

Relation of nature and environment with pleasant emotions of humans in daily life

Mahsa Abdi Bastami¹, Mana Hosseini Bay², Afsoun Seddighi³

¹ Department of Architecture Engineering, Qazvin Azad University of architecture, Qazvin, Iran

² Biotechnology, Islamic Azad University, Science and Research Branch, Tehran, Iran

³ Shohada Tajrish Neurosurgical Center of Excellence, Functional Neurosurgery Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

ABSTRACT

Happy feeling has essential role in life of human beings during the generations. People always try to pass their life with satisfactions and happiness and to be adopted themselves. On this base we have done two different statistical analyses. At first we studied different relational samples with nature and happiness indicators in 250 ordinary people (community) through social network applications. In second case we studied mentality relations in other statistical community with 200 people to assess anticipate of general happiness relations. The results of two surveys showed that environmental relations can be a way for ensuring happiness and healthiness of humans beside endurance of environment.

Keywords: Architecture, Mental, Emotion, Happiness

ICNSJ 2016; 3 (1) :32-38

www.journals.sbmu.ac.ir/neuroscience

Correspondence to: Afsoun Seddighi, MD, Associate Professor of Neurosurgery, Functional Neurosurgery Research Center, Shohada Tajrish Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran; Mobile: +98(912)1852917; E-Mail: afsoun.seddighi@sbmu.ac.ir

INTRODUCTION

Natural environment had a wonderful effect on mind and soul of human beings. Environment make the life fresher and relation with it can play a significant role in healthiness pleasant emotion of humans¹. Actually, as environment and mentality relation with it has great effects on pleasant emotions of people, humans try to stay in the direction of its stability².

On the contrary damaging on environment cause to irreparable losses on the humans. Human being got their psychological, physical healthiness³, and also variety of benefits during history from natural environment. In fact, having close relationship with natural environment for mental health has been effective for making them relax^{4,1}.

The relation with natural environment consist of many profits, the same as that surfing in nature cause to more positive feelings. However, thinking and focusing on natural environment lead to experience of happier feelings for soul and mind of humans. Plenty using from

image of nature in urban spaces increases vitality of spirit.

Given the mutual connection with nature cause to that benefits, although can be effective on decline of crime statistics⁵. Making of parks and green spaces in metropolitans has positive effect on healthiness of human and reduces statistics of mortality in community⁶. As much as that relation with nature is common with well-beings⁷, deprivation of nature maybe causes to incompatible functionality. Connection with nature make the personality of humans. People that have feeling of complete and mutual connection and are a component of nature try to preserve and development of nature.

Even being supporters and lover of environment can cause joy for people. So natural connection surely depends on happiness feelings and also mental connection (e.g., friend, family, and even strangers) normally make healthiness and other positive⁸⁻¹⁰.

Although environmental indicators probably increase happy feelings of persons, because mood of persons

depend on other extensive factors, happening of this opinions need to study of more cases¹¹⁻¹⁴.

Joy, happiness or even positive feelings is a mental state that person feels: Love, pleasure and delight. Recent researches of scientist prove that happy feeling lead to intensifying of nervous system of humans. Actually with delighted spirit more than others in terms of nervous system are health and they with their positive views that have. Always absorb positive happening in daily life. On the other hand, finally having happy feelings in life is some sense of satisfaction and joy from life, that sometimes this feeling compare with blissful. It seems that satisfaction and environmental behavior are complementary together. It means as much as happy person looking his / her health, also looking or preserve and support of environment. For example, riding bike and walking, for humans and natural environment have mutual benefits¹⁵.

Protection of environment is effort for keeping of health of people and environment. Study concept of nature consist of very large amount of human science. However, that human is a part of nature.

Nature in an extensive meaning is equal to world or natural, physical world. Generally, nature point to physical world and also living on it. Natural transformation like: changing of climate and geology and also substance and energy that all these things has formed often means environment and wild nature.

Transformation is one of the trait of nature. Iranian from ages ago were interested on natural environment, in this regard they have called on day in year “Nature Day”. Even though human activity often studies as different category from other natural phenomenon.

In this survey we are looking for measurement of differences in general connection (an internal feeling from connection among lots of mental sections) and after that determine if mutual connection with nature can be distinct from anticipate of healthiness of people in a community or not. Finally, we have assessed relation of nature and environment with pleasant feeling of human in daily life, that if we controlled natural.

MATERIALS AND METHODS

Well-being questionnaires were the same as in Study 1, but with the CES-D omitted. Participants completed them in the following order: PANAS (Positive Affect $\alpha=0.95$, Negative Affect $\alpha=0.97$, Nature Positive Affects $\alpha=0.87$), SWLS ($\alpha=0.92$), SHS ($\alpha=0.95$), PWBI (Autonomy $\alpha=0.83$, Personal Growth $\alpha=0.96$, Purpose $\alpha=0.83$, and Vitality $\alpha=0.96$)

Connectedness indicators. A variety of established questionnaires assessing subjective connections were combined to form a composite. These were the following:

The nine-item Attachment Styles Questionnaire¹⁶ contains three statements that correspond to each of the three attachment styles: secure, avoidant, and anxious/ambivalent. Participants rate each (e.g., I find it easy to get close to others) as mostly true or mostly false. Although three scales are typically scored, our interest in general sense of connection (rather than specific varieties of disconnection) led us to create a single scale of healthy attachment with secure items scored positively and others negatively ($\alpha=0.69$). (Scoring scales separately did not improve internal consistency; α s were 0.46, 0.62, and 0.52, respectively.)

The Self Construal Scales¹⁷ include an interdependent self-scale ($\alpha=0.82$) that assesses the extent to which people view themselves as part of a broader social context. It is often contrasted with an independent, more autonomous sense of self (which is assessed on another scale omitted from this study). The scale asks participants to rate agreement with statements representing interdependence on a 7-point scale, for example, my happiness depends on the happiness of those around me. Solidarity of nature relatedness and general connectedness

Two samples of online study in social network applications about awareness of mature mind has been used. Sample of ordinary people with ($n=250$) for contributing in this survey got encouragement points. This points were included of discounts carts for recreation, academic and cultural complex centers. Both of two samples with the links that made for social network applications such as: Telegram, WhatsApp, Line to a special website for contributing to our requirement questionnaire that were needed for this survey directed.

In terms of population distribution most of this person were resident of Tehran or have experience of living in one of metropolitans of Iran such as Isfahan, Mashhad. Seventy percent were male and the average of age was 21 years.

Subjective connections

Nature relations were assessed in two ways. First was a 6-item short version of the Nature Relatedness (NR) scale¹⁴.

Participants rate their agreement with statements on a 1- to 5-point Likert-type scale (ordinary people $\alpha=0.88$, community $\alpha=0.87$). The short form NR-6 scale shows a similar pattern of correlations with subjective well-being and environmental variables as the full 21-item scale¹⁴. Four items assess self-identification with nature, a sense

of connectedness that may be reflected in spirituality, awareness, or subjective knowledge about the environment, and feelings of oneness with nature, for example, our relationship to nature is an important part of who I am. Two additional items capture individual differences in the need for nature and comfort with wilderness, as well as awareness of local wildlife or nearby nature, for example, I take notice of wildlife wherever I am. The 6 NR items were embedded in a broader personality questionnaire (Big 5 traits) to avoid highlighting NR as a construct of particular interest. Second, single-item Inclusion of Nature in Self (INS) asks contributors to rate their connectedness with nature by selecting one of seven pairs of circles (each was labeled me or nature) that differ in their degree of overlap. More overlap indicates greater connectedness, and choices are assigned scores from 1 to 7. We further adapted the logic of the inclusion measure to assess other subjective connections. That is, pairs of circles labeled with me, 1 and then my country, culture, family, music, home, and friends assessed these other domains. Although we may be the first to use these particular items or combination of items, IOS measure has been widely adapted and validated in similar domains. For example, Tropp and Wright¹⁸ validated this approach in assessing in-group identifications (e.g., with gender or ethnicity), have used it to study the self over. In most analyses, we used a composite average.

Score across all connections (except nature) to assess general connectedness. Item intercorrelations across both samples ranged from 0.15 to 0.56 (all $p < 0.05$), a combined-sample exploratory factor analysis (principle axis extraction) suggested a single-factor solution that explained 30% of variance, and the six-item connectedness composite had acceptable internal consistency (ordinary people $\alpha = 0.65$, community $\alpha = 0.72$). Happiness indicators. The four-item Subjective Happiness Scale (SHS: ordinary people $\alpha = 0.87$, community $\alpha = 0.89$)

and the five-item Satisfaction with Life Scale (SWLS; ordinary people $\alpha = 0.87$, community $\alpha = 0.91$) asked participants to indicate their happiness and satisfaction on Likert-type scales. An adapted version of the Positive and Negative Affect Schedule (PANAS) contained the standard 10-item Positive Affect (ordinary people $\alpha = 0.87$, community $\alpha = 0.93$) and Negative Affect (ordinary people $\alpha = 0.88$, community $\alpha = 0.87$) scales where trait affect terms were rated on a 5-point Likert-type scale. In addition, we added three items as an ad hoc scale to capture additional pleasant affects distilled from previous theory and research on nature and emotions (in awe, fascinated, curious; ordinary people $\alpha = 0.63$, community $\alpha = 0.78$). To assess well-being from a more eudemonic perspective, we administered the six-item Vitality Scale (; ordinary people $\alpha = 0.91$, community $\alpha = 0.95$) and nine-item versions of the Autonomy (ordinary people $\alpha = 0.78$, community $\alpha = 0.81$), Personal Growth (ordinary people $\alpha = 0.78$, community $\alpha = 0.81$), and Purpose (ordinary people $\alpha = 0.76$, community $\alpha = 0.85$) scales from⁹ Psychological Well-Being Inventory (PWBI). Both used 7-point Likert-type response scales. These three (of six) PWBI scales were selected because they correlated with nature relatedness in past research. Finally, the 20-item Centre for Epidemiological Studies Depression Scale assessed ill-being with 4-point Likert-type rating scales of depression symptoms. Unlike the trait instructions used for all other measures, the CES-D asked participants to consider only the last week (ordinary people $\alpha = 0.70$, community $\alpha = 0.79$).

RESULTS

As expected, the two nature-relatedness indicators correlated strongly with one another ($r = 0.66$ ordinary people sample, $r = 0.64$ community sample). The INS was also moderately associated with the similarly formatted

Table 1. Happiness and Connectedness relations in the ordinary people Sample—Study 1 (n=250).

Scales	α	connection composite	INS	INS2	NR	NR2
SHS	87	37	25	15	13	14
SWLS	87	32	23	13	16	16
NA	88	-21	-10	-02	-03	-02
PA	87	39	25	13	17	18
vitality	91	43	29	16	12	10
nature PA	63	18	23	20	25	24
PWB Growth	78	17	30	27	31	30
PWB Autonomy	77	12	18	12	12	10
PWB Purpose	76	26	18	8	13	11
CES-D	70	-18	-06	2	3	3

Note: SHS=Subjective Happiness Scale; SWLS=Satisfaction with Life Scale; PA=Positive Affect; NA=Negative Affect; Nature PA=Nature Positive Affects; PWB=Psychological Well-Being; CES-D=Center for Epidemiological Studies Depression Scale; INS=Inclusion of Nature in Self; NR=Nature Relatedness Scale

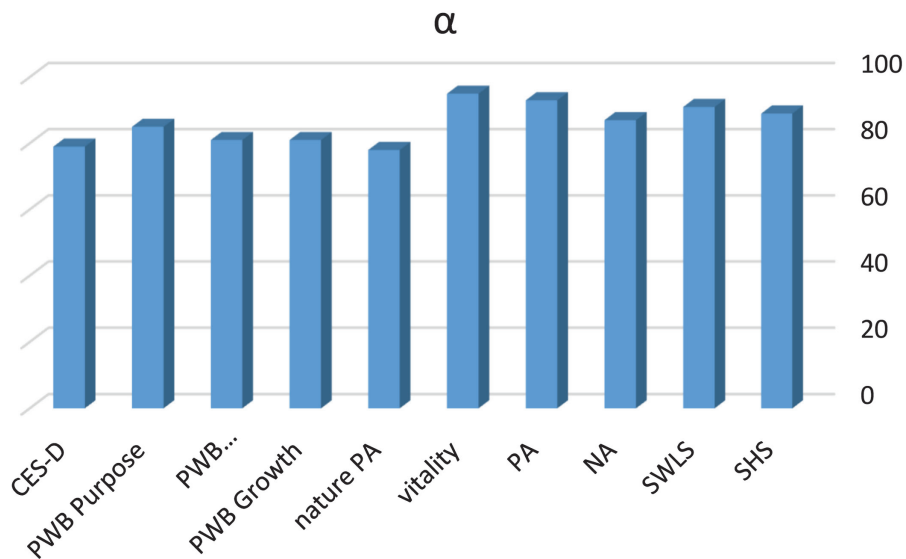


Figure 1. Rank of Happiness and Connectedness scales in the ordinary people Sample—Study 1 (n=250).

connectedness composite ($r=0.38$ ordinary people, $r=0.51$ community), whereas the NR scale was considerably less so ($r=0.07$ ordinary people, $r=0.23$ community).

Tables 1 and 2 contain the correlations between happiness indicators, our general-connectedness composite, and nature-relatedness measures for ordinary people and community samples, respectively. Consistent with expectations, the connectedness composite correlated significantly with all happiness indicators in both samples (r s from 0.13 to 0.46). (Individual connectedness items often correlated with happiness indicators too.) The nature-relatedness measures (NR and INS) were also significantly correlated with most happiness indicators, though often not quite as strongly as the connectedness composite (significant r s from 0.11 to 0.42), particularly in the ordinary people sample. To test our primary research question—whether the link between nature

relatedness and happiness is independent of a generally connected personality—we computed partial correlations between the nature relatedness and happiness indicators, controlling for the general-connectedness composite (Tables 1 and 2). Although correlations were clearly reduced with the control, most of the relationships between nature relatedness and happiness remained significant. Across the various happiness scales, personal growth and pleasant emotions were most strongly correlated with nature relatedness, whereas the negative indicators (depression and negative affect) were less consistently related to nature relatedness, especially after controlling for general connectedness.

Although not reported in detail here, we also took a regression approach to these data by simultaneously entering individual connectedness items in equations predicting happiness indicators (R^2 s ranged from 0.06 to

Table 2. Happiness and Connectedness Correlations in the Community Sample— Study 1 (n=200).

Scales	α	connection composite	INS1	INS2	NR1	NR2
SHS	89	47	35	15	20	12
SWLS	91	43	35	16	17	8
NA	87	-26	-18	-6	-8	-3
PA	93	44	43	30	30	23
vitality	95	45	39	28	28	19
nature PA	78	29	38	29	34	29
PWB Growth	81	31	37	27	35	30
PWB Autonomy	81	26	38	18	26	20
PWB Purpose	85	37	27	12	22	15
CES-D	79	-30	-1.7	-3	-4	2

Note: SHS=Subjective Happiness Scale; SWLS=Satisfaction with Life Scale; PA=Positive Affect; NA=Negative Affect; Nature PA=Nature Positive Affects; PWB=Psychological Well-Being; CES-D=Center for Epidemiological Studies Depression Scale; INS=Inclusion of Nature in Self; NR=Nature Relatedness Scale.

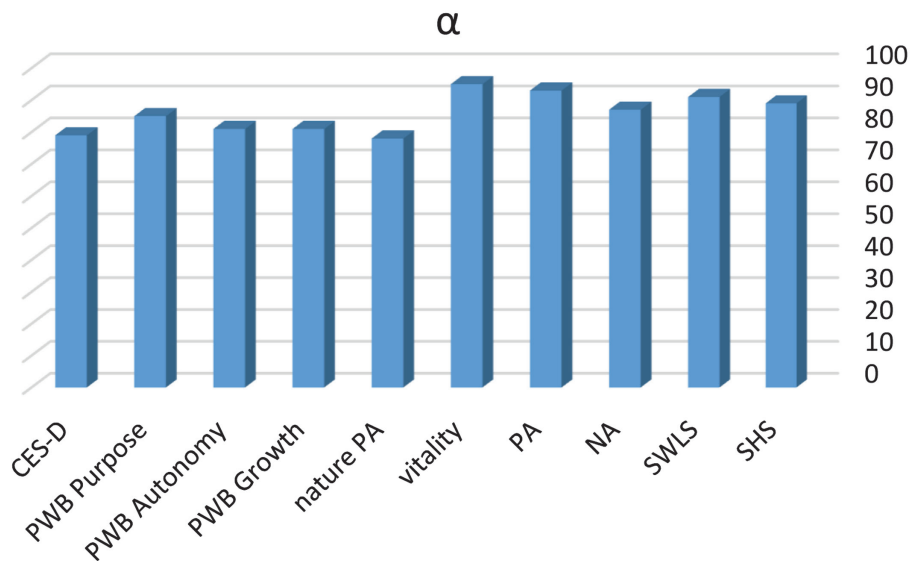


Figure 2. Rank of Happiness and Connectedness scales in the Community Sample—Study 1 (n=200).

0.29).³ Across these equations, the nature connectedness item (INS) was one of the better predictors (though not for the negative indicators, similar to the correlations). Friend, family, and home connectedness also independently predicted happiness in most equations, whereas country, culture, and music were only rarely significant. Finally, a virtually identical pattern emerged when the NR scale was entered in place of the single nature connectedness item

DISCUSSION

The primary goal of this study was to determine whether the association between nature relatedness and happiness is due to a general sense of connectedness or a more specific link with nature. We replicated previous research showing that subjective connectedness (with nature, as well as family, friends, country, etc.) predicts happiness. Importantly, however, nature relatedness remained a significant predictor of most happiness indicators.

Even when controlling for a variety of other connections. Despite some variation, this pattern generally held across two assessment tools (NR and INS), two samples (ordinary people and community), and a variety of happiness indicators. These results suggest that nature relatedness has a distinct happiness benefit; that is, it becomes difficult to dismiss the link as spurious due to content overlap with more established or intuitive subjective connections (e.g., social or cultural ties). Although the relationship between nature relatedness and happiness was fairly strong, variation across samples and indicators deserves some comment. First, the happiness

correlations tended to be stronger in the community sample for general connectedness and nature relatedness. It is not clear which specific difference(s) between the samples accounts for this.

The most obvious, age, seems unlikely given that very little changes when it is controlled in analyses. Highly nature-related people might be less happy than usual because they are more nature deprived (e.g., outdoor life is less abundant; refer to the biophilia hypothesis). However, this does not easily account for why the general-connectedness correlations with happiness were also stronger in the community sample. Both nature relatedness measures correlated with most well-being indicators, but not with the ill-being indicators, suggesting that nature relatedness may play a more beneficial, rather than buffering, role in happiness. In addition, the two nature-relatedness measures had slightly different patterns when comparing the zero-order correlations to the partial correlations. Consequently, the INS had somewhat larger zero-order correlations, but the correlations were also more attenuated when controlling for general connectedness. This is probably due to the fact that the INS is assessed more similarly to the connectedness composite (both use the “circles” format), compared with the NR scale, yet there are a few ways to interpret the finding. Perhaps the assessment method inflates the INS zero-order correlations with happiness indicators because it taps variance due to other connections, and thus, the NR scale better approximates the actual correlation. Alternatively, the connectedness composite control could be viewed as overly conservative

in that any validly overlapping variance is removed.

This is also important to keep in mind when interpreting the magnitude of the partial correlations. Although the size is relatively small, it is nonetheless impressive that nature connectedness remained an independent predictor when controlling for so many other powerful connections (e.g., social bonds are among the best predictors of happiness. Regression analyses further supported this idea as nature relatedness predicted many well-being indicators simultaneously with, or even better than, other connections. (e.g., social bonds are among the best predictors of happiness¹⁵.

The unacceptable and useless data were from participants who answered all questionnaire item without any blank. Although participants were taught, measures showed a group of them whom survey questionnaire which is not legitimize, and the excluded group showed different sign of inexactitude. Iranian participants were at least 25.

In summary, despite a few unexpected findings, nature relatedness remained a significant predictor of happiness (particularly positive affects) even after controlling for other subjective connections across two studies. Such findings suggest that nature relatedness is distinct in producing happiness benefits and bolsters previous suggestions that sustainable behavior and happiness might be simultaneously increased if nature relatedness were facilitated. This, of course, assumes that nature relatedness can cause happiness. Although experimental manipulations with actual nature at the state level^{13,14} and longitudinal studies of trait nature relatedness changes¹⁴ support this causal direction, it is also possible that happiness causes feelings of connectedness or nature relatedness. The cross-sectional design of this study clearly limits causal inferences, and a bidirectional relationship seems plausible. Nonetheless, to the extent that nature relatedness can cause happiness, it might be an important tool in promoting environmentally sustainable behavior. That is, some people might be more persuaded to protect the natural environment by understanding how connecting with nature can contribute to their personal well-being. By spending more time enjoying and connecting with nature, their motivation to protect it might again increase, ultimately supporting a cycle with benefits for people and the environment. Because this study suggests that the nature relatedness link with happiness is genuine (i.e., not accounted for by assessment artifacts or general trait connectedness), it helps further distinguish the construct from other proenvironmental attitudes (that are typically unrelated to happiness). Thus, this research ultimately

supports the idea that cultivating nature relatedness could provide a unique route to increasing human happiness and environmentally sustainable behavior, though further research is clearly needed to confirm these suggestions.

REFERENCES

1. Nisbet EK, Zelenski JM. Underestimating nearby nature: Affective forecasting errors obscure the happy path to sustainability. *Psychological Science*. 2011;22:1101-1106.
2. Aron A, Aron EN, Smollan D. Inclusion of other in the self-scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*. 1992;63:596-612.
3. Weinstein N, Przybylski AK, Ryan RM. Can nature make us more caring? Effects of immersion in nature on intrinsic aspirations and generosity. *Personality and Social Psychology Bulletin*. 2009;35:1315-1329.
4. Mayer SF, Frantz CM, Bruehlman-Senecal E, Dolliver K. Why is nature beneficial? The role of connectedness to nature. *Environment and Behavior*. 2009;41:607-643.
5. Kuo FE, Sullivan WC. Aggression and violence in the inner city: Effects of environment via mental fatigue. *Environment and Behavior*. 2001;33:543-571.
6. Frumkin H. Beyond toxicity: Human health and the natural environment. *American Journal of Preventive Medicine*. 2001;20:234-240.
7. Mitchell R, Popham F. Effect of exposure to natural environment on health inequalities: An observational population study. *Lancet*. 2008;372:1655-1660.
8. Nisbet EK, Zelenski JM, Murphy SA. The nature relatedness scale: Linking individuals' connection with nature to environmental concern and behavior. *Environment and Behavior*. 2009;41:715-740.
9. Kellert SR. *Kinship to mastery: Biophilia in human evolution and development*. Washington, 1997, DC: Island Press.
10. Malone GP, Pillow DR, Osman A. The General Belongingness Scale (GBS): Assessing achieved belongingness. *Personality and Individual Differences*. 2011;52:311-316.
11. Waugh CE, Fredrickson BL. Nice to know you: Positive emotions, self-other overlap, and complex understanding in the formation of new relationships. *Journal of Positive Psychology*. 2006;1:93-106.
12. Dutcher DD, Finley JC, Luloff AE, Buttolph Johnson J. Connectivity with nature as a measure of environmental values. *Environment and Behavior*. 2007;39:474-493.
13. Mayer SF, Frantz CM. The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of Environmental Psychology*. 2004;24:503-515.
14. Nisbet EK, Zelenski JM, Murphy SA. Happiness is in our nature: Exploring nature relatedness as a contributor to subjective well-being. *Journal of Happiness Studies*. 2011;13:303-322.
15. Ryff CD. Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*. 1989;57:1069-1081.

16. Hazan C, Shaver P. Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*. 1987;52:511-524.
17. Singelis TM. The measurement of independent and interdependent self-construals. *Personality and Social Psychology Bulletin*. 1994;20:580-591.
18. Tropp LR, Wright SC. Ingroup identification as inclusion of ingroup in the self. *Personality and Social Psychology Bulletin*. 2001;27:585-600.