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AN EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF ECOTHERAPY ON ACADEMIC ANXIETY LEVEL AMONGSCHOOL CHILDREN IN ANAND AND KHEDA DISTRICT

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ABSTRACT

Aim: To assess the effectiveness of ecotherapy on academic anxiety level among school children.

Method: In this pre-experimental study, 60 school going students in the age group 13-16 years were selected through simple random sampling technique. The student's level of academic anxiety was measured using academic anxiety scale, thereafter they were offered ecotherapy sessions for 7 consecutive days.

Results: Before intervention; 71.7% of the school students were in the category high of academic stress and 28.3% were in the moderate category, however after the intervention the none of the students were in the high category, whereas 91.7% were in the in the moderate and 8.3% were in the mild category of academic stress.

Conclusion: Ecotherapy is an effective intervention in lowering down academic stress among the school going children.

Keywords: Academic anxiety level, school children, ecotherapy, academic anxiety scale

INTRODUCTION

The wave of urbanization and industrialization has made human a puppet of sophisticated gadgets, pushing him away from the natural healing of the universe. This reduced connection with the environment has led to a sharp rise in physical and mental disorders **[1]**.

As modernization has taken over society, people spend the majority of their time inside their home and have minimal contact with nature. The major shift to the sedentary lifestyle has increased the risk of various disorders; physiological and mental **[2]**. Morepeople like to stay in urban locations rather than the rural areas. Locating to apartmentswith small terraces or back yards have detrimental effects like fatigue, increased level ofstress, loneliness, and loss of motivation **[3]**.

Physical activity among children is more restricted than it was in 70's. Kids are rarely involved in planned school activities rather than free play. The limited activities cause multifarious disorders among children like weight gain and other chronic disorders **[4]**.

A person's time in school is an important part of their life and a turning point in their academic career. The next phase in a student's educational journey, which in turn decides their career, is heavily influenced by their academic performance at this point.The excessive academic pressure during this time may have negative and long-lasting effects. In the world, 8% of children and adolescents suffer from anxiety problems. They perform significantly worse socially, emotionally, and academically when they are anxious or stressed **[5]**.

Mental wellbeing among the youngsters is a relative concern that need attention from all the healthcare providers irrespective of what specialty they are dealing with **[6]**.

The majority of adolescents suffer from one or the other mental disorder during their lifetime. Anxiety issues are frequently encountered in this age group, other disorders like addiction, psychosis and conduct disorders are also seen **[7]**.

Statistics reveal that anxiety related issues are widespread all over the world. A report by WHO states that approximately 3.6 percent of the world's population is affected by anxiety accounting for 264 million; more commonly seen in females (4.6%) **[8]**.

Just looking and hearing about the natural activity that goes around us can create lot of positive impact on overall wellbeing. Children who suffer from ADHD show great dealof improvement when exposed to natural environment. Even adults who spend more time in natural setting reported better mood level as compared to those who were exercising indoors. Taking walk outdoors reduces activity in the region of brain involved with negative thoughts. The tranquilizing beauty of nature lowers the blood pressure and cortisol. Exposing oneself to the morning sunlight while exercising, activates cells in the brain to use more serotonin, which balances the mood and self-composure **[9]**.

There is a wealth of research supporting the function of access to green space in avoiding anxiety and depression among 14-24-year-olds; being in a forest setting leadsto better

immediate mental well-being Exposure to vegetation is connected with a lowerincidence of depressive symptoms in young people **[10]**.

A longitudinal study revealed the relationship between exposure to natural environment, ruralism and attention deficit hyperactivity disorder. The finding showed that children who always lived in rural area were less likely to develop ADHD, when compared to those with minimum exposure **[11]**.

An experimental study on the psychological effects and benefits of using greenspaces in the city demonstrated a beneficial impact on participant's psychological relaxation from exposure to various types of urban greenery **[12]**.

A cross-sectional study discovered the potential value of teenage exposure to nature as a safeguard for their psychological health **[13]**.

METHODS AND MATERIAL

Study Design: Pre-experimental pre-test post-test design.

Study Site: The study was carried out at Shree S.K Vaghela High School in Khambhat and R.C Mission School in Mahemdavad.

Sample Size:

Total 60 school going students were included in the study.

$N = (\square/\square) \square [Z\square\text{-}Z_{1\text{-}}\square]^2$

$\square (3.029/2.6) \square [7.84]$

$\square 7.87\square 7.84$

$\square 61.7008$

Where $\square$ = 3.209, $Z\square$ = 0.84, $Z_{1\text{-}}\square$= 1.96 and $\square$ = 2.6 (mean difference)

Inclusion and Exclusion Criteria:

Academic anxiety scale was used to assess the level of academic stress, those with mild to severe level of academic stress in the age group 13 -16years were included. Those whose parents didn't consent, or who were sick were excluded.

Study Tool:

The academic anxiety scale, a self-reported screening instrument established in 2019 by Jerrell Cassady, was used in this investigation. The amount of academic anxiety among school children was measured using the academic anxiety scale. There are a total of 11 items in the tool. The grid establishes a range of 11-14 as not anxious, 15-20 for mild academic anxiety, 21-29 as moderate academic anxiety, and 30-44 as high academic anxiety. The tool is simple to use and takes less than 10 minutes to complete.All items on this scale are rated on a 4-point Likert scale, with the total rating for the Academic Anxiety Scale indicating the total number of the response values **[14]**.

Training Tools:

The students' samples were exposed to morning sunlight, guided for stretching exercises, involved in planting saplings, watering plants, painting in the garden area, and making mud toys. The intervention was provided for 7 days every morning for an

hour.

Research Ethics:

The institutional ethics committee CHARUSAT, Changa, Gujarat, gave approval to the project. Permission was received from the Principal of Manikaka Topawala Institute of Nursing, CHARUSAT, Changa. Written permission was also obtained from the principals of Shree S.K Vaghela High School in Khambhatand R.C Mission School in Mahemdavad.

Preparation and Investigation Phase:

The researcher selected the two schools according to convenience. The samples were taken from Shree S.K Vaghela High School in Khambhat and R.C Mission School in Mahemdavad. Anand, Gujarat. The samples were selected by random sampling and then described according to their demographic characteristic: age, gender, standard, residence, type of family, education level of father, education level of mother, annual income of parents, type of school. The samples were evaluated for academic anxiety level using academic anxiety level. The intervention, ecotherapy was given to the samples who were tested for mild, moderate, or severe academic anxiety. The intervention lasted for seven days, with each session lasting one hour. In the intervention, samples were exposed to morning sunlight, guided for stretching exercises, involved in planting saplings, watering plants, painting in the garden area, and making mud toys. The amount of post-intervention academic anxiety level was assessed using the academic anxiety scale 15 days after the session finished.

Statistical Analysis:

The demographic features of the sample were described using frequencies, percentages, mean, and standard deviation. The paired t-test was employed to assess the efficacy of ecotherapy on academic anxiety levels in school children. Fisher's exact test was carried out to find the relationship between academic anxiety and selected demographic variables.

RESULTS

The majority of school children; 51.7% were within the age range of 14-15 years nevertheless 36.7% of the students were in the age group of 13-14 years, and a small proportion 11.7% were between the ages of 15 and 16 years. The majority 51.7% were boys, however 48.3% of the students were girls, both genders were represented even. The majority 53.3% ofthe students were in the 9^{th} standard, 25% of the students were in the 8^{th} standard; whilst 21.7% were in the 11^{th} standard. In terms of residence, a significant proportion of the students, 85% were residing in rural areas, the remaining 15% of the students came from semi-urban areas, indicating a mix of backgrounds within the school community. The majority, 80% of the students, were from joint families, suggesting that they live with extended family members,

on the other hand, 20% of the students came from nuclear families, implying a smaller household structure. Regarding father's education, the largest percentage 73.3% completed high school education, 20% of the students' father had a bachelor's degree, while a smaller proportion 6.7% received only primary education. Quite comparable in terms of education; the majority of mother's 58.3% had high school education, while 36.7% had primary education, only 5% had completed bachelor's degree. Representing the family income, the majority 58.3% of the parents had an annual income ranging between Rs. 100,000-200,000, a significant proportion 28.3% had an annual income between Rs. 200,000-300,000. The remaining 13.3% had an annual income less than Rs. 100,000.

(Table 1).

Table 1: Description of samples (school children) based on their personalcharacteristics in terms of frequency and percentage

Sr. No	Demographic variable	Frequency	Percentage
1.	Age		
	13-14 years	22	36.7%
	14-15 years	31	51.7%
	15-16 years	7	11.7%
2.	Gender		
	Female	29	48.3%
	Male	31	51.7%
3.	Standard		
	8^{th}	15	25.0%
	9^{th}	32	53.3%
	11^{th}	13	21.7%
4.	Residence		
	Rural	51	85.0%
	Semi- urban	9	15.0%
5.	Type of Family		
	Joint	48	80.0%
	Nuclear	12	20.0%
6.	Education Of Father		
	Primary	4	6.7%
	Highschool	44	73.3%
	Bachelor	12	20.0%
7.	Education of Mother		
	Primary	22	36.7%
	Highschool	35	58.3%
	Bachelor	3	5.0%
8.	Annual income of parents		
	Less than Rs. 100000	8	13.3%
	Rs.100000-200000	35	58.3%
	Rs.200000-300000	17	28.3%

Table 2: Analysis of data related to the effectiveness of ecotherapy on academic anxiety level among school children by using frequency and percentage

Academic anxiety	Pre-test		Post-test	
	Frequency	%	Frequency	%
Not Anxious (score 11-14)	0	0.0%	0	0.0%
Mild Academic Anxiety (score 15 - 20)	0	0.0%	5	8.3%
Moderate Academic Anxiety (score 21 - 29)	17	28.3%	55	91.7%
High Academic Anxiety (score 30 - 44)	43	71.7%	0	0.0%

Table 3: Anxiety scores mean, SD and 't' value to assess the effectiveness of ecotherapy.

GROUP	MEAN		STANDARD DEVIATION		t VALUE
	Pre-test	Post-test	Pre-test	Post-test	
Ecotherapy	30.5	22.8	1.8	1.6	33.9

t= 1.67 at 0.05 level with df=59

Table 4: Association between academic anxiety level with selected demographic variables

Sociodemographic data		Academic Anxiety		
		High	Moderate	P value
Age	13-14 years	15	7	0.259
	14-15 years	21	10	
	15-16 years	7	0	
Gender	Female	22	7	0.573
	Male	21	10	
Standard	8th	10	5	0.165
	9th	21	11	
	11th	12	1	
Residence	Rural	37	14	0.704
	Semi- urban	6	3	
Type of Family	Joint	33	15	0.479
	Nuclear	10	2	
Education of father	Primary	3	1	0.492
	Highschool	33	11	
	Bachelor	7	5	
Education of Mother	Primary	12	10	0.007
	Highschool	13	5	
	Bachelor	1	2	
Annual Income of Parents	Less than Rs. 100000	6	2	0.391
	Rs.100000-200000	27	8	
	Rs.200000-300000	10	7	

Table 2 shows the pre-test and post-test academic anxiety scores, before and after the intervention. The majority of students reported high academic anxiety (71.7%), followed by moderate (28.3%) levels and after the intervention they were in the mild (8.3%) and moderate level (91.7%), none reported experiencing high academic anxiety after the intervention.

Table 3 represents the effectiveness of ecotherapy as an intervention in bringing down academic anxiety levels. The post test scores were 22.8 lower than the pre-test scores of 30.5. The calculated 't' value of 33.9 is higher than the table value of 1.67, statistically proving the effectiveness of ecotherapy in reducing the academic anxiety levels.

Table 4 illustrates the relationship of demographic variables of the school students to the academic anxiety. The p-value academic anxiety was related to education level of the mothers.

DISCUSSION

The study intended to assess the effectiveness of ecotherapy in reducing the level of academic stress among the school students. The total samples were 60 students from 2 semi-government, samples were exposed to morning sunlight, guided for stretching exercises, involved in planting saplings, watering plants, painting

in the garden area, and making mud toys. The amount of post-intervention academic anxiety level was assessed using the academic anxiety scale, 15 days after the session finished. The majority of samples were 51.7% were within the age range of 14-15 years. The majority 51.7% were boys, with 48.3% were girls, both genders were equal. The majority, 53.3% of the students, were from 9th standard. A significant percentage of the students, 85%, were residing in rural areas. The majority, 80% of the students, were from extended families. In terms of level of education, most parents had completed high school; 73.3% of the fathers; and 58.3% mothers. Family income, majority 58.3% of the parents had an annual income ranging between Rs. 100,000-200,000.

A cross-sectional study done among adolescent revealed different demographic characteristic in terms of gender; males were only 25.8% whereas females were in majority with 74.2%. In terms of education of parents also there is a difference, majority of the parents both father and mother were graduates **[15]**. Another cross-sectional study revealed opposite findings in terms of gender; boys were 48% and girls were in majority 52%. Most students were from nuclear family 73%, only 27% were from joint family (106). Ecotherapy is effective in lowering the level of academic anxiety among the school children. Consistent findings were reported in a study exploring the benefits of attention restoration therapy on cognition with natural versus urban environments, the result was connection with natural environments improves directed attention among the adolescents **[16]**. Consistent findings were reported in a study were nature-based art therapy was provided to adolescents diagnosed with anxiety and depression, showing 100% positive results of the therapy **[17]**.

There is a significant relationship between maternal education and students' academic anxiety level.

There are studies pointing out there was no association of anxiety among secondary school students according to their gender, there was noticeable relationship in the level of anxiety among secondary school students according to their geographical area of living and type of school **[18]**.

Another study found that anxiety levels were most prominent among pupils in the higher and lower socioeconomic classes. According to the study, students with jobless mothers were more likely to experience anxiety (19.5%) than pupils having working mothers (14.6%) **[19]**.

CONCLUSION

The main aim of the study was to assess the effectiveness of ecotherapy and its use to reduce academic anxiety among school children. Based on scientific studies,

ecotherapy holds that engaging actively with the natural world may lead to observable changes in the body's feedback loops. In turn, this resultsin physiological changes, such as a reduction in high blood pressure, a regular pulse, and a relaxation of tense muscles. Ecotherapy at some level provides benefits equivalent to other psychotherapies even for disorders like depression and anxiety **[20]**.

Ecotherapy or contact with nature brings various advantages not only for physical health, but also for mental stability. Being in close contact with nature instills the feeling of life and mindfulness **[21]**.

Engaging in ecotherapy, particularly through routine contact with natural settings, has demonstrated positive and significant relationship of nature and stress, coping abilities, resilience, and better adjustment **[22]**. There are data suggesting if young children are regular exposed to outdoor activities it substantially lowers the incidence of developing attention deficit disorders which are quite prevalent in kids in today's world **[23]**. such as academic anxiety, in school children. Ecotherapy techniques are thought to have a good impact on autonomic processes, perhaps lowering anxiety symptoms and oxidative stress markers. Therefore, the use of ecotherapy shows promise for successfully managing a variety of mental health issues in schoolchildren, with the added possibility of enhancing their general emotional resilience **[24]**. Children and adults who spends time in natural settings reported having better quality of life, it only provides instance relief from stress but is also beneficial in long term. To remain connected to nature is a symbiotic process for living beings and the planet, the benefits are shared **[25]**.

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