotion intervention among adolescent girls and

Table 5: Group comparison of educational stress, depression, anxiety, and stress across the time points between experimental and control group subjects

Time of assessment	Experimental group mean (SD)	Control group mean (SD)	Group x time F-value	P	Partial - eta squared
Educational stress					
Baseline (T0)	52.7 (8.6)	52.9 (8.5)	500.90	0.001	0.90
1 Month (T1)	39.6 (6.8)	54.5 (9.03)			
2 Month (T2)	27.4 (4.8)	54.5 (8.8)			
3 Month (T3)	17.4 (3.4)	54.4 (8.3)			
Depression					
Baseline (T0)	20.4 (5.6)	21.2 (4.6)	222.73	0.001	0.79
1 Month (T1)	13.3 (4.4)	22.0 (4.8)			
2 Month (T2)	7.06 (3.5)	22.6 (4.8)			
3 Month (T3)	1.5 (1.7)	22.6 (4.7)			
Anxiety					
Baseline (T0)	19.4 (4.4)	20.4 (4.1)	224.67	0.001	0.79
1 Month (T1)	12.1 (4.8)	21.2 (4.5)			
2 Month (T2)	7.2 (3.4)	21.6 (4.4)			
3 Month (T3)	2.0 (1.8)	22.0 (4.7)			
Stress					
Baseline (T0)	21.4 (4.6)	22.06 (4.5)	277.09	0.001	0.82
1 Month (T1)	14.0 (4.4)	22.1 (4.5)			
2 Month (T2)	7.2 (2.9)	22.3 (5.1)			
3 Month (T3)	1.06 (1.7)	22.6 (4.9)			

facilitates wider scope for primary care providers to implement these kinds of interventions in school settings.

In the present study, educational stress decreased considerably among experimental group subjects than in control group subjects at 3 months follow-up ($F = 500.9, P < 0.001, \eta^2 = 0.90$). This reduction suggests that practicing various health promotion activities may result in decreased negative emotions. Holistic interventions not only help in dealing with the present difficulties but also aim to care for the self balancing abilities of individuals.^[37] The present study findings were supported by previous studies^[38-40] which highlighted that holding stress management programs reduce academic stress and improve mental health of the adolescents.

The unresolved stress may cause depression, eating disorders, somatic symptoms, suicidal behavior, anxiety, poor concentration, physical illness, substance abuse, and dissociative disorders.^[41] Present study showed that depression scores statistically decreased with a large effect size among experimental group subjects compared to control group subjects. This reduction continued for 3 months, demonstrating that group based holistic approach can facilitate positive emotions among adolescent girls. The present study results are consistent with previous literature^[42-45] where mindfulness based school programs reported lower depressive scores and stress among students.

The anxiety levels of the experimental subjects exhibited a significant decrease in 3 month follow-up compared to control group subjects. These results were in line with findings of previous studies on adolescents where spirituality oriented stress programs^[46,47] reduced anxiety and stress symptoms. The

present study results demonstrate that spirituality based holistic intervention is an effective approach in bringing down negative emotions among adolescent girls.

The holistic group health promotion is a comprehensive approach in dealing with various dimensions of stress that might have been positively impacted in terms of reducing stress, anxiety, and depression compared to their counterparts in the control group. This intervention mainly focused on empowering participants for self healing. For example, by participating in holistic group sessions, the participants not only acquired comprehensive knowledge on stress and its effects but also recognized the related symptoms. Participants practiced daily log recording on stressful situations to identify stressors, practiced simple relaxation techniques within the class room to handle stress, and appreciated themselves for their growth and for being able to identify their problems and difficulties. These techniques helped the adolescent girls to realize that stress can be reduced by perceiving the situation normally, loving themselves, appreciating their growth and support system, and carrying out self-help role in achieving sense of control over the situations. A group wise intervention seems to be more effective particularly during adolescent period because they are more prone to social influence, peer pressure, and effects of role models. As the adolescents are crucial for individual and societal development, the school curriculum needs to have some scope for promoting holistic practices.

It can be concluded that the use of holistic interventions on managing stress is a useful approach to help students who are having high educational stress. It proved to be highly efficient as it was conducted in groups with less cost and was well accepted

by the adolescents. This supports the applicability of the present intervention in Indian context.

As this study was carried out with a small sample, there is a need to substantiate the research results with an adequate sample size. Self-reporting measures were used to assess outcome variables. Including objective measures in the future will strengthen the study validity. Notwithstanding these limitations, it is a maiden study to demonstrate the effectiveness of holistic group health promotion intervention integrating spirituality component in improving outcomes among Indian adolescent girls who are educationally stressed.

The present study findings have several implications for primary health care providers, school counsellors, parents, teachers, and several other stakeholders. Primary health care providers are in better position to implement these interventions, which include mindful meditation, simple relaxation exercises, mirror therapy, and self love techniques to reduce academic stress and anxiety among adolescents.

Conclusion

Findings demonstrated effectiveness of holistic group health promotion intervention in decreasing the educational stress, depression, anxiety, and stress among educationally stressed adolescent girls. This improvement sustained for 3 months. The present study may provide an avenue for primary health care providers to implement holistic based stress management program so as to promote adolescent mental health in Indian context.

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Declaration of conflicting interests

“The Author(s) declare(s) that there is no conflict of interest.”

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