Research Paper

Nature Heals: The Relationship of Nature-Connectedness with Subjective Happiness and Resilience

Vinita Ghosh[1]*, Raaya Alee[2]

ABSTRACT

Empirical research has proven that being connected to nature can have several psychological and physical benefits for human beings. Some of the most commonly discussed benefits include improvements in affect and well-being. However, a review of the available literature shows that this area remains relatively unexplored in the Indian context when compared with the West. Furthermore, several existing studies in this area have made use of qualitative data which is dependent, to an extent, on the interpretation of the researchers. Keeping in mind the benefits of connectedness to nature and the prevailing gap in research, the present study focused on making use of quantitative data in trying to find out whether there exists any relationship between connectedness to nature and subjective happiness and also between connectedness to nature and resilience in individuals living in India. Data was collected from 131 respondents on the Connectedness to Nature Scale (CNS), the Subjective Happiness Scale (SHS), and the Brief Resilience Scale (BRS) using snowball sampling. The data was analysed and correlated using Pearson's product moment correlation. Results showed the existence of a positive correlation between connectedness to nature and subjective happiness as well as between connectedness to nature and resilience, significant at the 0.01 level of significance. No significant difference was found between the mean scores of males and females. Future research should focus on developing a greater number of nature-based interventions and their implementation to benefit the community at large.

Nature is of paramount importance to the human race to survive and thrive. The natural world has provided humans with abundant resources to survive, adapt and flourish in their lives. Ulrich et al. (1991, as cited in Carr, 2004), reported that humans experience greater positive emotions in geographical locations where there is vegetation, water and panoramic views. The importance of nature extends from providing valuable resources for a sustainable life to regulating our overall health. According to Robbins (2020), nature is not only nice to have but is a must have for efficient physical and cognitive functioning. Evidence regarding the positive effects of nature connectedness to

---

[1]MA Applied Psychology, Department of Psychology (Applied Psychology Unit), University of Delhi, New Delhi

[2]MA Applied Psychology, Department of Applied Psychology, University of Calcutta, Kolkata

*Corresponding Author

well-being is so strong that it has led researchers to argue that it is a basic psychological need (Baxter & Pelletier, 2019; Hurly & Walker, 2019, as cited in Richardson et al., 2020). This research aims to study whether any relationship exists between connectedness to nature and subjective happiness, and connectedness to nature and resilience.

Resilience as a topic of research has gained prominence from the middle of the 20th century. It has been understood as the ability to "bounce back" or recover from stress (Smith et al., 2008). Masten and Reed (2002, as cited in Snyder & Lopez, 2007) described resilience as a class of phenomena that is characterised by patterns of positive adaptation within the context of any significant adversity or risk. Resilience is thus, a complex concept and should be differentiated from related concepts such as, "thriving", "adaptation" and "resistance". The term "thriving" refers to the attainment of a superior level of functioning following a stressful event. "Adaptation" refers to the changes made by an individual while adjusting to a new situation and lastly, "resistance" implies the absence of decreased functioning during a period of stress (Smith et al. 2008). According to Everly and colleagues (2011), resilient people often share seven common characteristics, including: calm, innovative and non-dogmatic thinking; acting decisively; tenacity; interpersonal connectedness; honesty; self-control; and optimism, combined with a positive perspective on life (Everly et al., 2011). There has also been increasing interest in the identification of the sources of resilience, much of which has stemmed from studies conducted on samples of children. In this regard, Masten and Reed (2002, as cited in Snyder & Lopez, 2007) found several "individual and environmental attributes" associated with resilience among children and the youth. These protective factors for psychosocial resilience consist of factors within the child, the family and the community. Factors within the child include good cognitive abilities; an easy temperament in infancy; positive self-perceptions and self-efficacy; faith and sense of meaning in life; a positive outlook on life; good self-regulation of emotional arousal and impulses. Those in the family and community include close relationships with adult caregivers; authoritative parenting; a positive family climate combined with low discord, close relationships to competent, pro-social and supportive adults; connections to pro-social and rule-abiding peers; the presence of effective schools; neighbourhoods with high "collective efficacy"; high levels of public safety; good emergency social services; and availability of good healthcare and public health facilities. Studies conducted across the lifespan identified the following sources of resilience: personality traits (including openness, extraversion and agreeableness), an internal locus of control, feelings of mastery, self-efficacy and self-esteem, optimism, and cognitive appraisal (Herrman et al., 2011). Biological and genetic factors can also influence resilience. Biological processes including changes occurring in the brain can affect resilience to adversities by exerting an influence on an individual's capacity to moderate negative emotions (Herrman et al., 2011). Social support in the form of relationships with family members and peers has been found to correlate with resilience (Herrman et al., 2011). Availability of sports and artistic opportunities, spirituality and religion, and a lack of exposure to violence have also been found to contribute to resilience (Herrman et al., 2011).

Happiness has been a topic of interest for researchers for a long time. Modern Western psychology has emphasized on a post-materialistic view of happiness which focuses on pleasure, satisfaction, and meaning of life (Diener et al., 2002, as cited in Snyder and Lopez, 2007). Happiness is a positive emotional state that is subjectively defined by each individual (Snyder and Lopez, 2007). Factor analytic studies of measures of happiness have revealed two components of happiness: affective and cognitive. The affective component, also known as the 'hedonic level' refers to the emotional experience of joy, elation, contentment and

other positive emotions and the cognitive component is an evaluation of satisfaction with various life domains (Andrews and McKennell, 1980, as cited in Carr, 2004). Lyubomirsky and Lepper (1999) have proposed the concept of an overall 'subjective happiness' which combines both the affective and cognitive components, and is a global, subjective assessment of whether one is a happy or an unhappy person. According to Diener (1994, as cited in Lyubomirsky and Lepper, 1999), this measure reflects a broader category of wellbeing and assists in understanding the global psychological phenomena of happiness. According to Carr (2004), happy people are optimistic, creative, extroverted, have a sense of personal control and like themselves. They tend to have a spiritual foundation and try to achieve a proper work-life balance.

The past decades have seen an increased amount of research on happiness and its sources. According to the trait theories of personality, several personality trait profiles like extraversion, optimism and higher levels of self-esteem are associated with happiness (Carr, 2004). However, the correlation between happiness and personality traits are not universal because cultural factors play a role in determining the kinds of personality traits associated with happiness (Triandis, 2000, as cited in Carr, 2004). Genetics also play an important role in determining happiness because multiple genes determine temperamental characteristics, which further interact with the environmental forces to give rise to personality traits (Carr, 2004). Peaceful cultural and socio-political conditions promote happiness (Triandis, 2000, as cited in Carr, 2004). Stable democracies devoid of authoritative oppression and war report higher levels of subjective wellbeing (Carr, 2004). Forming close relationships positively correlates with happiness and subjective well-being (Argyle, 2001, as cited in Carr, 2004). According to Myers (2000, as cited in Carr, 2004), married people report higher levels of happiness than unmarried people. This kind of social support facilitates well-being since the evolutionary perspective states, that humans are 'hard-wired' to derive happiness from contact with their kinship network (Argyle, 2001, as cited in Carr, 2004). Meditation and religious activity are associated with better personal well-being (Carr, 2004). According to Carr (2004), subjective ratings of personal health correlate with happiness. Long term increase in happiness is associated with exercise because regular exercise reduces depression, anxiety, improves our self-concepts, and leads to better functioning. Employment status, goal-directed activity and skill usage are positively correlated to happiness (Carr, 2004). According to Diener et al. (1999, as cited in Carr, 2004), the correlation between job satisfaction and happiness is 0.4. The same researchers also stated that education is positively correlated to happiness and happiness levels are increased if people achieve highly valued goals. Recreation, relaxation and good food have short term effects on enhancing happiness (Carr, 2004).

Connectedness to nature is the extent to which an individual feels emotionally connected to the natural world (Mayer and Frantz, 2004). According to Zylstra et al., (2014 as cited in Barrera-Hernández et al., 2020), connectedness to nature is a stable state including the cognitive, affective, and experiential symbiotic traits which reflect sustained awareness of the interrelation between oneself and the rest of nature, through consistent attitudes and behaviours. They believe that this interrelation occurs as a continuum, including information, as well as experience. Thus, it is evident that nature-connectedness or "oneness with nature" is not just about being exposed to nature; rather, it involves being attuned to one's surroundings and understanding one's relationship to those natural surroundings. Connectedness to nature is very beneficial for humans. It has been found to have positive effects on well-being, happiness and health (Nisbet &Zelenski, 2013, as cited in Barrera-Hernández et al., 2020). According to Carr (2004), strong positive emotions are elicited in

the presence of nature and evolutionary factors contribute to preferences towards the natural environment (Buss, 2000, as cited in Carr, 2004).

Kaplan's Attention Restoration Theory (1995 as cited in Koay and Dillon, 2020), states that humans have a predisposition to respond positively to natural environments than urban environments due to the cognitive restorative effect. According to Alcock et al. (2014, as cited in Koay and Dillon, 2020), adults who shifted to greener residential areas experienced greater well-being, supporting the restorative effects of the natural environment. The Psycho-physiological stress reduction framework (Ulrich, 1983, as cited in Koey and Dillon, 2020), states that exposure to the natural environment can aid in stress reduction by reducing negative affect and enhancing positive emotions. According to Hartig et al. (1996, as cited in Koay and Dillon, 2020), landscapes filled with natural elements promote pleasure and calmness, and facilitate restoration from stress. A study conducted by Berman et al. (2005, as cited in Koay and Dillon, 2020), reported that exposure to natural environments and connection to nature promotes affective well-being, and enhances happiness. Horticultural activities, such as gardening, improve well-being and self-esteem (Gauvin and Spence, 1996, as cited in Koay and Dillon, 2020). Armstrong (2000, as cited in Koay and Dillon, 2020) has stated that community gardening helps in strengthening social resilience. Masten and Reed (2002, as cited in Snyder and Lopez, 2007), found that natural areas improved sustained attention and promoted the development of supportive relationships, which are an important protective factor for resilience. Children who experienced a connection to nature by greenery in their schoolyards and gardens were found to experience feelings of relaxation, peace and calmness as well as opportunities to feel competent and develop supportive social relationships, which are important protective factors for resilience (Chawla, 2014, as cited in Childhood by Nature, 2020). Moreover, simply being close to green areas can significantly increase an individual's emotional well-being and resilience (Buchecker & Degenhardt, 2015, as cited in Childhood by Nature, 2020).

Researchers in several fields have been studying the effects of nature connectedness for over two decades and much has been learnt in this regard, however, there still exists a need for more research and exploration. The present study has been undertaken as an attempt to contribute towards filling this gap in research. Further, the drive for urbanization has been found to result in the transformation of cities into 'concrete jungles' with several areas becoming practically devoid of any vegetation. Urban dwellers in several areas are thus, moving further away from nature. The researchers hope to be able to demonstrate some benefits of connectedness to nature for mental health in this study and, in this manner, encourage people to reconnect with nature. The research hypotheses for this study are:

- Hypothesis 1: There is a significant relationship between connectedness to nature and subjective happiness.
- Hypothesis 2: There is a significant positive relationship between connectedness to nature and resilience.

METHODOLOGY
Sample
Snowball sampling has been used to select the sample for this study. It is a non-probability sampling method where the researcher identifies potential participants having the required eligibility and the participants, in turn, identify their friends and associates who have the required eligibility for participating in a research study (Singh, 2018). To participate in this research, the participants had to be a minimum of 18 years of age and a citizen of India. The sample consists of 131 participants (55 males and 76 females). 91 participants belong to the

age group of 18-34 years, 25 participants belong to the age group of 35-54 years and 15 participants belong to the age group of 55-68 years. All participants were individuals currently residing in various states of India and had received education till no less than the 12th standard. A sample survey was conducted to collect data from the samples. When the researcher takes a sample from the population to study the prevalence and relationships of psychological variables, the survey is known as a sample survey (Singh, 2018). The survey was administered through Google forms.

Design

A correlational research design has been adopted for this study. A correlational approach is adopted when the researcher collects two or more sets of data from the same sample to determine the relationship between the two subsequent sets of data (Singh, 2018). The relationship between connectedness to nature and subjective happiness and connectedness to nature and resilience were computed by Pearson product-moment correlation. A correlational design is non-experimental in nature and cannot be used for establishing cause and effect relationships among variables (Singh, 2018). Descriptive statistics like mean and standard deviation have also been used to describe the results. The relationship between connectedness to nature and subjective happiness; connectedness to nature and resilience have been studied in this research. None of the variables was manipulated by the researchers. The operational definitions of the 3 variables are stated below -
1. Connectedness to Nature - It is the extent to which an individual feels emotionally connected to the natural world (Mayer and Frantz, 2004).
2. Subjective Happiness - Lyubomirsky and Lepper (1997, as cited in Lyubomirsky &Lepper, 1999) have defined 'subjective happiness' as a global, subjective assessment of whether one is a happy or an unhappy person.
3. Resilience - It is the perceived ability to bounce back or recover from stress (Smith et al., 2008).

Measures

The following scales were administered to the participants.
1. **Connectedness to Nature Scale (CNS) -** This self-report scale was developed by Mayer and Frantz (2004). It consists of 14 items and participants are to respond using a 5-point scale (1 = strongly disagree, 5 = strongly agree). The items of the scale aim to measure an individual's affective and experiential connection to nature (Mayer & Frantz, 2004). The developers of the scale also tested its psychometric properties: reliability was tested using the test-retest method (coefficient ranged from 0.82 to 0.84) and validity was established by correlating the CNS with the New Environmental Paradigm (NEP) (producing a coefficient of 0.52) and three lifestyle indices all of which were significant (Mayer & Frantz, 2004).
2. **Subjective Happiness Scale (SHS) –** This scale, developed by Lyubomirsky & Lepper (1997, as cited in Lyubomirsky & Lepper, 1999), is a 4-item self-report measure to assess the overall happiness of an individual based on their subjective evaluation. Participants are supposed to use a 7-point Likert-type scale while responding to items and scores range from 1 (lowest) to 7 (highest) with higher scores indicating greater happiness (Lyubomirsky & Lepper, 1999). The SHS is a valid and reliable scale. The internal consistency of the scale was measured using Cronbach's alpha, (values for the 4 items ranged between 0.79 and 0.84) (Lyubomirsky &Lepper, 1999). The reliability was measured using the test-retest reliability method (values ranged from 0.55 to 0.99 over an interval from three weeks to one year). The validity was assessed by finding the convergent validity

(values ranged from 0.52 to 0.72 between the SHS and other happiness measures; correlations with related constructs of self-esteem, optimism ranged between 0.36 to 0.60) and the discordant validity (Lyubomirsky & Lepper, 1999). The test developers also examined the correlation between self-reports and other reports as a method of checking the validity of the scale. They found a substantial agreement between self-other ratings on this scale (ranging from 0.41 to 0.66) (Lyubomirsky & Lepper, 1999).

3. **Brief Resilience Scale (BRS)** – This scale, developed by Smith, Dalen, Wiggins, Tooley, Christopher and Bernard (2008), consists of 6 items that aim to assess resilience among respondents as the ability to bounce back from stress. Participants are required to respond to items using a 5-point Likert-type scale (1 = strongly disagree; 5 = strongly agree). The BRS has good internal consistency (Cronbach's alpha ranging from 0.80 to 0.91) (Smith et al, 2008). The reliability was calculated using the test-retest method and ranged from 0.69 (for one month) to 0.62 (for three months) (Smith et al, 2008). Convergent validity was assessed through correlations between the BRS and personal characteristics, social relations, coping and health outcomes. Positive correlations were found with the resilience measures, optimism, purpose in life, social support, active coping and positive re-framing, and health outcomes such as positive affect, and exercise days per week.

All 3 scales are suitable for use with adults.

Procedure

A Google form was first created combining certain basic demographic questions and the items of the Connectedness to Nature Scale, Subjective Happiness Scale and Brief Resilience Scale. A cover letter was also prepared by the researchers to explain the purpose of the research and other details, as well as the requirements for participation. The link to this form was then shared with prospective respondents along with a message asking them to share it further. Those who agreed to participate filled out the survey and their responses were recorded. Later, these responses were scored and analysed statistically. Statistical analysis was done through SPSS version 20. Interpretations were drawn based on the statistical analysis. The limitations of this study and the scope for further research were also discussed.

RESULTS

The data has been analysed through descriptive and inferential statistics. The results have been divided into 2 parts. The first part deals with the analysis done through descriptive statistics and the second part deals with inferential statistics. The total sample size is 131, with 55 males and 76 females. The sample has been divided into 3 age groups: 18-34 years, 35-54 years and 55-68 years. 69.4% of the sample belongs to the 18-34 years age group, 19% belongs to the 35-54 years age group and 11.4% belongs to the 55-68 years age group. The mean and standard deviation of the CNS, SHS and BRS scores of the present sample are summarized in the table below.

Table 1 Mean and Standard deviation for the CNS, SHS, and BRS scores of the sample

Scale	Sample Size (N)	Mean Score	Standard Deviation
CNS	131	3.97	0.49
SHS	131	4.93	1.07
BRS	131	3.24	0.74

The average range for CNS scores is 3.01- 4.29. The average range for SHS scores is 4.5-5.5. The average range for BRS scores is 3- 4.3. From table 1, it can be said that the mean scores of all the 3 scales fall within the average range for the present sample.

The comparison between the mean scores of the CNS, SHS and BRS scales between males and females of the present sample are summarised in the table given below.

Table 2Comparison of the mean CNS, SHS, and BRS scores between males and females

Mean Score	Males (N-55)	Female (N-76)
CNS	3.98	3.96
SHS	4.98	4.94
BRS	3.29	3.20

From table 2, it can be said that there are no major differences between the mean scores of males and females. Thus, males and females have similar levels of connectedness to nature, subjective happiness and resilience.

The comparison between the mean scores of the CNS, SHS, and BRS scales for the 3 age groups are summarised in the bar graph given below.

Figure 1 A comparative chart for the mean CNS, SHS and BRS scores of the 3 age groups
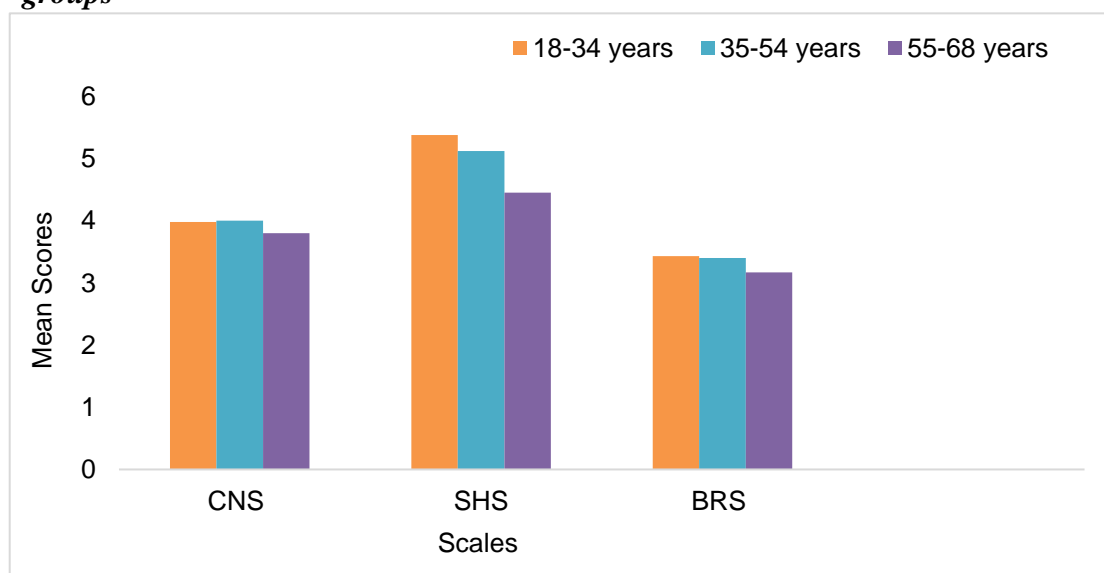
From figure 1, it can be said that the mean CNS scores for the 3 age groups are similar, with the mean of the 55-68 years group being slightly less, which denotes that they are a little less connected to nature than the other 2 groups. The age group of 55-68 years appears to be the least happy out of the 3 groups. The BRS mean scores of the 3 groups are mostly the same, with the score of 55-68 years age group being slightly less, which denotes that the resilience of this group is slightly less.

Hypothesis 1 was tested by computing the Pearson's product-moment correlation coefficient between the CNS and the SHS scores of the samples. For the computation of parametric statistics such as Pearson's product-moment correlation coefficient, the population from which the sample has been drawn should be normally distributed. The Central Limit Theorem states that the sampling distribution of the mean can be treated as though it were

normally distributed provided that the sample size is reasonably large (King, Rosopa & Minium, 2011). A two-tailed Pearson's product-moment coefficient test was conducted to examine the relationship between the 2 variables. The results are summarized in the table given below.

Table 3A chart summarizing the correlation coefficient and other significant values

Scale	Sample Size (N)	Correlation coefficient (r)	P-value
CNS	131		
SHS	131	0.33	0.000

From table 3, it can be inferred that a significant positive relationship exists between connected to nature and subjective happiness (r= 0.33, p<0.001). Thus, hypothesis 1, stating, 'There is a significant relationship between connectedness to nature and subjective happiness' has been accepted at 0.001 level of significance.

Hypothesis 2 was tested by computing the Pearson's product-moment correlation coefficient between the CNS and BRS scores of the sample. Once again, the relationship between the 2 variables (connectedness to nature and resilience) was examined using a two-tailed Pearson's product-moment coefficient test. Table 4 presents a summary of the results.

Table 4 Summary of the correlation coefficient of CNS and BRS scores and other significant values

Scale	Sample Size (N)	Correlation coefficient (r)	P-value
CNS	131		
BRS	131	0.33	0.000

From table 4, it can be inferred that a significant positive relationship exists between connected to nature and resilience (r = 0.33, p<0.001). Thus, hypothesis 2, stating, 'There is a significant relationship between connectedness to nature and resilience has been accepted at 0.001 level of significance.

DISCUSSION

As per the results of the statistical analysis, it can be concluded that the mean CNS, SHS and BRS scores of the current sample fall within the average range and the mean scores of the 3 scales are similar for both, males and females. The mean scores of CNS, SHS and BRS are mostly similar for the 18-34 and 35-54 years age group and a bit lower for the 55-68 years age group.

The present study found a significant relationship between connectedness to nature and subjective happiness and also between connectedness to nature and resilience among adults. Further, statistical analyses of these relationships yielded correlation coefficients of a positive value; thus, contributing to the conclusion that both these relationships are significant and positive. In other words, the findings of this study suggest that individuals who are more connected to nature would also be expected to report higher subjective happiness and resilience levels. Similarly, those who are less connected to nature would be expected to report lower levels of subjective happiness and resilience, respectively. These findings are consistent with prior research conducted in this area.

Studies have shown that time spent in nature has a positive correlation with happiness (Chang et al., 2020). A study by Berman, Jonides, & Kaplan (2008, as cited in Roychowdhury, 2019), has shown that spending time in nature improves emotional regulation and enhances cognitive functioning. Nature walks benefit people suffering from depression and promotes mood upliftment (Berman et al., 2012, as cited in Roychowdhury, 2019). Similarly, a study by Ingulli and Lindbloom (2013) found a moderately positive correlation between an individual's experience of connection to the natural world and their perceived psychological resilience. Exposure to natural environments can promote recovery from stress (Hartig et al., 2003, as cited in Capaldi et al., 2015). A study by Stuart (2005, as cited in Marselle et al., 2019) found that gardening reduced feelings of stress, negative affect and depression among female victims of domestic violence while increasing feelings of relaxation and empowerment. Nature walks have been found to have a significant positive correlation with coping processes among individuals who have been affected by stressful life events (Ottosson & Grahn, 2008, as cited in Marselle et al., 2019). The more frequently such contact with nature occurs, the better its effects on an individual's level of resilience (Marselle et al., 2019).

The authors would like to mention that even though connectedness to nature has a significant and positive correlation with subjective happiness and resilience, certain other factors are also capable of contributing in an equal manner to the level of an individual's overall life satisfaction (Mayer & Frantz, 2004). These factors include marriage (r=.14, reported by Haring-Hidore, Stock, Okun & Witter, 1985, as cited in Mayer & Frantz, 2004), and education (r=.13, reported by Witter, Okun, Stock & Haring, 1984, as cited in Mayer & Frantz, 2004). The review of literature also suggests that there are multiple sources of happiness and resilience. The levels of happiness and resilience in one's life are an amalgamation of the different sources.

Limitations and Scope of future research
This study has some limitations. Data has been collected using a non-probability sampling method (i.e., snowball sampling). This means that the sample was not randomly drawn but dependent on the respondents originally selected by the researchers. Hence, the sample was not completely representative of the population and this can affect the generalizability of the results. Further, it might have happened that some respondents decided to participate in the study because they already felt a connection to nature and were curious about the study, thus, increasing the possibility of occurrence of bias. Only those individuals who are literate and fluent in the English language could participate in this study as the instructions and questions of the survey were written entirely in English. Moreover, only individuals having access to the internet could participate in the study since data collection was done using Google forms. Lastly, this study followed a correlational design, and thus, could only reveal the existing relationships between the variables under consideration. It does not provide any conclusive reason for the existence of the relationship between connectedness to nature and subjective happiness or connectedness to nature and resilience; nor does it state that changes in either variable is responsible for changes in the other variable.

Future researches can focus on planning nature-based interventions to promote mental wellbeing. For example, Robbins (2020) has promoted the concept of 'park deserts' in urban areas to promote access to green space. The concept of Forest schools, where learning takes place in the lap of nature has taken precedence in Scandinavia and the United States (Louv, 2012, as cited in Robbins, 2020). The Association of Nature and Forest Therapy Guides promotes the use of nature-guided therapy and horticultural therapy for alleviating mental

health related problems (Robbins, 2020). Forest Bathing (Shinrin-yoku), Adventure and wilderness therapy and rehabilitation gardens are a popular way of spending time in nature and are proven to stimulate emotional regulation (Roychowdury, 2019). The construction of a sensory garden in Thane (Maharashtra) has revolutionized the education of children with special needs (Taneja, 2017). The Rotary Sensory Garden, in Pune, has proved beneficial for autistic children and its unique planning and conceptualisation aims at stimulating the 5 sense organs of the visitors (Murthy, 2016). Researches on similar interventions should be encouraged so that everyone can benefit from the immense healing properties offered by nature.

CONCLUSION

From this study, it can be concluded that a positive correlation exists between connectedness to nature and subjective happiness and connectedness to nature and resilience. Being connected to nature and adequate exposure to the natural environment is positively related to happiness and resilience. Apart from these 2 factors, other sources like marriage, education, personality traits and so on affect the levels of subjective happiness and resilience. Thus, connectedness to nature is not the sole predictor of subjective happiness and resilience. Since this study is correlational in nature, no cause-and-effect relationship between connectedness to nature and subjective happiness or connectedness to nature and resilience could be drawn. Further researches on implementing nature-based interventions should be encouraged so that the healing properties of nature can be utilized.

REFERENCES

Barrera-Hernández, L. F., Sotelo-Castillo, M. A., Echeverría-Castro, S. B., & Tapia-Fonllem, C. O. (2020). Connectedness to Nature: Its Impact on Sustainable Behaviors and Happiness in Children. *Frontiers in Psychology*, *11*. https://doi.org/10.3389/fpsyg.2020.00276

Capaldi, C.A., Passmore, H., Nisbet, E.K., Zelenski, J.M., & Dopko, R.L. (2015). Flourishing in nature: A review of the benefits of connecting with nature and its application as a wellbeing intervention. *International Journal of Wellbeing, 5*, 1-16.

Carr, A. (2011). *Positive psychology: the science of happiness and human strengths*. Routledge.

Chang, C., Cheng, G. J. Y., Nghiem, T. P. L., Song, X. P., Oh, R. R. Y., Richards, D. R., & Carrasco, L. R. (2020). Social media, nature, and life satisfaction: global evidence of the biophilia hypothesis. *Scientific Reports*, *10*(1). https://doi.org/10.1038/s41598-020-60902-w

Childhood By Nature. (2020). *Raising Resilient Kids with Nature*. Childhood by Nature. https://childhoodbynature.com/raising-resilient-kids-with-nature/

Everly, G. S., McCormack, D. K., & Strouse, D. A. (2011). Characteristics of Highly Resilient People and Systems: Insights from Navy Seals to the "Greatest Generation." *International Journal of Emergency Mental Health*, *14*(2), 137–143. https://doi.org/10.2139/ssrn.2118985

Herrman, H., Stewart, D. E., Diaz-Granados, N., Berger, E. L., Jackson, B., & Yuen, T. (2011). What is Resilience? *The Canadian Journal of Psychiatry*, *56*(5), 258–265. https://doi.org/10.1177/070674371105600504

Ingulli, K., & Lindbloom, G. (2013). Connection to Nature and Psychological Resilience. *Ecopsychology*, *5*(1), 52–55. https://doi.org/10.1089/eco.2012.0042

Jordan, M. (2015). *Nature and therapy: understanding counselling and psychotherapy in outdoor spaces*. Routledge.

King, B. M., Rosopa, P., & Minium, E. W. (2018). *Statistical reasoning in the behavioral sciences*. John Wiley & Sons, Inc.

Koay, W. I., & Dillon, D. (2020). Community Gardening: Stress, Well-Being, and Resilience Potentials. *International Journal of Environmental Research and Public Health*, *17*(18), 6740. https://doi.org/10.3390/ijerph17186740

Krishna, R. M. (2013, March 28). *The Pursuit of Happiness: Characteristics of Happy People*. Psych Central; Psych Central. https://psychcentral.com/blog/the-pursuit-of-happiness-characteristics-of-happy-people#1

Lyubomirsky, S., & Lepper, H. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research, 46,* 137-155.

Marselle, M., Warber, S., & Irvine, K. (2019). Growing Resilience through Interaction with Nature: Can Group Walks in Nature Buffer the Effects of Stressful Life Events on Mental Health? *International Journal of Environmental Research and Public Health*, *16*(6), 986. https://doi.org/10.3390/ijerph16060986

Mayer, F. Stephan., & Frantz, C. M. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of Environmental Psychology*, *24*(4), 503–515. https://doi.org/10.1016/j.jenvp.2004.10.001

Murthy, N. (2016). *Five patches of sensory gardens to up the mojo of all senses...* The New Indian Express; The New Indian Express. https://www.newindianexpress.com/lifestyle/health/2016/oct/12/up-your-mojo-with-5-patches-1527031.html

Richardson, M., Dobson, J., Abson, D. J., Lumber, R., Hunt, A., Young, R., & Moorhouse, B. (2020). Applying the pathways to nature connectedness at a societal scale: a leverage points perspective. *Ecosystems and People*, *16*(1), 387–401. https://doi.org/10.1080/26395916.2020.1844296

Robbins, J. (2020). *Ecopsychology: How Immersion in Nature Benefits Your Health*. Yale Environment 360. https://e360.yale.edu/features/ecopsychology-how-immersion-in-nature-benefits-your-health

Roychowdhury, M. (2019). *The Positive Effects of Nature on Your Mental Well-Being*. PositivePsychology.com. https://positivepsychology.com/positive-effects-of-nature/

Sariçam, H. (2015). Subjective happiness and hope. Universitas Psychologica, 14(2), 685-694. http://dx.doi.org.10.11144/Javeriana. upsy14-1.shah

Singh, A. K. (1986). *Tests, measurements and research methods in behavioural sciences*. Tata Mcgraw-Hill.

Smith, B. W., Dalen, J., Wiggins, K., & Bernard, J. (2008, February). *The Brief Resilience Scale: Assessing the Ability to Bounce Back*. ResearchGate; Springer Verlag. https://www.researchgate.net/publication/23164897_The_Brief_Resilience_Scale_Assessing_the_Ability_to_Bounce_Back

Snyder, C. R., & Lopez, S. J. (2019). *Positive psychology: the scientific and practical explorations of human strengths*. Sage Publications, Inc.

Taneja, R. (2017). *This Sensory Garden Helps Special Children Learn While They Have Fun-Everylifecounts.NDTV.com*.Everylifecounts.NDTV.com.https://everylifecounts.ndtv.com/sensory-garden-making-special-children-learn-fun-11998