An experimental study to evaluate the effectiveness of Mindfulness Meditation on academic stress among adolescents in selected schools at Raipur

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Abstract
Background
Stress is an altered state of physiological and psychological equilibrium experienced by students due to the expectations of parents, teachers, family members, schools and society. Students have to face many academic

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demands and expectations, for example, school examination, answering questions in the class, showing progress in school subjectsThe present study was conducted to evaluate the effectiveness of mindfulness mediation on academic stress among adolescents at selected schools at Raipur. The main objectives of the study were to assess the level of academic stress, to evaluate the effectiveness of mindfulness meditation, and to associate the level of academic stress with selected demographic variables. A true experimental (pretest post) design was used. The total sample of 60 students (experimental group= 30 and Control group = 30) was selected by using simple random sampling (lottery method) techniques. R BalajiRao academic stress tool was used to measure the academic stress.The results of the study show that the mean score and standard deviation of academic stress level in pretest experimental group were 128.50 and 30.01 and in posttest experimental group mean scores and standard deviation were 78.97 and 19.84. In control group pretest mean score and standard deviation were 114.27 and 22.94, in the post test mean score and standard deviation were 103.77 and 26.44. The independent t test and paired t test value 4.108 and 8.74 respectively found significant at 0.05 (p<0.05).The study concluded that Mindfulness meditation is found to be effective in reducing academic stress among adolescents.

I. Background of Study

Stress has become an integral part of human life; anything that creates a challenge or threat to our comfort is stress. The world we live in is more competitive in which everyone wants to achieve something better for his / her life[1]

Academic stress is defined as student's perceived more pressure on his mind due to the inability to perform the academic performances as demands. Most of the parents and teachers have more expectations from the children but this expectation increases the pressure among students and students feel more stressed. These stresses decrease the daily activities of a student's life and increase the chance of stress, anxiety, and depression-related disorders[2]

Anxiety and stress have substantial negative effects on their social, emotional, and physical health. Academic stress is more found in school students who are living away from their homes and town for the first time. School, family, society, and environment are the major causes of stress[3]

Students have to face many academic demands and expectations, for example, school examination, answering questions in the class, showing progress in school subjects. What the teacher wants is teaching, competition with other classmates, friends, and peer groups, and fulfilling teachers' and parent's academic expectations sometimes demand may exceed the ability of the stress students tackle appropriately.[4]

According to the World Health Organization (2019) Worldwide, Suicide is the third leading cause of death in 15–19-year-old globally. Depression is one of the leading causes of illness and disability among adolescents and estimates 10–20% of adolescents suffered from mental health conditions. Estimated that 62 000 adolescents died in 2016 as a result of self-harm. Nearly 90% of the world's adolescents live in low- or middle-income countries but more than 90% of adolescent suicides are among adolescents living in those countries' mental health conditions account for 16% of the global burden of disease and injury in individuals aged 10–19 years. Half of all mental health conditions start by 14 years of age but most cases are undetected and untreated.[5]

According to American Psychological Association articles (2017), there is a 30% percentage of the student's now seeking an appointment for a psychiatric counseling center from 2009-2015. Among them 61% of them having anxiety, 41% depression, and 31% family issues and 28% academic performance, or 27% relationship problems[6]

According to the Anxiety and Depression Association of America (2016) here are some recent statistics from the ADAA: 30 % of college students report that stress negative impacts their academic performance 85 % of college students report feeling overwhelmed by everything they have to do.41.6 %is anxiety as their top concern. 24.5 % of college students reported taking psychotropic medication for anxiety or depression.[7]

According to the National Crime Records Bureau (2018), there is one student every hour (40 seconds) that commits suicide in India. The bureau registered 2 % of students who committed suicide due to failing in examinations and an 80% rise in suicide rates. Suicides among students have been increasing every year. The NCRB data shows that 10,519 students suicides in 2018 an increased from 9,905 in 2017 and 9478 in 2016. Maharashtra witnessed the highest number of suicides by students in all three years. In 2018, a total of 1448 students ended their lives in Maharashtra. In the same year, almost 4 suicides everyday followed by Tamil Nadu (953) and Madhya Pradesh (868). In 2018, suicides committed by person's educated up-to matriculate/secondary level, 17.2% were reported in Maharashtra followed by Kerala (10.4%) and Tamil Nadu (10.1%). He added that since health was a 'state subject', states were empowered to implement their programs as well. Indeed, investment in mental health is indispensable for the well-being of people, and especially for young people who are being driven to suicide, and India spends a mere 0.06% of its already paltry health budget

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on mental health, lesser than even what Bangladesh spends (0.44%).Mental health conditions account for 16% of the global burden of disease and injury in people aged 10–19 years. Lokniti CSDS released a survey which showed that 4 out of 10 students went to depression.[8]

According to the National Institute of Mental Health and Neurosciences (2017-18), the suicide incidence rate /100,000 population those below age 14 was 0.5, while those in the age of 14-17 age have suicide incidence rate 9.52 % higher than national individual average 0.9%. The latest survey among 1500 students founds that's 11% of college students and 7-8 % of high school students have attempted suicide.[9]

NEED FOR THE STUDY:

Academic stress is more common in developing and developed countries. Most of the students during studying feel the stress related to his examination, test, academic performance, assignments. These stresses cause the many time the positive effect of their performance but sometimes cause the negative effects on student's health that's lead to mental and psychological related health problems like anxiety, phobia, and depression.[10]

The investigator realized that academic stress not only affects the physical domain, but it also has an impact on the psychological domain and cognitive domains. Mindfulness Meditation has the potential to be an essential tool in the adolescent's struggle against stress and also positive development effect (Roeser&Pinela 2014) if Mindfulness Meditation does indeed prove to be an effective weapon against stress.

There are many interventions for academic stress reduction but Mindfulness Meditation is a cost-effective, non-pharmacological intervention. Since the investigator is a postgraduate student in Psychiatric and Mental Health Nursing and is interested to give Mindfulness Meditation on academic stress among adolescents.

According to the National Institute of Mental Health (2016), Adolescent depression in schools is on the rise. An estimated 3.1 million adolescents aged 12 to 17years in the United States had at least one major depressive episode in 2016. This number represents 12.8 % of the US population in that age group. More females than males experienced a major depressive episode in 2016 (19.4 % of females vs. 6.4 % of males). That year, an estimated 2.2 million American adolescents aged 12 to 17 had at least one major depressive episode with severe impairment. Only 19 percent of these teens received care from a health professional. Mindfulness program for schools may aid in the children level of adjustment to the academic stress.[11]

Subrmani C. et.al (2017) conducted a survey method study to explore academic stress and its relationship with mental health among high school students around Salem city, Tamil Nadu. The total sample was 200 selected through stratified random sampling and the data was collected with Educational Stress Scale for Adolescents and Positive Mental Health Scale. Results were showing that participants from private schools experienced higher academic stress than that of government school participants and private school students have higher mental health status than their counterparts. [12]

Watode BK et al. (2015)conducted a cross-sectional study among the adolescents of conveniently selected secondary schools from the central and eastern districts of Delhi, India. The schools had over 1000 students studying in various standards. The sampling technique used in the study was simple random sampling and calculated sample size. A pretested self-administered questionnaire was used for the data collection. The results of the study found that among the 397 students who participated in the study, 348 (87.6%) were positive for stress. Stress was observed in 139 (89.7%) female students and 209 (86.4%) male students; the association with gender was not statistically significant.[13]

Suganya T.et al (2018) conducted a Quasi-Experimental Design (one group pre-test and post-test design) study to assess the perceived stress and evaluate the effectiveness of mindfulness meditation on perceived stress in Pondicherry, India. The total sample size was 60 (Age group between 13 and 15 years) and the sample selected by using the Simple Random Sampling Technique (Lottery Method). The result of the study was found that the post-test level of stress mean score (6.12) was significantly less than the pre-test level of stress mean score (18.98) by using paired 't' test, the value of t-test was (21.079). The conclude of study that mindfulness meditation technique was effective in reducing perceived stress among elderly adolescents**.**[14]

STATEMENT OF THE PROBLEM:
An experimental study to evaluate the effectiveness of Mindfulness Meditation on academic stress among adolescents in selected schools at Raipur.

OBJECTIVES OF THE STUDY:
•   To assess the level of academic stress among adolescents (14 -20 years) in the experimental and control group.
•   To compare the pretest and posttest scores of academic stresses among adolescents (14-20 years) in the experimental and control group.

•   To evaluate the effectiveness of mindfulness meditation on academic stress among adolescents (14 -20 years) with pretest and posttest scores of the experimental and control group.
•   To associate the academic stress among adolescents with selected socio-demographical variables in the experimental and control group.

NULL HYPOTHESES:
• H_{01}: There will be no significant difference between the pre-test academic stress scores and post-test academic stress scores among adolescents (14 to 20 years) in the experimental group.
• H_{02}: There will be no significant difference between the post test academic stress scores among adolescents (14 to 20 years) in the experimental and control group.
• H_{03}: There will be no significant association between academic stress among adolescents (14 to 20 years) with their selected socio-demographic variables in the experimental and control group

OPERATIONAL DEFINITIONS:
•   **Evaluate:** It refers to the collection of relevant data and draw the conclusion of mindfulness meditation on academic stress among adolescents as evidenced by post-test scores.
•   **Effectiveness:** It refers to the outcome of mindfulness meditation in reducing the academic stress level among adolescents in a selected school Raipur.
•   **Mindfulness Meditation:** It is a psychological technique of being a person aware of your physical and mental states and creates awareness of mental and physical activities and directing our attention. The duration of mindfulness meditation will be 21 days for 20 to 25 minutes per day
•   **Academic stress-**   Academic stress can be defined as the emotional state that may adolescents stress when they are involved in certain demanding situations such as in an examination, workload, deadlines, financial problems, and also interpersonal relationships with other members etc.
•   **Adolescent –** Adolescents are the school children aged between 14 to 20 years, who are studying in selected schools of Raipur.

VARIABLES:
➢   **Independent variable:** In this study, Mindfulness meditation was the Independent variable.
➢   **Dependent variables:** In this study, academic stress was the dependent variable.
➢   **Demographical variables:** Age, Gender, History of illness, Family income, Father Education, Occupation, Illness, Mother Education, Occupation, Illness, Attendance to the school, Extracurricular activities, Use of leisure time, Habit, Duration of sleep, Diet pattern.

CONCEPTUAL FRAMEWORK:
     The conceptual framework selected for the study is based on Kenny's Open System Model. This theory was introduced by Jennet W. Kenny. She was born in the year 1946 at Scotland. The open system model was formulated in the year 1999.The open system enumerates various aspects of system and interaction. [15]
     According to theory all the living system is open, in this there is continuous exchange of matter, energy and information. Open system has changing degree of interaction with the environment from which the system receives input and gives back output in the form of matter, energy and information.
     The main concepts of open system model are input, throughput, output and feedback. The study is undertaken to evaluate the effectiveness of mindfulness meditation on academic stress and assess the level of academic stress. [16]

Input:
     Input can be matter, energy and information from the environment. In this present study the Researcher has given, demonstrate and inform on mindfulness meditation to the participants and recorded the demographic variables like age, gender, area of residence, history of illness, father and mother educational, occupational, illness, family income, participation in extracurricular, use of leisure time, habit, duration of sleep, diet pattern and pre-test to assess the level of academic stress. Here the individual was given a transfer of matters, energy and information for having impact on the level of academic stress

Throughput:
     The matter, energy and information are continuously processed throughput the system which is also called complex transformation known as throughput process. In this present study the researcher was trying to insist the knowledge and skills in learning and practicing Mindfulness meditation which was repeated by reinforced for making the complex transformation of the input received from the Researcher.

Output:
      After processing the input and throughput, the system returns to the output matter, energy and information in an altered state. In the present study significant changes in the level of academic stress of the experimental group and no significant changes in the control group as output.

Feedback:
Feedback gives information about environment response to the system. Output is utilized by the system in adjustment, correction and accommodation to the interaction with the environment. In the present study, effectiveness of Mindfulness meditation resulted in decreased academic stress in post test

DELIMITATIONS:
❖   The study was limited to samples studying in selected schools of Raipur.
❖   Sample Size was delimited to 60 adolescents.

II. Review of Literature
      Review of literature is one of the most important steps in the research process. It is an account of what is already known about a particular phenomenon. The main purpose of the literature review is to convey to the readers about the work is already done and knowledge and ideas that have been already established on a particular topic of researchers on a phenomenon.[17]
      A literature review is an evaluative report of information found in the literature related to the selected area of study. The review describes, summarizes, evaluates, and clarifies this literature. It gives a theoretical base for the research and helps to determine the nature of research.[18]

The review of literature is divided under the following headings:
1.   Studies related to level of academic stress
2.   Studies related to the effectiveness of Mindfulness Meditation
3.   Studies related to the effectiveness of Mindfulness Mediation on academic stress

I.   Studies related to level of academic stress:
      Rasmi M (2018) conducted a comparative study to compare the academic stress between 40 tribal and 40 non-tribal urban secondary school students of Chhattisgarh, the students selected by the use of a purposive sampling technique. Academic stress was assessed by the inventory scale. Results indicated that academic stress in urban non-tribal male students was significantly high (M=113.77) as compared to tribal male students (M=99.10), both being studying in secondary schools**.[19]**
      Alvarez-Silva et al (2018) conducted a cross-sectional study to identify the level of academic stress of 210 students of Higher Technology in Finance of a public higher education institution of the city of Guayaquil-Ecuador. The non-probabilistic sampling technique was used for data collection. The tool was used the SISCO Academic Stress Inventory designed by Dr. Barraza Macias Arturo of the Universidad Pedagógica de Durango in Mexico. The results of the investigation, the instrument obtained a high level of reliability with a score of 0.894 according to Cronbach's Alpha. The conclusion of the study that academic stress present in the middle level with the demands of the environment such as overload, the major triggers of psychological reactions.[20]
      Halder, U. K. (2018) conducted a descriptive study to assess the difference in academic stress and academic performance among the higher secondary students with respect to their gender and to estimate the relation between academic stress and academic performance of the students of the class of Bengali medium higher secondary schools of Malda District, West Bengal. The researchers used the Academic Stress Scale developed by Kim (1970) and adopted by Rajendran and Kaliappan (1990) and Rao (2012) and the scores obtained by the students in Madhyamik Examination were taken for the study. The result of the study shows that there is a significant difference in academic stress and a significant difference in academic performance due to the gender of the students of class XI. The present study explored a negative correlation between the academic stress and academic performance of the students.[21]
      AnandhaKalyani, et al (2018) conducted a descriptive research study to assess the level of stress among 80 adolescents school children's in Kanyakumari Tamil Nadu using simple random sampling. The data was collected by using structured questionnaires and data was analyzed by descriptive and inferential statistics. The results of the research study were 33% of adolescents school are having no stress, 50% having mild stress, 11% of them having moderate stress and 6% were suffering from severe stress.[22]
      Yikealo D.et al. (2018) conducteda descriptive research study to assess the level of stress among college students in the Eritrea Institute of Technology in Eritrea. The total 123 students of second, third, and fourth-year degree and diploma program had participated in the study out of 63 (51%) of the participants were male students, and 60 (49%) were female students, and data was collected using a survey method. The

results revealed that there was a moderate level of stress among the students and students' levels of stress were found no significant associations with their gender and grade point average.[23]

Maria Guadalupe Acosta-Gomez (2018)conducted a descriptive research study to determine the general level of stress among high school students at ENMS in Guanajuato, Mexico. The sample was 335 high school students between the ages of 15 and 19 years, were surveyed using Nowack's Stress scale. Stress Profile identifies characteristics and behaviors that protect against or contribute to stress-related illnesses. The results were students reported normal (54%) or lower (39%) stress levels further women reported significantly higher stress levels than men (p < 0.05). The significant findings of the study revealed that main sources of stress were examinations, choosing a career path, and family troubles.[24]

Ganesan Y. et al (2018) conducted a cross-sectional study to assess the level of stress and coping strategies among undergraduate in Malaysia. The samples were 86, non-probability sampling techniques were used to select the samples data were collected through self-administered questionnaires. The results revealed that 67 (77%) had moderate stress, 17(19.4%) had high stress and 4(4.6%) students had low level of stress.[25]

Sharma Gauri et al (2017)Conducted Correlation research study to find out the relationship among anxiety, stress, depression and academic achievements on 120 (60 boys & 60 girls) students of 11th standard studying in government schools located in the rural area of Mahasamund district of Chhattisgarh state were taken randomly. The anxiety, depression, and stress scale (ADDS) was used to measure anxiety, depression, and stress among students. The result found that significant negative association between depression and, anxiety with academic achievement, the further result revealed that stress and academic achievement found to be a significant positive association with variables.[26]

Prathibha, (2017) conducted a descriptive study to examine the level of academic stress among higher secondary school students at Bareilly district. Stratified random sampling was chosen for selecting 180 students. Data was collected by a self-constructed Academic Stress Scale. The results of the study revealed that there exists a high significant difference between the academic stress of male and female participants of higher secondary school students, but no significant difference was found among academic stress of different types of stream (Arts, Commerce, and science) students. It was also found that there was no significant difference between academic stresses of government-aided & self-finance school students and rural & urban area school students.[27]

Razia B (2016) conducted a descriptive research study to examine the level of academic stress of adolescents in selected Government and private secondary schools of Aligarh. The total sample was 216 adolescents and data were collected through a standardized tool (developed by Akram, Khan, and Baby 2013).The result showed that female adolescents had higher Academic stress than male adolescents and adolescents of private schools had more academic stress than their counterparts in government schools.[28]

Prabhu M (2015) conducted a descriptive study to assess the level of stress among Tamilian and Non-Tamalian students of Pondicherry Central University. A total of 243 students were selected and data were selected from articles in various related to stress. The SSPS package has been used to analyze the data using the statistical tool of mean, ANOVAs, Chi-square, and cluster analysis. The result of the study was that low level of depression and anxiety and stress in Non-Tamilian students while Tamilian students correspond to a higher stressed group. [29]

Khan Z. et al (2015) conducted a descriptive study to assess the level of stress in male and female school students in JawaharNavodaya School Bareilly (U.P.). The sample was 64 students. Which were using a random sampling technique. The Student stress scale (SSS) was administered. The result of the study showed students showing very high stress (Boys 19% and girls 0%) and high stress (boys 28.5% and girls 13.6%) as well as moderate stress whereas girls are having 18.1% and boys 28.5%... The study concluded that stress level in boys is more than girls in school.[30]

Jayanthi et al (2015) conducted a cross-sectional study to examine the relationship between academic stress and depression among adolescents at higher secondary schools in Tamil Nadu. The study included 1120 adolescents after screening by the MINI-kid tool. Modified Educational Stress Scale for Adolescents was administered to all participants. The finding of the study revealed that 45.7% had moderate stress, 25.4% had mild, 19.6% had severe and 9.3% had minimal stress. Risk of depression was found low in adolescents without academic stress compared to adolescents with academic stress as in results it was evident that adolescents with academic stress have 2.4 times more risk of depression.[31]

PorwelKartik, et al (2014) conducted a research study to examine the academic stress among senior secondary students in Noida. The total participants of the study were 30 (15 male and 15 female). All students belong to the 12th standard studying in Noida. The Data was collected through a standardized Academic Stress Questionnaire (ASQ) by Akram, MohdIlyas Khan, and Sahiba Baby. Mean, Standard deviation, and T-test were conducted for analysis of data. The result indicates that there is a significant difference among boys and girls about academic stress. Result revealed that senior secondary boys have higher academic stress in comparison to girls.[32]

Vivek B et al (2011) conducted a cross-sectional study to assess the level of stress among students of various professional colleges in the urban areas of the Sangli district of Western Maharashtra, India. The estimated sample size was 1,200, out of 299 participants were tested for stress and the convenience sampling technique was used for data collection and a self-administered questionnaire was used as the study instrument. The result of the study revealed that 123 (41.13%) had mild stress, while 93 (30.43%) had moderate stress and 83 (27.75%) had severe stress among the students.[33]

II. Studies related to the effectiveness of Mindfulness Meditation.

HowarthA et al (2019) conducted systematic reviewed and meta-analysis to assess the Effects of Brief Mindfulness-Based Interventions on Health-Related Outcomes. All 85 studies were including Medline, Embase, and PsycINFO, the study selected 3342 paper, which was screened for eligibility. After the removal of duplicate and those deemed eligible 152 full articles read by the full reviewer. The data were conducted by Mindfulness Questionnaire, Mindfulness attention awareness scale, and Philadelphia Mindfulness scale. The result of the study was 79 reported significant positive effects on at least health-related outcomes and over quarter targeted clinical population. The majority of studies focus on psychological outcomes, such as anxiety and depression as well as emotional regulation, stress, and cognitive outcomes.[34]

Aruna MKPD et al (2019) conducted a quasi-experimental research study to assess the effectiveness of mindfulness meditation program on a selected aspect of health among students of the B.Sc. in Physiotherapy University of Colombia, Srilanka. The total 64 (32 Experimental group and 32 control group) samples assigned by the convenience sampling techniques. The data collected by Primary Mental Health Questionnaires. The results most were females who showed high significance in stress management. increased Satisfaction, kindness, and happiness, controlling over jealousy and anger (p<0.05). were showed significance in the experimental group. The Control group showed significance only in stress and kindness. Comparison of both groups showed significance with improved satisfaction, kindness and happiness, reduced jealousy, stress, and repentance (p<0.05). Within subjects, only 9.38% were daily mediators and less than 03 days per week were 75%.Among daily mediators, increased satisfaction (p>0.05) ,happiness (p:0.0021) and kindness (p:0.0325), reduce stress level (p:0.0201) as well as jealousy (p:0.011) were more significant.[35]

Zhang Q. et al (2019)conducted a true experimental study to assess the effectiveness of mindfulness meditation training on emotional regulation among adolescents (12-18 Years) in China. The total sample was 48 randomly assigned to training group 16 (Experimental Group) and control group 22, The data collected by the Freiburg Mindfulness Inventory, Positive and Negative affect scale, The Back-Anxiety Inventory, and Rumination Reflection Questionnaire. The result found the participants in the meditation training group showed significantly decreased anxiety, depression, and rumination scores and significantly increased mindfulness scores and significantly reduced reaction times (RTs) in the incongruent condition for the task.[36]

SanketShankpal (2018) conducted a true experimental study to evaluate the effectiveness of mindfulness meditation techniques on stress reduction among ANC mothers in a selected hospital in Jalgaon. A total of 60 mothers selected by simple random sampling techniques and data were collected by structured questionnaires. The result of the study revealed that in Pre-test (experimental group) 23.33 % low Stress, 23.33 %had Moderate stress, 53.33 % had High perceived stress. In post-test 63.33% low Stress, 33.33 % Moderate stress, 3.33% had High perceived stress. In pre-test (control group) 16.67 % low Stress, 40.00 % Moderate stress, 43.33 % of had High perceived stress. In Post-test 13.33% had low Stress, 43.33 % Moderate stress, 43.33 % of had perceived stress. The data was showing a highly significant difference found between the pre-test and post-test knowledge scores at the level of stress among ANC mothers.[37]

Dianna Q, et al (2016) conducted a Randomized Control Trial study to investigate the effectiveness of a mindfulness meditation intervention on working memory capacity (WMC) in adolescents at large public middle schools in the California United States. The total sample size was198 and there were randomly assigned into control and experimental group for mindfulness meditation, hatha yoga, or a waitlist control condition. Participants in both intervention groups (mindfulness meditation and hatha yoga) met a total of eight times twice weekly for 4 weeks. The result of the study found the mindfulness meditation condition showed significant improvements in WMC, whereas those in the hatha yoga and waitlist control groups did not.[38]

Muthukrishnan S et al (2016) conducted a randomized control trial research study to evaluate the effect of Mindfulness meditation on perceived stress scores and autonomic function tests of pregnant Indian women in the Department of Obstetrics and Gynecology, HAH Centenary Hospital, JamiaHamdard, New Delhi. The sample included 74 pregnant women who were randomized into two major groups (Experimental group n=37 and Control group n=37). The control group was not given any type of intervention but usual obstetric care provided and the experimental group was given mindfulness meditation intervention along with their usual obstetric care. Results of the study show that significant decrease in perceived stress scores, a significant decrease of blood pressure response to cold pressor test and a significant increase in heart rate variability in the test group (p< 0.05, significant) the results show that intervention (mindfulness Mediation) was an effective

modulator of the sympathetic nervous system and can thereby reduce the day-to-day perceived stress in pregnant women.[39]

K. Jessica Van Vliet (2016) conducted a randomized control trial study to assess the impact of mindfulness-based stress reduction techniques on the subjective perspective of adolescents (12-17 years) with serious mental health concerns in Canada. The total samples were 28 adolescents (14 males, 14 females) and participants selected by the simple random sampling. Data were collected by semi-structured interviews. The result of the study found that MBSR has a positive effect in improving mood, enhancing relationship to self, increasing self-control, improving problem-solving, awareness of the present, and enhancing interpersonal relationships. The study concluded that MBSR program was perceived as beneficial both in the short-term and follow-up in several aspects of emotional, cognitive, and interpersonal functioning.[40]

Unnikrishnan (2014)conducted a quasi-experimental study to evaluate the effectiveness of Mindful meditation on depression among Senior Citizens in VasaviMuthiyorIllam at Coimbatore. 62 samples were selected by using a purposive sampling technique. The intervention was given to 62 senior citizens for 22 days.The present study showed that the' value was significant at the 0.05 level. Among the samples the mean post-test score of depression (9.323) which was less than that of the mean pretest score of depression (18.6452). The conclusion of the study revealed that the depression level had reduced after Mindful meditation.[41]

Hoge EA, et al (2013)et al conducted a research study to compare the manualized Mindfulness-Based Stress Reduction (MBSR) program with active control for Generalized Anxiety Disorder. The total samples were n=93 in which 4 samples drop-out during the study. Samples were collected by simple random sampling. Results showed that both interventions led to significant reductions in HAM-A scores at the endpoint. The conclusion of the study revealed MBSR may have a beneficial effect on anxiety symptoms in GAD, and may also improve stress reactivity and coping as measured in a laboratory stress challenge.[42]

III.   Studies related to effectiveness of Mindfulness Mediation on academic stress.

Huberty J, et al (2019) Conducted a randomized control trial study to evaluate the efficacy of the mindfulness meditation mobile app called calm to reduce stress among college students. The total 88 participants included in the study participants were recruited between January and April 2018 via social media such as i.e., Face book and Instagram, and e-mails. The result shows that participants in the intervention group had a significant reduction in perceived stress compared with the control group ($\nabla=-7.13$; $P<.001$; effect size=1.24). The majority of students in the intervention group reported that Calm was helpful to reduce stress. [43]

Samira M, et al (2019) conducted a study to examine the effectiveness of mindfulness-based stress reduction on reducing depression and anxiety disorder in Tehran. A total of 30 samples with generalized disorders were selected in the experimental and control group. Results show that mindfulness-based stress reduction could decrease anxiety and depression symptoms in patients and improved quality of life of patients with generalized anxiety disorders.[44]

AnandhaKalyani, et al (2017) conducted a true experimental research study to evaluate the effectiveness of Tai Chi Chuan and mindfulness meditation on stress and quality of sleep among high school students of Kanyakumari district Tamilnadu. The total sample 80 samples, out of which 40 were the experimental group I and 40 were experimental group II and the sample was collected by a simple random sampling technique and the data were gathered and analyzed by descriptive and inferential statistical method. The results of the study were in experimental group I, 55% were having no stress and 45% were having mild stress, whereas in experimental group II, 35% were having no stress and 65% were having mild stress. The conclusions of the study that Tai Chi Chuan and Mindfulness Meditation were most effective in reducing non-academic stress than academic stress among High school children.[45]

HjRamli NH, A (2016)Conducted a quantitative study to identify mindfulness as the mediator between academic stress and self-regulation among undergraduate students in Klang Valley, Malaysia. The sample size was 384 undergraduate students. The sample was collected by the convenient sampling method; three instruments were used in this study. The firs were the Perception of Academic Stress Scale (PAS), The Self-Regulatory Inventory, and Mindful Attention Awareness Scale (MAAS), the trait version was used to assess the participants' mindfulness. The results of the study indicated a significant relationship between academic stress, self-regulation, and mindfulness.[46]

Pawar A. A. (2016)conducted a research study to evaluate the impact of a mindfulness-based mental fitness training (MBMFT) program on levels of stress and resilience among students of the school in an industrial establishment. The total sample was 69 (Sixty-nine) students (aged 18-20 years) were included in the study. The participants were randomly divided into two groups, experimental group (n=35) were given 8 weeks of Mindfulness-Based Mental Fitness Training, and control group (n=34) followed the normal curricula of the school participants in both the groups were asked again to complete the questionnaire sets including Perceived Stress Scale (PSS) and Five-Factor Mindfulness Questionnaire (FFMQ). The result of the study were students who underwent MBMFT (experimental group) had significantly (p p<0.05) higher FFMQ scores at 08 weeks

(130.10±9.69) as compared to baseline scores (122.55±12.7) and scores of the control group (117.95±10.1). Experimental group students also had lower perceived stress scores at the end of 08 weeks of MBMFT. [47]

Manju John, et al (2016) conducted a True experimental research study to assess the effectiveness of mindfulness meditation technique on stress reduction among First years B.Sc. Nursing students in SAM College of Nursing Bhopal, M.P., The total sample was 30 students selected by simple random techniques. The tool was modified and developed by the investigator from standard scales [Holmes and Rahe's Social Readjustment Rating Scale, Perceived Stress Scale (PSS) by Sheldon Cohen, Adjustment Inventory for college students by Sinha and Sinha 1980). The results of the study revealed that students were under stress about their new course. After the implementation of intervention were able to reduce the stress.[48]

Phang CK, et al (2015)conducted Randomized control trial study to evaluate the effectiveness of the mindfulness intervention in reducing stress among students in a medical school in Malaysia. The sample size was 75selected by a stratified random sampling technique. The sample was allocated to the Experimental group (N = 37) and control groups (N = 38). The instrument used in this study mindfulness (with Mindful Awareness Attention Scale); perceived stress (with Perceived Stress Scale); mental distress (with General Health Questionnaire), and self-efficacy (with General Self-efficacy Scale). The result indicated significant improvements at a one-week post-intervention in all outcome variables. The conclusion of the study was the program is potentially an effective stress management program for medical students in Malaysia.[49]

Warnecke Emma (2011) conducted Randomized control trial study to determine the effect of mindfulness to reduce the level of stress experienced by senior medical students of Tasmania Hobart, Tasmania, the included 66 medical students by the blocked randomized method. Results mean score on the PPS and component of the DASS were 15.7 and 13.22. The participation in mindfulness reduced in score on the DASS (-2.82, 95%). A borderline significant effect was demonstrated on the stress component of DASS ($-$ 3.69, 95% CI $-$ 7.38 to 0.01; p = 0.05). The conclusion of the study was Mindfulness practice reduced stress and anxiety in senior medical students.[50]

RESEARCH METHODOLOGY
This chapter describes the methodology adopted to gather valid and reliable data for the study. It deals with a brief description of research approach, research design, research setting, population, sample and sampling technique, data collection tool and technique, pilot study, data collection procedure, and plan for data analysis

RESEARCH APPROACH:
Research approach is the basic procedure for the research of enquiry. The research approach helps the researcher to determine what data to collect and how to analyze. A quantitative approach was used for the present study to assess the pretest score about the level of academic stress and evaluate the effectiveness of mindfulness meditation among adolescents in selected schools.

RESEARCH DESIGN:
The research design is defined as "A researcher's overall plan for obtaining answers to the research question or for testing the hypothesis. Research designs help the researcher in the selection of subjects, identification of variables, their manipulation, and control. Observations are to be made and different types of statistical analysis are used to interpret the data.[17]

The selection of design depends upon the purpose of the study, research and variables to be studied. The research design selected for this study is True experimental pre-test post-test control group design.

In this research in both (Experimental and Control Group) group pre-test was done to assess the level of academic stress, after that Mindfulness Meditation was given to the experimental group for 21 days, after Mindfulness meditation post-test was done in both groups to evaluate the effectiveness of mindfulness meditation. In this study, a comparison between the pre-test and post-test scores in both groups was done to find out the effectiveness of mindfulness meditation.

RESEARCH SETTING:
This study was conducted in Davara International School. Davara International School which has been formed under the ManavRachna Education Society. It is a private aided society founded by Mr. PrakashDavara. It aims to provide high-quality education. This setting was selected based on the feasibility of the study and the availability of sufficient samples.

POPULATION:
In this study, it is the aggregate of population consists of both male and female adolescents within the age group of between 14-20 years studying in the schools.

TARGET POPULATION:
In this study, Adolescents who belong to the age group of 14-20 years, to whom may generalize the Research findings.

ACCESSIBLE POPULATION:
In this study accessible population was adolescents who are studying in selected schools at Raipur.

SAMPLE:
The sample is the subset of the population, in the study adolescent's age 14-20 years, students in the selected schools and fulfilling the inclusion and exclusion criteria are selected for the study.

SAMPLE SIZE:
The total sample of study was 60 students. It includes 30 student's experimental group and 30 in control group from selected schools, which was calculated using power analysis.

<center>**SAMPLE SELECTION CRITERIA:**</center>

1.   **Inclusion criteria-** Adolescents who were :
1. in the age group of 14-20 years studying in the selected school.
2. willing to participate in the study.
3. who can read and understand Hindi/English.
2. Exclusion criteria –Adolescents who have:
1.   undergone similar studies previously.
2.   already having mental illness and on treatment.
SAMPLING TECHNIQUE:
In this study, samples were selected through simple random sampling (lottery method).
DATA COLLECTION TECHNIQUE:
The technique used for data collection was a self-administered questionnaire (Standardized questionnaire, Likert Scale). The data were collected after the approval from the Ethical committee of AIIMS Raipur and school authority. Participants were explained about the study, informed assent taken from each participant, and consent taken from their parents before distributing the tool. Participants were informed to fill the form and return within a day.
ETHICAL CONSIDERATION:
•   Ethical permission was taken from Institutional Ethical Committee AIIMS, Raipur.
•   Administrative permission was taken from the Principal of Davara International School (Abhanpur) Raipur.
•   Informed written assent and consent were taken from each participant and their parents
DEVELOPMENT AND DESCRIPTION OF TOOL:
1.   Development of the Tool-
An appropriate tool was selected by the investigator after the literature review and discussion with experts.[53] a questionnaire (Likert scale) was used to collect data from adolescents (14-20 years)
2.   Description of the Tool-
The instruments used in this research study consist of two sections.
Section A:
Demographic variables:
It includes Age, Gender, History of illness, Family income, Father Education, Occupation, Illness, Mother Education, Occupation, Illness, attendance to the school, extracurricular activities, use of leisure time, duration of sleep, habit and diet pattern.
Section B:
R BalajiRao Academic Stress Scale:
The R BalajiRao Academic stress scale is a measure the academic stress. The academic stress scale was designed by Dr. BalajiRao in 2013.
Academic stress scale It consists of 40 items and each item has five alternative response according to the level of stress each item can be indicated by marking a '□' mark in the bracket given against each statement Such as No Stress put a '□' mark in the 1st bracket (NS), Slight Stress in the2nd (SS), Moderate Stress in the 3rd (MS), High Stress in the 4th (HS) and you feelExtreme Stress put a '□' mark in the 5th bracket (ES). The total maximum score is 200 and the minimum is 40.
It is comprised of scale consisting of as many as 40 items and each item has five alternate response i.e. No Stress, Slight Stress, Moderate Stress, Highly stress, and Extremely High stress

Table 1: Depict the scoring of academic stress

RESPONSE	WEIGHTAGE
NO STRESS	1
SLIGHTLY STRESS	2
MODERATE STRESS	3
HIGHLY STRESS	4
EXTERMELY HIGHLY STRESS	5

Table 2: Presentation of level of Academic stress scale score
High scores are an indication of high stress and low scores are an indication of low stress.

ACADEMIC STRESS SCALE	
Scores	Rank
40 to 93	Low academic stress
94 to 146	Moderate academic stress
147 to 200	High academic stress

CONTENT VALIDITY:
The tool was given to 8 experts along with blueprint and criteria checklist. The selection of the experts was done on the basis of their experience, clinical, expertise, and their interest in the topic selected. The experts were requested to give their opinion and suggestion regarding the appropriateness and relevance of the question. The correction and suggestions were incorporated in the main study.

LANGUAGE VALIDITY:
Language validity of the content was obtained from Hindi expert for translation.

RELIABILITY OF TOOL:
The reliability of a quantitative measure is a major criterion for assessing its quality. The reliability of an instrument is the degree of consistency with which the instrument measures the attribute. The less variation an instrument produces in repeated measurements of an attribute, the higher is its reliability. Three aspects of reliability are of interest to the investigator for collecting quantitative data: stability, internal consistency, and equivalence

The reliability of the tool was obtained by administering to 12 school students. The reliability was obtained by computing the Karl Pearson coefficient which was found to be $r=0.81$ which suggest that tool was found to be reliable.

DATA ANALYSIS AND INTERPRETATION
This chapter deals with the analysis of data collected from 60 samples selected from schools of Raipur. The data finding has been tabulated and interpreted according to plan for data analysis.
Descriptive and inferential statistics were used for analyzing data on the basis of objectives of the study. The chapter includes:
I.   Organization of data
II.   Presentation of data

ORGANIZATION OF DATA:
The data are presented under the following heading.
Section 1: Distribution of the demographical variables of adolescents in the experimental and control group
Section 2: Level of academic stress among adolescents in the experimental and control group
Section 3: Comparison of pre-test and post test level of academic stress among adolescents in the experimental and control group.
Section 4: Assessment of the Effectiveness of Mindfulness Meditation on academic stress among adolescents in the experimental and control group
Section 5: To associate the level of academic stress among adolescents with their selected demographical variables in the experimental and control groups.

III. Presentation Of Data
Section 1: Distribution of the demographical variables of adolescents in the experimental and control group
Table 4(a): Frequency and percentage distribution of demographic variables of adolescents in the experimental and control group   **(n= 30+30)**

S.no.	Demographical variables	Experimental group		Control group	
		Frequency	Percentage	Frequency	Percentage
1	**Age**				
	14-16	13	43.3	12	40.0
	17-18	12	40.0	10	33.3
	19-20	5	16.7	8	26.7
2	**Gender**				
	Male	14	46.7	17	56.7
	Female	16	53.3	13	43.3
3	**Area of residence**				
	Urban	12	40.0	18	60.0
	Rural	11	36.7	5	16.7
	Semi-rural	7	23.3	7	23.3
4	**History of illness**				
	No	27	90.0	25	83.3
	Yes	3	10.0	5	16.7
5(i)	**Educational status of father**				
	Illiterate	1	3.3	1	3.3
	Primary	4	13.3	1	3.3
	Secondary	6	20.0	3	10.0
	Higher Secondary	11	36.7	7	23.3
	Graduate	6	20.0	14	46.7
	Post Graduate	2	6.7	4	13.3
5(ii)	**Occupational status of father**				
	Govt.	9	30.0	8	26.7
	Private	12	40.0	9	30.0
	self employed	7	23.3	9	30.0
	Others	2	6.7	4	13.3
5(iii)	**Illness of father**				
	Yes	5	16.7	4	13.3
	No	25	83.3	26	86.7

S.no.	Demographical variables	Experimental group		Control group	
		Frequency	Percentage	Frequency	Percentage
6(i)	**Educational status of mother**				
	Illiterate	7	23.4	1	3.3
	Primary	3	10.0	2	6.7
	Secondary	6	20.0	7	23.3
	Higher Secondary	9	30.0	6	20.0
	Graduate	4	13.3	11	36.7
	Post Graduate	1	3.3	3	10.0
6(ii)	**Occupation status of Mother**				
	Govt.	3	10.0	8	26.7
	Private	6	20.0	10	33.3

	self employed	11	36.7	5	16.7
	Others	10	33.3	7	23.3
6(iii)	**Illness of Mother**				
	No	26	86.7	25	83.3
	Yes	4	13.3	5	16.7
7	**Family Income (per annual)**				
	0-4 Lakh	11	36.7	8	26.7
	(4-8) Lakh	12	40.0	14	46.7
	(8-12) Lakh	7	23.3	8	26.7
8	**Attendances in the School**				
	Regular	26	86.7	24	80.0
	Irregular	4	13.3	6	20.0
9	**Participations in Extracurricular activities**				
	Participate	19	63.3	20	66.7
	Do not participate	11	36.7	10	33.3
10	**Use of leisure time at home**				
	Games	4	13.3	13	43.3
	Reading books	7	23.3	8	26.7
	Watching TV	13	43.4	6	20.0
	Chatting with Friends	6	20.0	3	10.0
11(i)	**Smoking (Habit)**				
	No	26	86.7	28	93.3
	Yes	4	13.3	2	6.7

S.no.	Demographical variables	Experimental group		Control group	
		Frequency	Percentage	Frequency	Percentage
11(ii)	**Alcohol consumption**				
	No	26	86.7	28	93.3
	Yes	4	13.3	2	6.7
11(iii)	**Tobacco Chewing(habit)**				
	No	25	83.3	28	93.3
	Yes	5	16.7	2	6.7
11(iv)	**Other Substance (Habit)**				
	No	29	96.7	25	83.3
	Yes	1	3.3	5	16.7
12	**Duration of sleep**				
	2-6 hours	2	6.7	7	23.3
	6-8 Hour	28	93.3	23	76.7
13	**Diet Pattern**				
	Non-Veg	10	33.3	7	23.3
	Veg	20	66.7	23	76.7

Table 4 (a) reveals the frequency and percentage of demographic variables of adolescents with respect to age, gender, area of residence, history of illness, father educational, occupational status, illness of father, educational status of the mother, occupational status of the mother, illness of the mother , family income, school

attendance, participation in extracurricular activities, use of leisure time, the habit of alcohol consumption, smoking, tobacco chewing, other substances, duration of sleep and diet pattern

Considering the history of illness, in the experimental group, majority 27 (90.0%) adolescents had no history of illness. In the control group majority 25 (83.3%) adolescents had no history of illness.

Considering the educational status of fathers in the experimental group, majority 11 (36.7%) had education up to higher secondary and control group majority 14 (46.7%) had education up to graduation.

With regard to occupational status of fathers in the experimental group, majority had 12 (40.0%) and in the control group 10 (33.0%) fathers belonged to Private Service sector.

Considering to the illness of father, in experimental group majority 25 (83.3%) and in the control group 26 (86.7%) fathers had no illness.

With regard to educational status of mothers in the experimental group, majority 9 (30.0%) mothers had education up to higher secondary and the majority 11 (36.7%) mothers had education up to Graduation in the control group.

Considering the occupational status of mothers in the experimental group, majority 11 (36.7%) mothers were self-employee and in the control group majority 10 (33.0%) mothers belonged to Private Service.

Considering the illness of mothers in the experimental group, majority 26 (86.7%) and in the control group majority 25 (83.3%) mothers had no history of illness.

With regard attendance of adolescents in school, majority 26 (86.7%) adolescents were regular attendance in the experimental group and in the Control group 24 (80.0%) adolescents were regular attendance.

Among the experimental group adolescents were having habit of smoking 4 (13%), alcohol consumption 4 (13.3%), Tobacco chewing 5 (16.7%) and other substances 2 (3.3%).

Among the control group adolescents were having habit of smoking 2 (6.7%), alcohol consumption 2 (6.7%), Tobacco chewing 2 (6.7%) and other substances 5 (16.7%).

Majority of samples of experimental group 28 (93.3%) and in control group 7 (76.7%) were having 6-8 hours of sleep/day.

Majority of the samples experimental group 20 (66.7%) and in control group 23 (76.7%) were vegetarians.
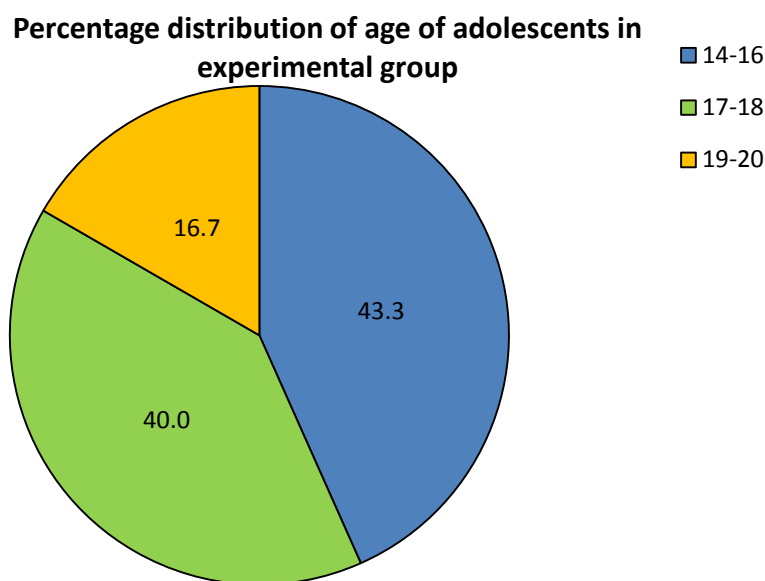
Figure (iii): Percentage distribution of age of adolescents in experimental group.

Considering the age of the adolescent's majority **13 (43.3%)** were in the age group of 14-16 years, 1**2 (40.0%)** were in age group of 17-18 years, and **5 (16.7%)** in the age group of 19-20 years in experimental group.

Percentage distribution of age of adolescents in the control group

■ 17-18

■ 19-20

40%

33%

27%
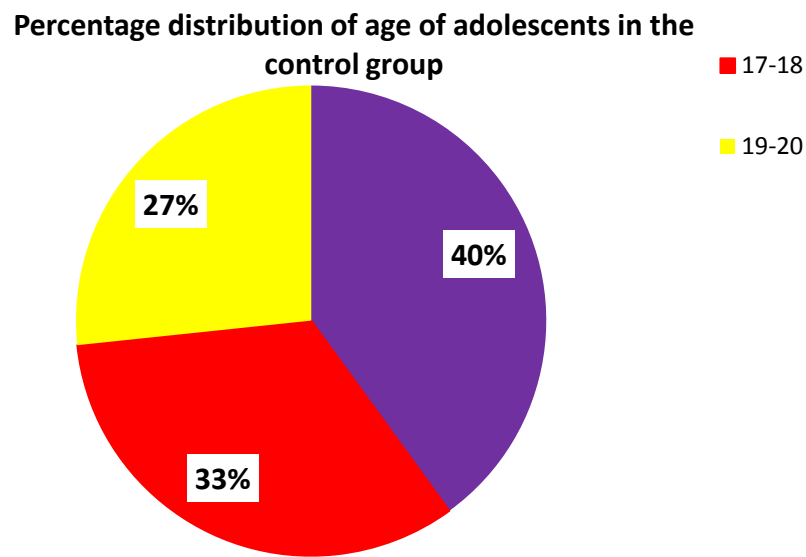
Figure (iv): Percentage distribution of age of adolescents in the control group.

The Figure (iv) showing the majority 12 **(40.0%)** adolescents werein the age group of 14-16 years, **10 (33.3%**) adolescents were in the age group of 17-18 years, and **8 (26.7%) adolescents were** in age group of 19-20 years in control group.

Percentage distribution of gender of adolescents in experimental group

53.3

46.7
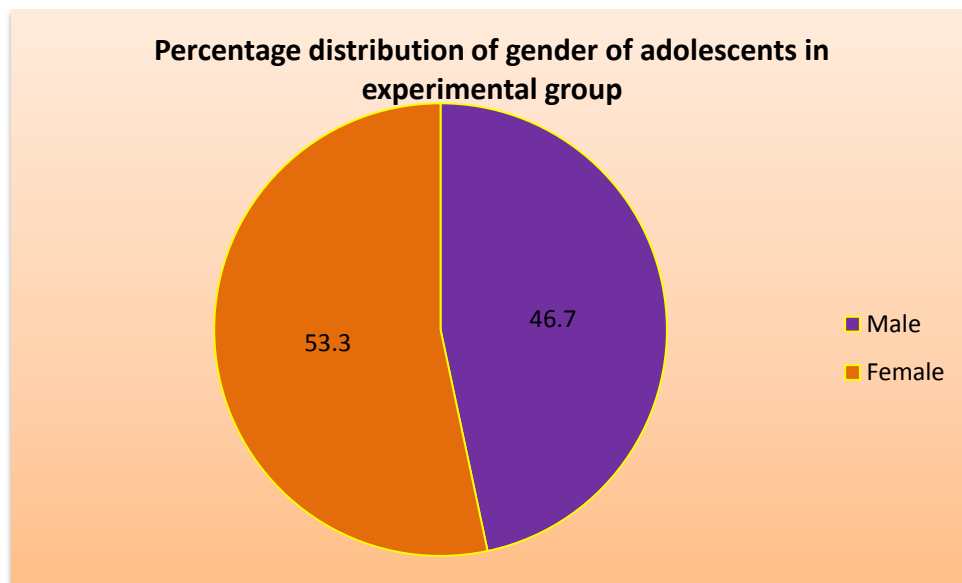
■ Male

■ Female

Figure (v): Percentage distribution of gender of adolescents in experimental group

Figure (v) depict the gender in the experimental group majority 16 (53.3%) adolescents were females and 14(46.7%) adolescents were males in the experimental group.

Percentage distribution of gender of adolescents in control group
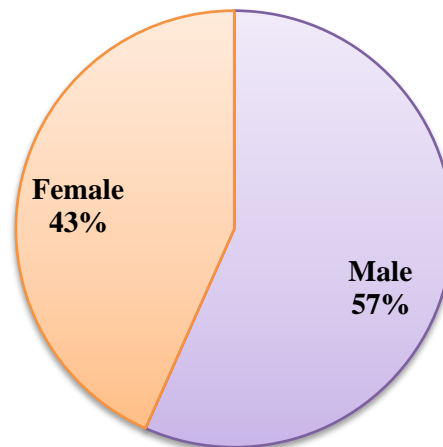
Figure (vi): Percentage distribution of gender of adolescents in control group

Figure (vi) showing that the control group majority 17 (56.7%) adolescents were males and 13(42.3%) adolescents were females.

Percentage distribution of samples according to area of residence in experimental group
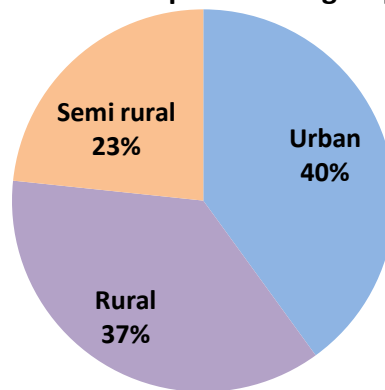
Figure (vii): Percentage distribution of samples according to area of residence in experimental group

Figure (vii) reveals that the area of residence in experimental group, majority 12 (40.0%) adolescents belonged to the urban area, 11 (36.7%) belonged to rural and7 (23.3%) adolescents belonged to semirural area.

Percentage distribution of samples according to area of residence in the control group
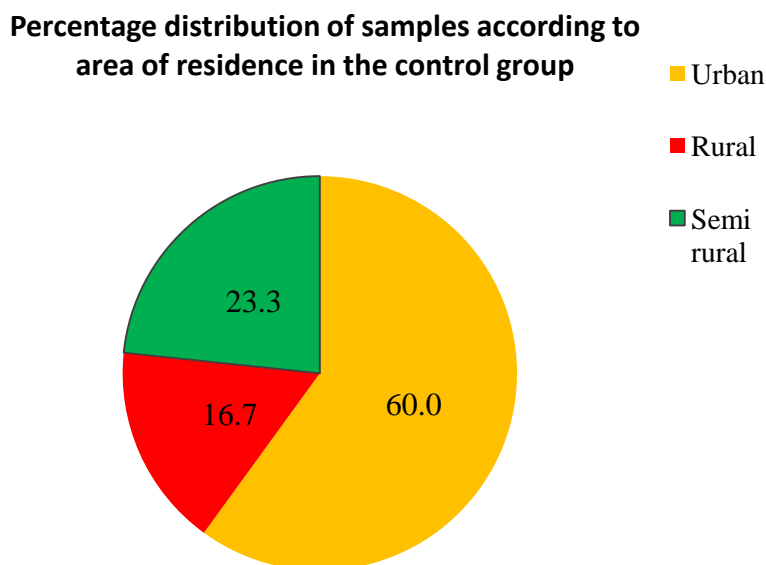
Figure (viii): Percentage distribution of samples according to area of residence in the control group

Figure (viii) depict in the control group majority 18 (60.0%) adolescents belonged to the urban area, 7 (23.3%) belonged to semirural 5(16.7%) adolescents belonged rural area.
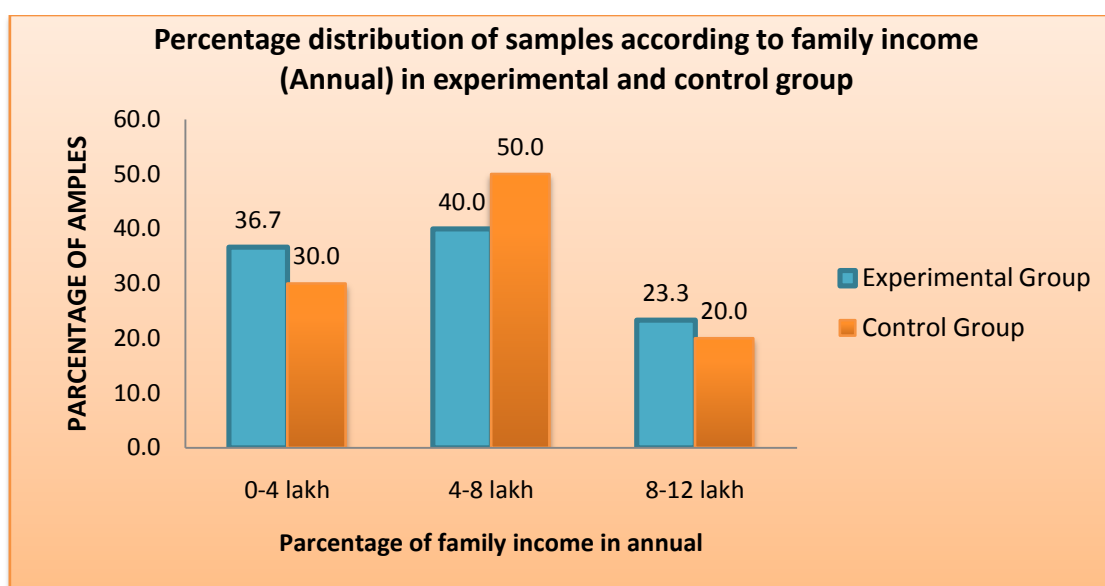
Figure (ix) : Percentage distribution of samples according to family income (Annual) in experimental and control group

Figure (ix) depict that the family income of adolescents in the experimental group, majority 12(40.0%) adolescents belonged to 4-8 lakh group (Rs/annual) and the majority 15(50.0%) adolescents belonged to 4-8 lakh group (Rs/annual) in control group.
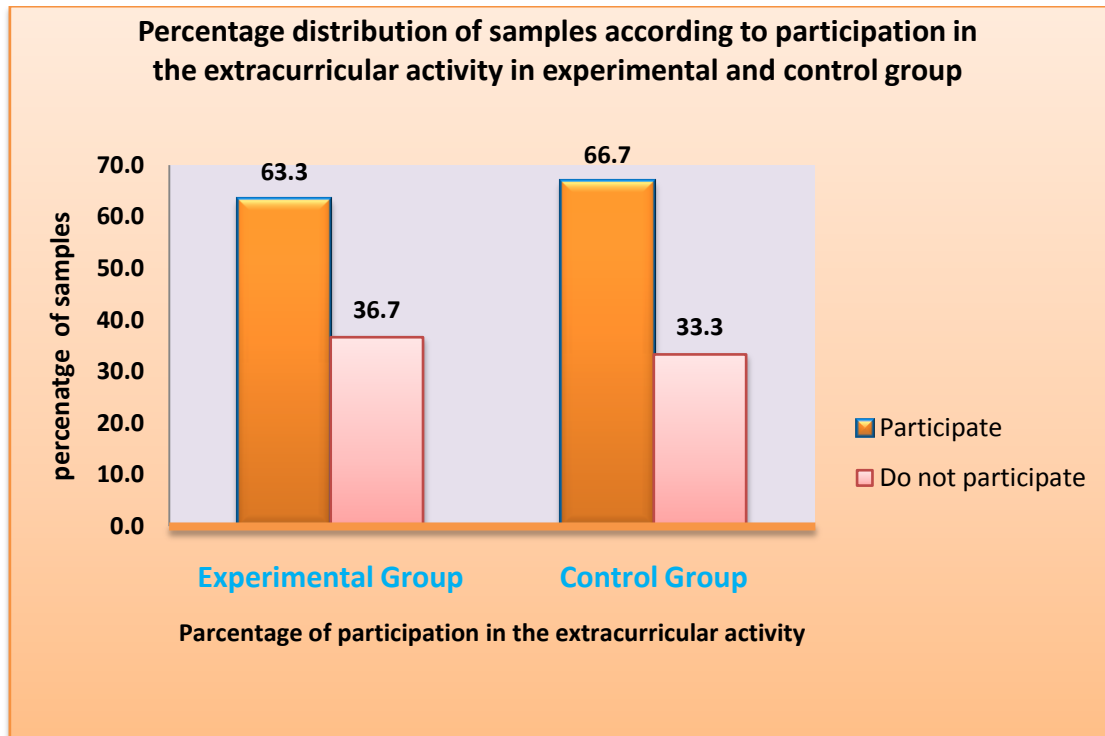
Figure (x): Percentage distribution of samples according to participation in the extracurricular activity in experimental and control group

Figure(x) showing that participation of adolescents in an extracurricular activity, in experimental group majority 19 (63.3%) adolescents participated in extracurricular activity and in the control group majority 25 (66.7%) adolescents participated in extracurricular activity
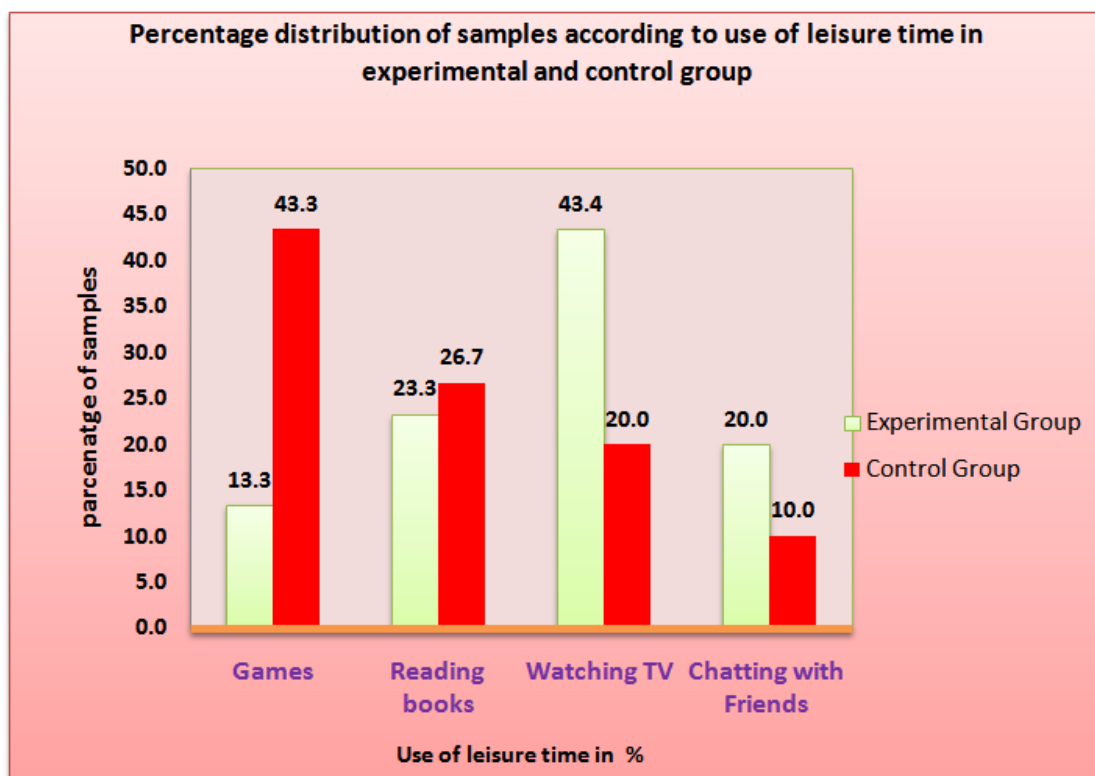
Figure .(xi) : Percentage distribution of samples according to use of leisure time in experimental and control group

Considering the use of leisure time in the home, in the experimental group majority 10 (33.4%) adolescents had habit of watching TV and in control group majority 13 (43.3) adolescents had habit of games as a leisure time

Section 2: Level of academic stress among adolescents in experimental and control group
Table-4 (b): Frequency and percentage distribution of pre-test level of academic stress among adolescents in experimental and control group   (n-=30+30)

Level of Academic Stress Score	Experimental group		Control Group	
	Frequency	Percentage	Frequency	Percentage
Low Stress (40-92)	6	20.0	9	30.0
Moderate Stress (93-142)	18	60.0	17	56.7
High Stress (143-200)	6	20.0	4	13.3
Total	**30**	**100.0**	**30**	**100.0**

Figure no (xii): Percentage distribution of pre-test level of academic stress among adolescents in the experimental and control group

Table 4(b) and Figure (xiii) reveals that the existing pre-test level of academic stress, in experimental group 6 (20.0%) adolescents had low level of academic stress, 18 (60.0%) had moderate academic stress and 6 (20.0%) had high academic stress. In Control group (pretest) **9** (30%) had low level of academic stress, 17 (56.7%) had moderate stress and 4 (13.3%) had high-stress

Section 3: To compare the pre-test and post-test level of academic stress among adolescents in the experimental and control group.
Table 4(c) Frequency and percentage distribution of pre-test and posttest level academic stress among adolescents in the experimental group (n=30)

Stress	Level of academic stress in the experimental group					
	Low stress (40-92)		Moderate stress (93-142)		High Stress (143-200)	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Pre test	6	20	18	60	6	20
Post test	23	76.7	7	23.3	0	0

Figure.(xiii) : Percentage distribution of pretest and posttest level of academic stress among adolescents in the experimental group

Table 4(c) and Figure (xiii) Revealed that in the pretest of experimental group majority 18 (60%) of adolescents had moderate level of academic stress, 6 (20.0%) low level of academic stress, and 6 (20.0%) high level of academic Stress. In the post-test of the experimental group majority had 23 (76.7%) had low level of academic stress, 7 (23.3%) had moderate level of academic stress and none of the adolescents had high level of academic stress. This shows that reduction of the academic stress in the post test of the experimental group

Table 4(d): Frequency and Percentage distribution of pre-test and post-test level of academic stress among adolescents in the control group **(n=30)**

Stress	Level of academic stress in the control group					
	Low stress (40-92)		**Moderate stress (93-142)**		**High Stress (143-200)**	
	Frequency	**Percentage**	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Pre-test	9	30.0	17	56.7	4	13.3
Post-test	13	43.7	15	50.0	2	6.7

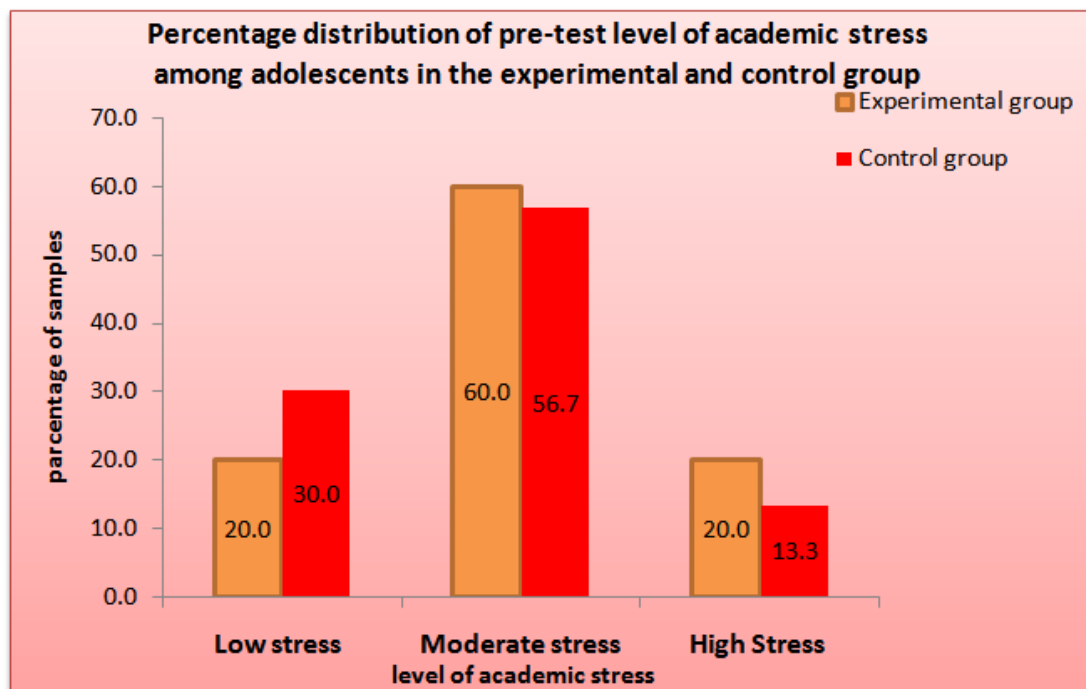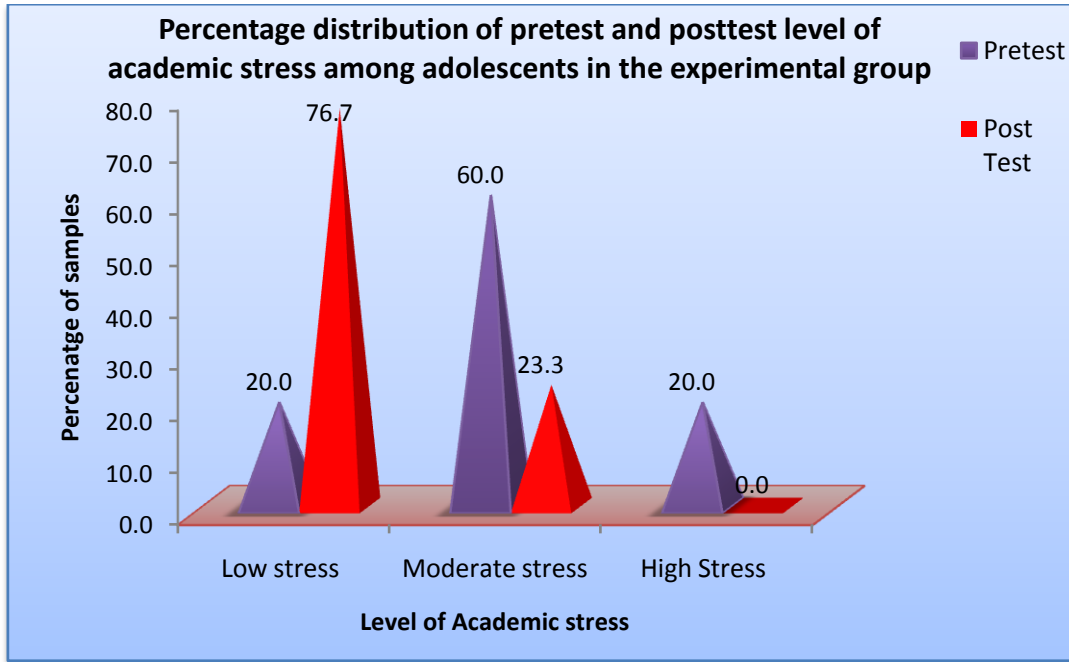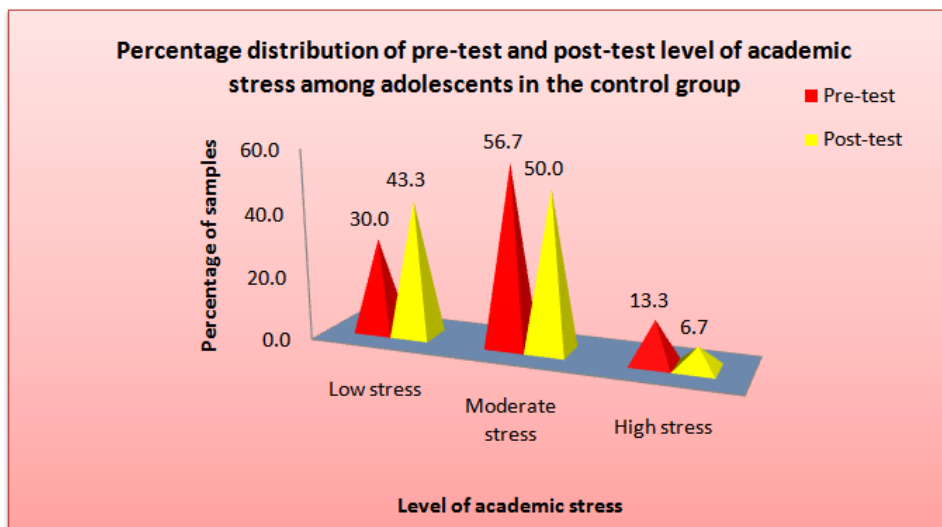
Figure (xiv) Percentage distribution of pre-test and post-test level of academic stress among adolescents in the control group

Table 4(d) and Figure (xiv) revealed that in pretest control group majority of adolescents had 17 (56.7%) moderate level of academic stress, 9 (30.0%) had low level of academic stress and 4 (13.3%) had high level of academic Stress. In post-test control group majority of adolescents, 15(50 %) had moderate level of academic stress, 13(43.7%) had low level of academic stress 2(6.7%) had high level of academic stress. This results show that there is no significant change in academic stress in the control group.

Section 4: Assessment of the Effectiveness of Mindfulness Meditation on academic stress among adolescents in the experimental and control group

Table 4 (e): Comparison of pre-test and post-test level of academic stress among adolescents within experimental and control group   (n=30+30)

Level of academic stress	Pre-test		Post-test		Mean Diff. (%) of level of academic stress	Paired 't' test value
	Mean	**S.D.**	**Mean**	**S.D.**		
Experimental Group	128.50	30.018	78.97	19.849	49.53	t=8.746 p=0.05 Sig
Control Group	114.27	22.94	103.77	26.444	10.500	t=2.01 p=0.06 Ns
Mean Diff (%)	14.23		24.800			
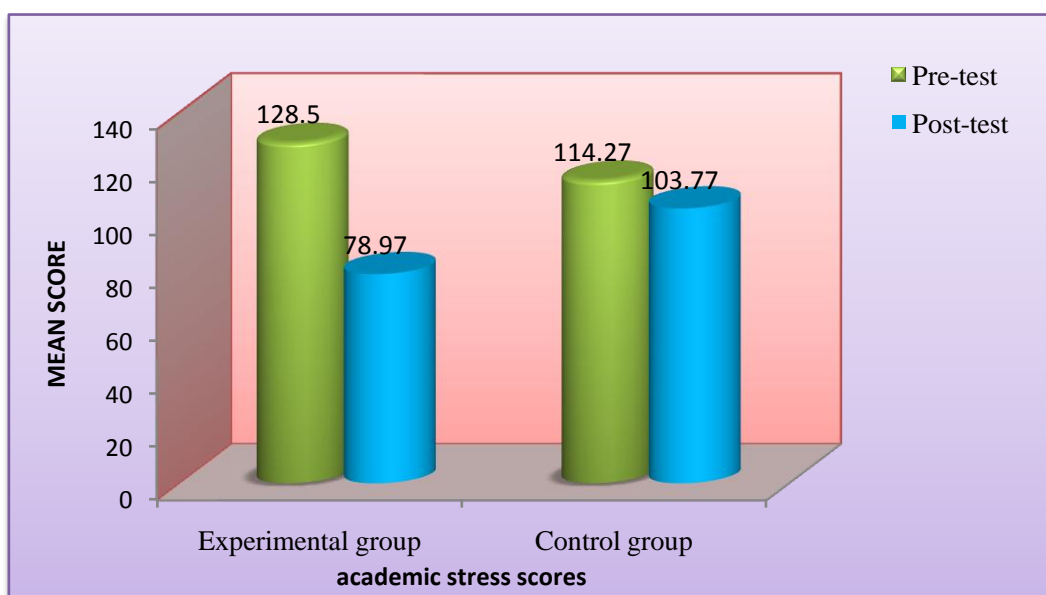
Figure (xv): Depict the comparison of pre-test and post-test mean score academic stress scores among adolescents between the experimental and control group.

The table 4 (e) show that mean differentiate level of academic stress in experimental group was 49.53% and in control group 10.50% which show that mean differences in the experimental group is higher than the control group.

The tabulated t value of experimental group was 2.02 and calculated t value 8.745 which was higher than tabulated value so that H_{01} is rejected, which shows that mindfulness meditation was effective in the reduction of academic stress.

Table 4 (f):Comparison of post-test level of academic stress among adolescents between experimental and control group.   (n=30+30)

Test	Group	Mean	Std. Deviation	Std. Error Mean	Mean Difference%	t-test	Sig.
Post test	Control	103.77	26.444	4.828	24.800	4.108	.001
	Experimental	78.97	19.849	3.624			

Table 4(f) show that independent "t" test value between experimental and control group is 4.108 (tabled t value= 2.00, p=.001) at 0.05 level of significance. Thus null hypothesis (H_{02}) was rejected and research hypothesis was accepted. The result interprets that Mindfulness meditation was effective in reducing the academic stress among adolescents.

Section 5: To associate the level of academic stress among adolescents with their selected socio-demographical variable in experimental and control group.

This section deals with data analysis and interpretation of the association between academic stress among adolescents with selected demographic variables using chi square value.

Table-4(g): Association between the academic stress with their selected socio-demographical variables of adolescents in the experimental group (n=30)

S.no.	Demographical variables	Frequency	Level of academic stress		chi-sq.	d.f	Sig	Result
			Low	Moderate				
	Age							
1.	14-16	13	1	2	1.161	2	.560	NS
	17-18	12	8	4				
	19-20	5	4	1				
	Sex							
2.	Male	14	12	2	1.201	1	.273	NS
	Female	16	11	5				
	Area of residence							
3.	Urban	12	8	4	2.897	2	.235	NS
	Rural	11	8	3				
	Semi-rural	7	7	0				
	History of illness							
4.	No	27	21	6	.186	1	.666	NS
	Yes	3	2	1				
	Educational status of father							
5(i).	Illiterate	1	1	0	7.386	5	.194	NS
	Primary	4	4	0				
	Secondary	6	6	0				
	Higher Secondary	11	7	4				
	Graduate	6	3	3				
	Post Graduate	2	2	0				

S.no	Demographical variables	Frequency	Level of academic stress		chi-sq.	d.f	Sig	Result
			Low	Moderate				
	Occupational status of father							
5(ii)	Government service	9	8	1	2.870	3	.412	NS
	Private service	12	9	3				
	self employed	7	4	3				

	Others	2	2	0				
5(iii)	**Illness of father**							
	Yes	5	4	1	.037	1	.847 3.841	NS
	No	25	19	6				
6(i)	**Educational status of mother**							
	Illiterate	7	4	3	10.97	5	.049	Sig
	Primary	3	3	0				
	Secondary	6	6	0				
	Higher Secondary	9	5	4				
	Graduate	4	4	0				
	Post Graduate	1	1	0				
6(ii)	**Occupational status of mother**							
	Government service	3	2	1	1. 7.995	3	.374	NS
	Private service	6	5	1				
	self employed	11	10	1				
	Others	10	6	4				
6(iii)	**Illness of mother**							
	No	26	20	6	.501	2	.778	NS
	Yes	4	3	1				
7	**Family Income (per annual)**							
	0-4 lakh	11	8	3	.501	2	.778	NS
	4-8 lakh	12	10	2				
	8-12 lakh	7	5	2				
8	**Attendances in the School**							
	Regular	26	20	6	.007	1	.933	NS
	Irregular	4	3	1				

S.no.	Demographical variables	Frequency	Level of academic stress		chi-sq.	d.f	Sig	Result
			Low	Moderate				
9	**Participations in Extracurricular activities**							
	Participate	19	13	6	1.969	1	.161	NS
	Do not participate	11	10	1				
10.	**Use of leisure time at home**							
	Games	7	7	0	4.339	3	.227 7.815	NS
	Reading books	7	6	1				
	Watching TV	10	6	4				
	Chatting with Friends	6	4	2				
11(i)	**Smoking (Habit)**							

	No	26	20	6	.007	1	.933	NS
	Yes	4	3	1				
11(ii)	**Consumption of Alcohol (Habit)**							
	No	26	19	7	1.405	1	.236	NS
	Yes	4	4	0				
11(iii)	**Tobacco Chewing(habit)**							
	No	25	18	7	1.826	1	.177	NS
	Yes	5	5	0				
11(iv)	**Other Substance (Habit)**							
	No	29	23	6	3.399	1	.065	NS
	Yes	1	0	1				
12	**Duration of sleep**							
	2-6 hours	5	3	2	.932	1	.334	NS
	6-8 Hour	25	20	5				
13.	**Diet Pattern**							
	Non-Veg	11	8	3	.932	1	.334	NS
	Veg	19	15	4				

SIG.- Significant, NS- Non-significant

The above table 4(f) envisages the Educational statuses of mother $\chi 2=10.970$ demographical variables had a significant association with the level of academic stress in adolescents. Probably women education plays a vital role in managing the academic stress among adolescents. The women who are more educated, they developed coping strategies among their children's to manage the stress. Other demographical variable had no significant association with level of academic stress.

Table-4(h): Association between the academic stress with their selected socio-demographical variables of adolescents in the control group.
(n=30)

S.no.	Demographic variables	Frequency	Level of academic stress			chi-sq	d.f.	Sig
			low	Moderate	High			
1.	**Age**							
	14-16	12	5	7	0	6.982	4	.137 NS
	17-18	10	4	6	0			
	19-20	8	4	2	2			
2.	**Sex**							
	Male	17	8	7	2	2.266	2	.322 NS
	Female	13	5	8	0			
3	**Area of residence**							
	Urban	18	8	10	0	7.444	4	.114 NS
	Rural	5	2	3	0			
	Semi-rural	7	3	2	2			
4	**History of illness**							

	No	25	12	13	0	10.87	2	.004 Sig
	Yes	5	1	2	2			

S.no	Demographic variables	Frequency	Level of academic stress			chi-sq	d.f.	Sig
			low	Moderate	High			
	Educational status of father							
5(i)	Illiterate	1	0	1	0	7.260	10	.701 NS
	Primary	1	0	1	0			
	Secondary	3	1	2	0			
	Higher Secondary	7	5	2	0			
	Graduate	14	6	6	2			
	Post Graduate	4	1	3	0			
	Occupational status of father							
5(ii)	Government service	8	3	5	0	16.42	6	.012 Sig
	Private service	9	5	4	0			
	self employed	9	3	6	0			
	Others	4	2	0	2			
5(iii)	**Illness of father**							
	Yes	26	12	14	0	13.93	2	.001 Sig
	No	4	1	1	2			
	Educational status of mother							
6(i)	Illiterate	1	0	1	0	12.80	10	.235 NS
	Primary	2	2	0	0			
	Secondary	7	1	4	2			
	Higher Secondary	6	4	2	0			
	Graduate	11	5	6	0			
	Post Graduate	3	1	2	0			
	Occupational status of mother							
6(ii)	Government service	8	5	3	0	9.55	6	.145 NS
	Private service	10	3	7	0			
	self employed	5	3	2	0			
	Others	7	2	3	2			
	Illness of mother							
6(iii)	No	25	11	14	0	11.09	2	.004 Sig
	Yes	5	2	1	2			

S.no.	Demographic variables	Frequency	Level of academic stress	chi-sq	d.f.	Sig

			low	Moderate	High			
		Family Income (per annual)						
7	0-4 lakh	9	3	6	0	10.17	4	.038 Sig
	4-8 lakh	15	7	8	0			
	8-12 lakh	6	3	1	2			
		Attendances in the school						
8	Regular	24	13	11	0	11.66	2	.003 Sig
	Irregular	6	0	4	2			
9		**Participations in Extracurricular activities**						
	Participate	20	8	10	2	1.154[a]	2	.562 NS
	Do not participate	10	5	5	0			
		Use of leisure time at home						
10.	Games	13	4	9	0	11.379	6	.077 NS
	Reading books	8	5	3	0			
	Watching TV	6	2	2	2			
	Chatting with Friends	3	2	1	0			
11(i)		**Smoking (Habit)**						
	No	28	13	15	0	30.000	2	.000 Sig
	Yes	2	0	0	2			
		Consumption of Alcohol (Habit)						
11(ii)	No	28	12	15	1	7.129	2	.028 Sig
	Yes	2	1	0	1			
		Tobacco Chewing(habit)						
11(iii)	No	28	12	14	2	.165[a]	2	.921 NS
	Yes	2	1	1	0			

S.no.	Demographic variables	Frequency	Level of academic stress			chi-sq	d.f.	Sig
			low	Moderate	High			
		Other Substance (Habit)						
11(iv)	No	25	10	14	1	3.065	2	.216 NS
	Yes	5	3	1	1			
		Duration of sleep						
12	2-6 hours	7	2	3	2	7.124	2	.028 Sig
	6-8 Hour	23	11	12	0			
		Diet Pattern						
13.	Non-Veg	7	6	11	0	4.897	2	.086 NS
	Veg	23	7	4	2			

SIG.- Significant, NS- Non-significant

Table 4(g) shows that the demographic variable like the history of illness, occupational status of father, illness of father, illness of mother, family income, attendance to the school, the habit of smoking, habit of alcohol consumption, and duration of sleep had statistically significant association with academic stress among adolescents . The other demographic variables were no significant association with level of academic stress.

IV. Discussion, Conclusion, Implications, Limitation, And Recommendations
This chapter discusses the major findings of the study and reviews them concerning findings from the results of the previous studies. The present study was aimed to evaluate the effectiveness of mindfulness meditation on academic stress among adolescents in selected schools.

DISCUSSION
Objective1: To assess the level of academic stress among adolescents (14 -20 years) in the experimental and control group.
This study reveals that among adolescents, the majority in experimental group 18(60.0%) adolescents had moderate academic stress, 6 (20.0%) had low academic stress and 6 (20.0%) had high level of academic ac Stress. In Control group majority had 17 (56.7%) moderate level of academic stress, 9 (30%) had low level of academic stress and 4 (13.3%) had high level of academic Stress.

The findings of the study were consistent with the study done by Jayanthi et al (2015) on the topic of the relationship between academic stress and depression among adolescents at higher secondary schools in Tamil Nadu. As per result show that 45.7% had a moderate level of academic stress, 25.4% had mild level of academic stress, 19.6% had severe level of academic stress and 9.3% had a minimal level of academic stress.[31]

Another supportive study conducted by Betty Koshy (2019) to assess the academic stress among 10th class students that shows that 51 % had moderate level of academic stress. 48% had mild, 4% had sever level of academic stress.[54]

OBJECTIVE 2: To compare the pre-test and post-test scores of academic stresses among adolescents (14-20 years) in the experimental and control group.
The study shows that among adolescents belong to the experimental group, in the pre-test majority 18(60%) had moderate level of academic stress, 6(20%) had high level of academic stress and 6(20%) had low level of academic stress. But after the intervention (Mindfulness Meditation) in post-test with the same tool majority 23(76.7%) had low stress, 7(23.3%) had moderate level of academic stress and none had high level of academic stress. We can see a substantial transition of subjects' levels of stress to higher to the lower level.

When the investigator assessing the control group in the pre-test, the majority 17 (56.7%) moderate level of academic stress, 9 (30.0%) had low level of academic stress and 4 (13.3%) had high level of academic Stress. In the post-test control group majority of adolescents, 15(50 %) had moderate level of academic stress, 13(43.7%) had low level of academic stress 2(6.7%) had high level of academic stress

Supportive finding to this study was shown by a study conducted by Chenlin Ying et al (2018) in his study of "academic stress and evaluation of a Mindfulness Training intervention program" after the intervention on the academic stress mean score m= 2.41 to reduce m= 3.79 and In the control group, academic stress means score remained same (m=2.45 to m= 2.46). This result showing that mindfulness meditation training program was effective to reduction of academic stress among the students.[55]

OBJECTIVE 3: To evaluate the effectiveness of mindfulness meditation on academic stress among adolescents (14 -20 years) with pretest and posttest score of the experimental group
Comparison of the level of academic stress among adolescents shows that at a value of 8.746 at p<0.05level in paired t-test of the experimental group which shows it's significant.

The results show that a significant decrease in academic stress among adolescents in the experimental group while no significant change in control group. H_{01} was rejected that means mindfulness meditation was effective in reducing the academic stress among adolescents

The independent "t" test value between experimental and control group is 4.108 (tabled t value= 2.00, p=.001) at 0.05 level of significance. Thus null hypothesis (H_{02}) was rejected and research hypothesis was accepted. The result interprets that Mindfulness meditation was effective in reducing the academic stress among adolescents.

Similar study finding has been revealed by Suganya T et al (2018) on the topic "Effectiveness of Mindfulness Meditation Technique on perceived stress among adolescents in selected school" It was found that post-test level of the mean score (6.12) was significantly lower than then Pre-test means score (18.98) by using paired t-test(21.079) at p value<0.001. According to results, Mindfulness Meditation was effective to reduce the level of stress.[14]

OBJECTIVE 4: To associate the academic stress among adolescents with their selected socio-demographical variables in the experimental and control group.

It was found that there is a significant association of academic stress with a demographic variable like the Educational status of mother $\chi2=10.970$ in the experimental group. Other socio-demographic variables no significant association with the level of academic stress among adolescents in the experimental group. In the control group that there is significant association in the level of academic stress of adolescents with a demographic variable like the history of illness= 10.874, occupational status of father$\chi2=$ 16.42, illness of father$\chi2=$ 13.93, illness of mother$\chi2=11.095$, family income$\chi2=10.74$ attendance to the school$\chi2=11.67$, the habit of smoking$\chi2=30.00$, habit of alcohol consumption$\chi2=7.129$ and duration of sleep$\chi2=$ 7.124 had statistically high significant with academic stress. But other socio-demographic variables no significant association with level of academic stress among the adolescents. Results show that H_{03} is rejected which means there is significant association of academic stress among adolescents with selected demographical variables.

CONCLUSION:

Mindfulness meditation is a simple, safe, and easy to implement and acceptable intervention to reduce academic stress. The clinical and community health nurses should understand the importance of academic stress and coping strategies with these types of natural treatment modalities. This intervention would help the students to get relief from stress and to lead a healthy life. This study shows that the association found between the academic stress of the students in the experimental group.

IMPLICATIONS OF THE STUDY:

Mindfulness meditation is an intervention that has the advantages of being cost-effective, therapeutic, social, and recreational for the academic stress. As a communicative psychosocial process, Mindfulness meditation may have role in alleviating academic stress among adolescents. Mindfulness meditation helps the students to improve coping skills and finding meaning by re-evaluating good and bad aspects of their lives Mindfulness meditation is a useful treatment for those who are not interested in pharmacological management to reduce the stress in their life. The findings of the study have the following implications in the areas of nursing services, nursing education, nursing administration, and nursing research.

Nursing practice:

The content of the study will help nursing professionals for reinforcing their knowledge regarding management and coping strategies to be adopted to reduce the level of academic stress among adolescents. Nurses can plan the academic stress among adolescents by mindfulness meditation of psychiatric patients which may enhance their self-concept and sense of wellbeing through the development of mutually agreed goals. The professional nurse can use this intervention to energize their wellbeing by reducing the stress level. In clinical areas, there must be provision for administering Mindfulness meditation among the psychiatric patient.

Nursing Education:

Nursing personnel working in the hospital and institute should be given in-service education regarding Mindfulness meditation. Post-graduate nursing students specializing in psychiatry should be trained in administering Mindfulness meditation. The study will help the teachers to educate the students for preventing stress and promotion of mental health wellbeing. The Nurse educator can use the study to teach the students about the management of academic stress and helps students, nurses, to identify the needs and apply the intervention according to needs. Student nurses can be trained to assess the level of academic stress for themselves as well as for their friends and relatives.

Nursing Research

The findings of the study help to expand the scientific and professional knowledge which further research can be conducted on academic stress. It will be helpful to prepare future students to work effectively in various health programs to reduce the academic level of stress. This study motivates the other researcher to conduct further studies to evaluate the effectiveness of Mindfulness meditation.

Nursing Administration:

The nursing administrator can organize conferences, workshops and in-service education programs regarding the effectiveness of Mindfulness meditation on reducing the stress level for staff nurses, and for social workers. The administrators can encourage the nurses to use different safe, psychotherapeutic interventions in reducing stress, anxiety, and depression among students. A nurse administrator can motivate their nurses to use mindfulness meditation among psychiatric patients.

LIMITATIONS:
o   The study was limited to only 60 adolescents of selected school
o   The data collection period was one month
o   The study was difficult to get time in between the academic activities.

RECOMMENDATIONS:
➢   A similar study can be conducted on a large sample to generalize the finding.
➢   A similar study can be conducted to different age group
➢   A similar study can be conducted as a comparative study to analyze the effectiveness of mindfulness meditation with other alternative therapies among the same samples.
➢   A longitudinal study can be undertaken to see the long-term effect of Mindfulness meditation in reducing academic stress.
➢   A similar kind of study can be conducted to assess the effect of Mindfulness meditation among patients with dementia and neurotic stress related disorders
➢   A similar study can be conducted on college students, working adults and managerial level etc.

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