A Comparative Study of Green and Non-Green Environment on Mental Health and Emotional Maturity

Dipankar kumar

Abstract

Research from a variety of scientific fields suggests that physical activity in nature and feelings of connection to nature enhance psychological health and well-beings. The main purpose of this research was to find out mental health and emotional maturity among green and non-green environment. The total sample consisted of 120 students out of which 60 green and 60 non-green environment were selected purposively, non-probability sampling technique, from Dev Sanskriti Vishwavidyalaya, Haridwar with age group of 20-24 years, average age group of 22 years. Ex post facto research design used in following study i.e. without previous intervention. Mental health was measured for the selected subjects using the questionnaire developed by Dr. (Smt) Kamlesh Sharma and Emotional Maturity Scale by Dr. Yashvir Singh and Dr. Mahesh Bhargav. The obtained data was analyzed t-test to know the mean difference between green and non-green environment and Karl Pearson correlation method was used to know the relation between emotional maturity and mental health variables. Here t-test result revealed that there is a significant difference in emotional maturity and mental health at 0.05 level. t-test statistical method used as to examine the significance of hypothesis. Also a positive correlation was observed between mental health and emotional maturity. As per above result it shows that green environment highly impacts our overall dimensions of life i.e. physical, mental, emotional as well as spiritual health.

Keywords. Mental Health, Emotional Maturity, Green and Non-Green Environment.

Introduction

There is an emerging issue of disturbed relationship between man and nature. It has leads to adverse consequence on human health and well-being. Before industrial revolution few centuries back since ancient period there was covalent bonding between natural components and human beings. Not only it was unbreakable relationship but it was mutual communication and co-operation with each other. This was possible only because nature was considered as mother. Among all the powers such as physical, mental, social, the emotional power, emotional power is considered greatest. Emotions are pathway through which one can communicate with others most effective way not only humans but also nature. Hence, in the ancient time i.e. Vedic time, a period of emotional (*samvedana*) wealth, nature was a living entity to all and was treated as mother nourishing inner personality and outer livelihood. However, in the modern time, due to fast and strained work-life, there is a large vacuum of emotional attachment and communication with components of nature such as surroundings, water resources, bird, animals etc (Sharma, S,1988).

Ancient philosophy of emotional attachment with nature and her components has been discarded by our modern educationalist and nature is treated as consumer. Besides the indigenous approach was considering sustainability along with worshiping as it was evidenced that natural resources were utilized as only to fulfill the basic needs (Sharma, S, 1988).

Environmental psychology, as an independent discipline, emerged after 1960s. It aimed to aware human beings regarding the emotional relationship with environment (nature). Before the advent of the 20thcentury, science did not acknowledge the vitality of trees and plants for as a mutual relationship with human until on 10th May 1901: A great Indian biophysicist, Sir Jagdish Chandra Bose proved that plants are like any other life form. He showed that “Each and every plant have emotional characteristics on the basis of which they behave like living organisms as human beings i.e. joy – sorrow, hot – cold, pain – pleasure, a definite life cycle, a reproductive system and awareness of surroundings. On the basis of his research, it was evident that that there was no difference between human beings and plants in life journey” (JC Bose, 1901), (JC Bose, 1906) (Tompkins P & Bird C,1973)

Humans have an innate connection with the Earth. We are born with an invisible umbilical cord that bonds us with the ground beneath our feet. As we grow and get caught up within ourselves, we lose that connection. For most of individuals, it can be said that the connection is not actually lost, but has been ignored.

One of the most powerful sibling occupants are the trees that rise above the earth surface and have roots that dig deep into the ground beneath. This connection of above and below allows the tree to provide the environment in which we live comfortably and it also provides the security of the earth environment.

In a recently published book, the author Matthew Silverstone (2011) showed scientific evidence that trees aids in improving many health state and mental illness such as concentration levels, reaction times, depression, stress and other various forms of. He also pointed out research indicating a tree’s ability to alleviate headaches and provide relief by communing with trees.

In addition, the author pointed to a number of studies that had shown indicating that that when children interacted with plants and trees, there were significant psychological and physiological improvement in health and well being. Specifically, the research indicated that children had better state of cognitively and emotionally in green environments and had more creative outcome in green areas. Also, he quoted a major

public health report that investigated the association between green spaces and mental health, which had concluded that “access to nature can significantly contribute to our mental capital and wellbeing” (Bowler, DE, 2010), (Flowers, EP et al., 2018)

Also Matthew Silverstone (2011) indicated there were indications that trees can provide health benefits for mental illnesses such as Attention Deficit Hyperactivity Disorder and depression. Hugging a tree can increase levels of Oxytocin hormone. This hormone is responsible for feeling calm and emotional bonding. When hugging a tree, the release of hormones serotonin and dopamine can make you feel happier (Eckhaus, E, 2011). In addition, gardening is another method of communicating with nature. Marianne Thorsen Gonzalez, PhD, (2015) indicated “Humans are innately engaged in nature” making gardening an ideal distraction from the rumination that fuels depression. Thus, it is important to communicate with nature to holistically heal ourselves (Pretty J, et al., 2005).

The term Green therapy is identified in a wide range of treatment programs which aim to improve mental and physical wellbeing by performing outdoor activities in nature. Connecting with nature, in this way can have lots of positive health benefits (Yeh, HP et al., 2016) (Bringslimark T, et al., 2009), (Brymer E. et al., 2014), (Jeruslem, JM, 2006), (Greenleaf AT, et al, 2014), (Kam MC, 2010).

Besides, these scientific indication, there is a need of more scientific studies evaluating green life style of being with nature on mental health. Hence, the present research study attempted to understand the relationship between the green environment or green life style and mental health of individuals. The present study assessed mental health and emotional maturity with regard to Green and Non-Green Environment in male and female participants.

Method

Sample

The sample size for the present study comprised of 120 students selected from Dev Sanskriti Viswavidyalaya, Haridwar. Purposive sampling technique was employed. Table 1 showed the distribution of the sample.

Tools

The psychological tools for the present study comprised of two standardized questionnaires selected after a careful and comprehensive review of related literature, namely (1) The Mental Health Scale by Dr. Kamlesh Sharma (MHS) 2002, and (2) The Emotional Stability Scale by Yashvir Singh &Bhargava's Emotional Maturity Scale (EMS) (1999).

Procedure

This research was conducted in Dev Sanskrit Viswavidyalaya , Haridwar, Uttarakhand, India. The sample size for this study comprised of 120 students. Purposively selected 60 students from department of Yoga and Department of Rural Development as Green-environment samples; both of these program included continued outdoor activity near green campus up to minimum 4hr. The Control group was 60 students from department of animation and department of computer science as samples for non-green environment, who routinely continued work in labs up to minimum 4 hr. All the participants were in the resident University campus for at-least 2 years providing the same environment of living lifestyle.

Result

Mental health status between green and non-green environment

Table1. Comparative table of mental health status between green and non-green environment ($|z|=4.74 > z_c=1.65$, one tailed hypothesis).

Variables	Mean value	Sample size (N)	Standard Deviation (σ)	z-value	Level of significance
Green Environment.	69.9	60	12.92	4.739	significant at 0.05
Non-Green Environment.	58.88333	60	12.54		

Table 1 showed that the mean value of group 1, i.e. green environment, and mean of group 2, i.e. non-green environment are 69.9 and 58.88 respectively. Standard deviation (SD) of group 1 and group 2 were 12.92 and 12.54 respectively. Obtained z value is 4.73 and obtained z value was greater than table value which is z = 1.65 at 0.05 level of significance. Therefore, hypothesis was accepted in present research. It showed that obtained difference between mean was significant. Hence, the mental health in green environment was greater than non-green environment.

Also the findings of the present study demonstrated that the obtained "z" value was 4.739, the calculated "z" value was higher than the critical values at significance level 0.05, i.e. (1.65) in case of directional or one tailed. It meat that there was significant mean difference (11.02) between green environment and non-green environment, which confirmed the formulated hypothesis that the Mental Health in Green Environment was greater than Non-Green Environment.

Table 2. Comparative table of mental health status between male of green environment and male of non-green environment. ($|z|=3.063>z_c=1.65$; one tailed hypothesis)

Gender	Mean value	Sample size (N)	Standard Deviation (σ)	z-value	Level of significance
Male (G)	69.73333	30	13.328563	3.063	significant at 0.05
Male (NG)	59.866665	30	11.56312		

The above table showed that the mean value of group 1, i.e. green environment, and mean of group 2, i.e. non-green environment were 69.73 and 59.87 respectively. SD of group 1 and group 2 were 13.32 and 11.56 respectively. Obtained z value was 3.06 and obtained z value was greater

than table value which was z = 1.65 at 0.05 level of significance. Therefore, hypothesis was accepted in present research. It showed that obtained difference between mean was significant. Hence, the mental health of male in green environment is greater than male of non-green environment.

Result also revealed that the obtained "z" value was 3.06. The calculated "z" value was higher than the critical values at significance level 0.05, i.e. (1.65) in case of directional or one tailed. It meant that there was significant mean difference between (9.87) mental Health between females of green environment and non-green environment which confirmed the formulated hypothesis that the Mental Health of female in Green Environment was greater than female of Non-Green Environment.

Table 3. Comparative table of mental health status between female of green environment and female of non-green environment ($|z|=3.604>z_c=1.65$; one tailed hypothesis).

Gender	Mean value	Sample size (N)	Standard Deviation (σ)	z-value	Level of significance
Female (G)	70.06	30	12.516478	3.604	significant at 0.05
Female (NG)	57.9	30	13.575713		

The above table showed that the mean value of group 1, i.e. green environment, and mean of group 2, i.e. non-green environment were 70.06 and 57.9 respectively. SD of group 1 and group 2 were 12.51 and 13.57 respectively. Obtained z value was 3.60 and obtained z value was greater than table value which was z = 1.65 at 0.05 level of significance. Therefore, hypothesis was accepted in present research. It showed that obtained difference between mean was significant. Hence, the mental health of female in green environment was greater than female of non-green environment.

There was also the obtained "z" value is 3.60. The calculated "z" value was higher than the critical values at significance level 0.05, i.e. (1.65). It means that there was significant mean difference (12.16) between emotional maturity between females of green environment and non-green environment which confirmed the formulated hypothesis that the Emotional Maturity of female in Green Environment was greater than female of Non-Green Environment.

Emotional maturity level between green and non-green environment.

Table 4. Comparative table of emotional maturity level between green and non-green environment ($|z|=4.45>z_c=1.65$; one tailed hypothesis).

Variables	Mean value	Sample size (N)	Standard Deviation (σ)	z-value	Level of significance
Green Environment.	110.15	60	32.52578	4.449	significant at 0.05
Non-Green Environment.	144.85	60	50.913296		

The above table showed that the mean value of group 1, i.e. green environment, and mean of group 2, i.e. non-green environment, are 110.15 and 144.85 respectively. SD of group 1 and group 2 were 32.52 and 50.91 respectively. Obtained z value was 4.45 and obtained z value was greater than table value which was z = 1.65 at 0.05 level of significance. Therefore, hypothesis was accepted in present research. It showed that obtained difference between mean was significant. Hence, the emotional maturity in green environment was greater than non-green environment.

There was also the obtained "z" value was 4.449. The calculated "z" value was higher than the critical values at significance level 0.05, i.e. (1.65). It meant that there was significant mean difference (34.7) between of emotional maturity of green environment and non-green environment which confirmed the formulated hypothesis that the Emotional Maturity in Green Environment was greater than Non-Green Environment.

Table 5. Comparative table of emotional maturity level between male of green environment and male of non-green environment ($|z|=1.50 <z_c=1.65$; one tailed hypothesis)

Gender	Mean value	Sample size (N)	Standard Deviation (σ)	z-value	Level of significance
Male (G)	121.0	30	34.305927	1.50	Not significant at 0.05
Male (NG)	138.07	30	51.92		

The above table showed that the mean value of group 1, i.e. green environment, and mean of group 2, i.e. non-green environment were 121.0 and 138.07 respectively. SD of group 1 and group 2 were 34.30 and 51.92 respectively. Obtained z value was 1.50 and obtained z value was less than

table value which was z = 1.65 at 0.05 level of significance. Since, the mean value was more in green environment; therefore, hypothesis was accepted in present research. It showed that obtained difference between mean was significant. Hence, the emotional maturity of male in green environment is greater than male of non-green environment.

Result also revealed that the obtained "z" value was 1.50. The calculated "z" value was less than the critical values at significance level 0.05, i.e. (1.65). But mean of green environment was more, It meant that there was significant mean difference (17.07) between mental health between males of green environment and non-green environment.

Table 6. Comparative table of emotional maturity level between female of green environment and female of non-green environment ($|z|=4.51 > z_c=1.65$; one tailed hypothesis)

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Gender	Mean value	Sample size (N)	Standard Deviation (σ)	z-value	Level of significance
Female (G)	99.3	30	27.05	4.51	significant at 0.05
Female (NG)	148.1	30	52.732475		

The above table showed that the mean value of group 1, i.e. green environment, and mean of group 2, i.e. non-green environment were 99.3 and 148.1 respectively. SD of group 1 and group 2 were 27.05 and 52.73 respectively. Obtained z value was 4.51 and obtained z value was greater than table value which was z = 1.65 at 0.05 level of significance. Therefore, hypothesis was accepted in present research. It showed that obtained difference between mean was significant. Hence, the emotional maturity of female in green environment was greater than female of non-green environment.

There was also the obtained "z" value was 4.51. The calculated "z" value was higher than the critical values at significance level 0.05, i.e. (1.65). It meant that there was significant mean difference (48.8) between emotional maturity between females of green environment and non-green environment which confirmed the formulated hypothesis that the Emotional Maturity of female in Non-Green Environment was greater than female of Non-Green Environment.

Table 7. Correlation of the emotional maturity and mental health between green environment group and non-green environment group.

Sr no.	Variables	(N)	Correlation (r)
1.	Mental health	60	0.43
2.	Emotional maturity	60	

The results obtained weak correlation between emotional maturity and mental health. It was 0.43 positive correlations between emotional maturity and mental health. It meant emotional maturity could decrease when mental health decreased and emotional maturity would increase when mental health increased.

Discussion

Our research indicated that participants from green and non environment showed a significant difference in mental and emotional health (Table 1-6). Green environment group contained participant-students from the programs, whom daily had minimum 4 hours of contact with nature in form of outdoor activity in the farm or in the campus full of lush green environment. While, the participant-students from non-green environment were from the programs where there were had contact of minimum 4 hours of computer-digital environment. The study is very significant in terms of adoptability and compulsive work-lifestyle of digital environment emerging in the present time around the globe. The present study indicated the need of contact of nature for mental and emotional health. Though, large number of sampling is needed to imply the results to the mass appealing governmental bodies and business community to adopt or to provide possible green environment, the study is a good scientific study providing a basis for it.

Many theories indicated the possible benefit obtained from the communication with nature. One research experiment showed that drinking of a glass of water treated with a '10Hz vibration' changed blood coagulation rate of person implying importance of vibration; in the similar line of concept, the vibration theory can also be applied with trees; by touching a tree, it can provide different vibration pattern possibly affecting various biological behaviors within our body.

The Taoist master Mantak Chia (2006) was noted to teach his students to meditate with trees, as a way of release 'negative energies'. He explained that trees were natural processors that could help one transform body's negative energy into positive energy also known as vital life force and thus tree facilitate mental and emotional healing.

Dipankar kumar, Graduate Student, Department of Psychology, Dev Sanskriti University, Haridwar, India
Email – kdipankar02@gmail.com

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