Connectedness to nature as a factor influencing self-esteem and body appreciation. The case study of Athens.

E. Moriki
Undergraduate student, Department of Environment, University of Aegean,
Junior Researcher of Research Center of Environmental Communication and Education, Greece
E-mail: env13055@env.aegean.gr

K. Marini
Psychologist - PhD candidate, Department of Environment, University of the Aegean
E-mail: kmarini1@gmail .com

C. Skanavis,
Professor at University of the Aegean, Head of the Research Center of Environmental Communication and Education, Greece
E-mail: cskanav@aegean.gr

Abstract

The unblocked relationship that human beings had from the very start with nature has been disturbed the past years from the urbanization and modern lifestyle society and that decreases the emotional bond with the natural environment. Ecopsychology comes to remind human beings that they are in need of nature so that it can provide them with the sensations of harmony, balance, timelessness and stability. The concept of ecopsychology is first imported from Theodore Roszak in 1992 through his book "Voice the Earth: An exploration of ecopsychology",

which aims to combine psychology with ecology and through that to also connect the needs of the human being and the planet, so that they can both be satisfied. Research has shown that the natural environment can maintain general mental health, psychological well-being, increase self-esteem and other positive psychological and physiological reactions. Furthermore, experiments have proved that the existence of green spaces in urban centers have a positive influence such as in mental health of the population and in well-being. The goal of this research is to identify whether or not links exist between mental health, self-esteem, body appreciation and psychological well-being with connectedness and relatedness to nature, for a person that lives in the center of Athens, who has rarely any bonds and relationships with the natural environment.234 people from Athens both males and females, from 19 to 78 years old were asked to take part in the research through questionnaire. Our specimen is composed of people in different social classes, education, place of growth and place of residence. This questionnaire was created by: (1) The nature relatedness scale (a scale that assesses the affective, cognitive, and experiential aspects of individuals' connection to nature, The Nature Relatedness Scale: Linking Individuals' Connection With Nature to Environmental Concern and Behavior/Elizabeth K. Nisbet, John M. Zelenski and Steven A. Murphy Environment and Behavior 2009), (2) The Body Appreciation Scale (BAS) (a scale which estimates the person's image of his body) , (3) The connectedness to nature scale (a new measure of individuals' trait levels of feeling emotionally connected to the natural world, Mayer, F.S. & McPherson Frantz, C. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature. Journal of Environmental Psychology, 24, 503-515*), (4) The Rosenberg self-esteem scale (a 10item index of global self-esteem (Rosenberg, 1965)). It is perhaps the most widely used measure of self-esteem with norms, good to excellent reliabilities, and validity studies in a wide range of samples (Alfonso, 1995). The research aspires to emphasize the connection of individual and the environment in order to create new horizons of a more ecological way of life and to restore the balance between human and nature. An additional purpose, would be to make the results of our research a starting point to find ways to reconnect people with the natural environment nature even in an urban city.*

Keywords: well-being, nature, self-esteem, body appreciation, connectedness, natural environment

Introduction

Historical review of man-nature relationship

Since antiquity, the natural environment is an integral part of people's lives. Especially in ancient Greece, there was a belief that nature was the theater of gods and considered it sacred (Hughes, 2014). Hippocrates', a Greek physician's, teachings on Airs, Waters and Places, is the first report that the natural environment can affect the health of the individual. (Wear, 2008).

Nowadays urbanization has spread all over the world and more and more people are moving to big cities (Worldwatch Institute, 2007). As a result, the increased demand for space and the great needs of people, natural environments have diminished and degraded.

In modern societies, man has fewer opportunities for contact with nature and therefore the relationship between them, has reduced rapidly (Schnaiberg, 1972)

With the development of Environmental and Behavior Sciences, this valuable relationship, which has been degraded, is once again in the spotlight to study in depth.

Caplans' in 1989 were the first to study the psychological role that nature plays in people's lives. Their positive inventions in this connection are the primacy for the development of a whole science that studies the influences human receives from natural environments at all aspects of life. Initially, the field of environmental psychology was developed, which began to study the behavior of the individual in the environment that he was living and acting, as well as the man in combination with the environmental problems. (Grifford, 2011)

At the same time, however, the need to study the psychological impact that nature has on humans has brought difficulties. As psychologists studied it man-centered, environmentalists were focused on environmental issues. (Reser, 1995)

Ecopsychology

Roszak introduces the concept of ecopsychology, which now studies the problems of man and nature as moving vessels, through his book: The Voice Of Earth (1992).

According to this, some of the fundamental theorems of eco-psychology refer to the interaction of the atomic, with the planetary prosperity, the consolidation of ethical behavior towards nature as well as towards other human beings but also the collectivity offered by the natural environment to the human species, as nature is a part of all humanity. Having them as pillars, ecopsychology is being developed with the aim of restoring the relation of an individual to the environment through the awakening of mutual necessity and respect.

As a result, ecopsychology bridges the gap between psychology and ecology and overcomes the connection problems of these two disciplines (Reser, 1995).

As the relationship between man and nature begins to be studied more thoroughly (Fisher, 2002), (Triguero-Mas, 2015) the research results bring to the forefront of influence, the well-being., being searched as the main sector that accepts the bigger influence (Kamitsis, 2010), (Nisbet, 2011)

Factors influencing well-being in relation to exercise in natural environments

The World Health Organization (WHO) defines well-being as an optimal state of health, essentially characterized by an individual's realization of their fullest potential physically, psychologically, socially, spiritually and economically (Smith, 2006). Putting the well-being as a set of many factors, all are studied separately.

It becomes clear that the more time you spend in the natural environment the happier and stress-free you are (Nisbet,2011) and spirituality of human becomes an indicator of measurement of how positive you will be affected (Kamitsis,2013).

In an effort to find ways of contacting the individual with nature, the differences between direct and indirect contact with nature were studied (McAllister, 2017) as well as the impact of physical exercise on the environment (Pretty,2006).

Physical exercise has a direct effect on body formation and the self-esteem of the individual. This in combination with connectedness to nature (i.e., an effective and experiential connection to nature) (Swami, 2016), gives the tinder for conduction surveys to capture the effects of exercise-nature synergy in the psyche of the individual. (Pretty, 2006)

With the results showing that exercise in natural environments has positive effects on the self-esteem of individuals, it goes one step further by studying the influence that individuals have on how they perceive their bodies. (Swami, 2016), (Hennigkan, 2010)

Swami (2016) researched the connections that may exist between the connection with the natural environment and the perception of the person's body, as well as self-esteem as a factor in the relationship between contact with nature and body perception. The survey was conducted on 380 sample individuals, adult UK residents, in the form of electronic questionnaires. The sample consisted of 210 women and 170 guys, ages 18 to 80. The first results showed that men have greater body appreciation while women have greater contact with nature. In the final results, there seems to be a direct relationship of contact with nature, with body perception in women and, moreover, is observed to benefit from self-esteem. In contrast, men do not seem to influence the degree of body appreciation from contact with nature.
In this survey, we relied on to conduct our research.

Research's aim

In this research, we will examine whether or not links exist between connectedness to nature, self -esteem and body appreciation and their type. Recent studies have also shown that self – esteem functions as a variable between body appreciation and connectedness to nature (Swami, 2016), which will be studied too. The survey will be conducted in Greece, more specifically in the capital, Athens.

Measures

The survey involved adults, women and men, without age restriction, completing questionnaires that were then analyzed. For the creation of the questionnaires, the Connectedness to Nature Scale (a=0.84), the Rosenberg Self-Esteem Scale (a=0.87), the Nature Relatedness Scale and the Body Appreciation Scale. All scales used have been tested, with a high degree of validity and reliability. (Nisbet. et al, 2008)(Rosenberg, M. 1965), (Avalos, 2005), (Mayer, 2004).
These scales have already been used and tested in other surveys (Kamitsis, et al,2013) ,(Swami ,2016)

The composition of the questionnaire

The questionnaire consisted of 6 sections. The first section was about demographics: gender, age, education, place of birth and residence. The second one about general questions such as time spend in nature per day and feeling of connection with nature.

The following section consisted of the Connectedness to Nature Scale, in order to determine the feeling of community with the nature of the participants. (Mayer, 2004), as well as the fifth which consisted of the Nature Relatedness Scale (Nisbet, 2008), where the relationship between respondents and nature was measured.

The fourth module contained the Rosenberg Self-esteem Scale (Rosenberg, 1965) and the sixth one of the Body Appreciation Scale (BAS) (Avalos, 2005). These two sections were included in the questionnaire to examine the self-assessment of questioners and their perception of their bodies.

The units consisting of calibrated scale questions (3, 4, 5, 6) had a response form of 1 to 5, one corresponding to the 'disagree totally' and 5 'agreeing totally'.

The questionnaires were created through Google forms and distributed by e-mail to a random population sample which included students, private individuals, public and private companies, entrepreneurs, unemployed, etc.

For the creation of the questionnaire the questions of the scales used were translated into Greek, and then made a first test to examine their understanding by third parties. There was a difficulty in understanding the questions on the scale of Connectedness to Nature. More specifically the question 'When *I think of my life, I imagine myself to be part of a larger cyclical process of living'* had to be redrafted to make it more understandable.

Results

The questionnaire was answered by 243 Greeks residing in Athens. Most participants were women (61.1%/men=38.9%), between 18-29 years old and 57.3% had a university degree. From the total sample 29, 1% reside in the western suburbs of Athens, 25.6% in the southern 20.1% in the northern, 14.5% in the center of Athens and only a 10.3% in the eastern suburbs. In

education, the lowest rate of respondents was observed in high school graduates (0.9%), while the highest was university education with 57.26% of the answers.

Table 1: Percentage of gender

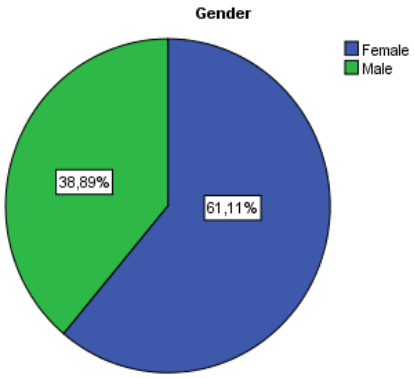


Table 2: Percentages of age

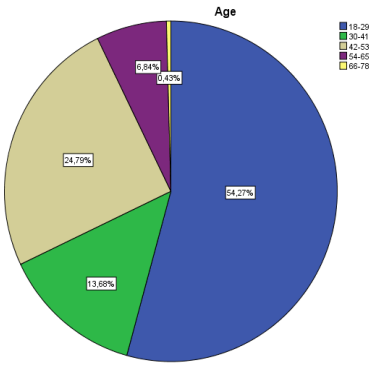


Table 2: Percentages of place of residence

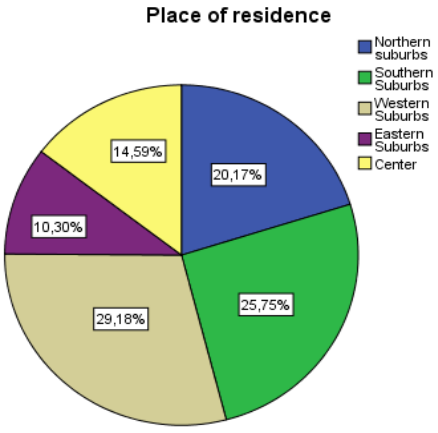
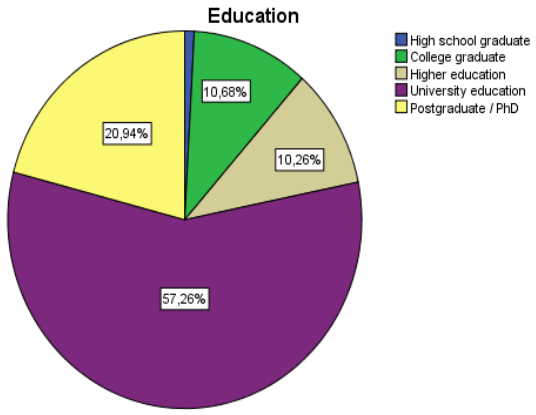


Table 3: Percentages of the education level



In order to perform the statistical checks, the total values for all scales were calculated. In order to do this, all the negatively formulated questions were reversed as to the underlying characteristic.

The following table shows the averages, maximum and minimum values as well as the standard deviations of all scales.

Figure 4:

	Minimum	Maximum	Mean	Std. Deviation
Total connectedness to nature	29,00	55,00	43,0085	5,03208
Total self-esteem	19,00	31,00	25,0342	2,24825
Total relatedness to nature	43,00	81,00	64,8077	6,73290
Total body appreciation	21,00	65,00	48,0812	9,35643

Correlation between connectedness to nature scale/self-esteem scale/relatedness to nature scale/body appreciation

The relationship between the variables was investigated using Pearson product-moment correlation coefficient. There was a small positive correlation between total body appreciation and total connectedness to nature [r=, 137*, N=234, Sig. =, 036]. A small positive correlation was found between total relatedness to nature and total body appreciation [r=, 240**, N=234, Sig=, 000]There was also a moderate positive correlation between total relatedness to nature and total connectedness to nature[r=, 361**, N=234, Sig. =, 000].On the contrary, a small but negative correlation was found to exist between total self-esteem and total body appreciation[r=-, 268**, N=234, Sig. =, 000].

Figure 5: Correlation between CNS /SES/RNS/ BAS

		Total Connectedness to nature	Total self-esteem	Total relatedness to nature	Total body appreciation
Total Connectedness to nature	Pearson Correlation		-,075	,361**	,137*
	Sig. (2-tailed)		,255	,000	,036
Total self-esteem	Pearson Correlation			,004	-,268**
	Sig. (2-tailed)			,947	,000
Total relatedness to nature	Pearson Correlation				,240**
	Sig. (2-tailed)				,000

Total body appreciation	Pearson Correlation				
	Sig. (2-tailed)				

Mean of time spend in nature and connection with nature

From the general questions was found that the participants spent an average of 8.88 hours in nature daily and on a scale of 1-10 they rated their relationship with nature with 2.94 averages.

Figure 6: Mean of time spend in nature and connection with nature

	Min	Max	Mean
Average time spend in nature daily	0	25	8,88
Connection with the nature	1	5	2,94

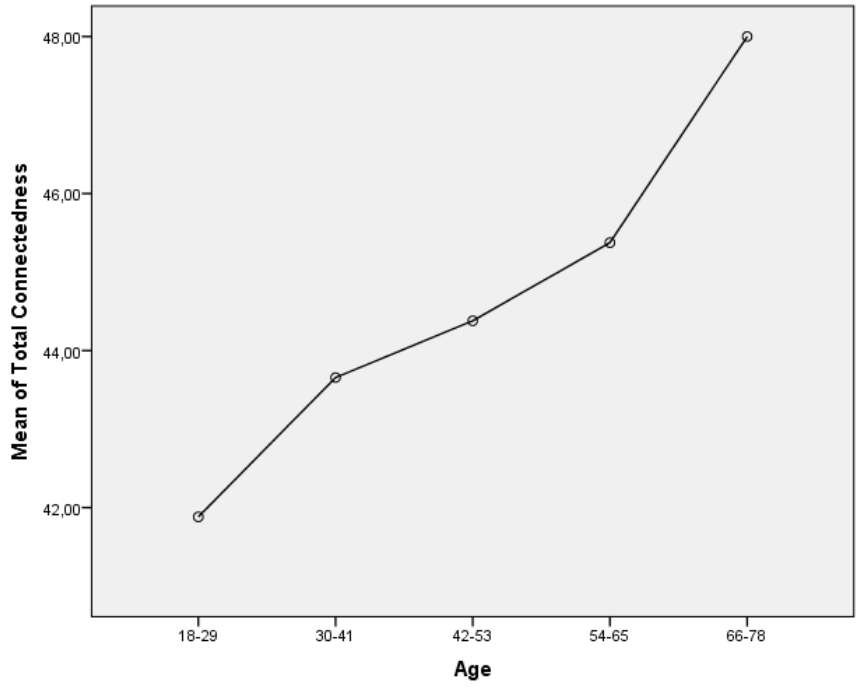
Independent sample t-test and analyses of variance were conducted in order to investigate any possible differences in the scores of the scales depending on the demographic questions. The ones with statistically significant outcome are presented below:

The impact of age in connectedness to nature

A one way between groups analysis of variance was conducted to explore the impact of age on total connectedness with nature.

Subjects were divided into 6 groups according to their age. (group1: 18-29, group 2:30-41, group3: 42-53, group4:54-65, group5:66-78 and group6:79+).There was a statistically significant difference at the $p < 0.05$ in total connectedness with nature scores [$F=4,143$ $p<.01$]. The actual difference in mean scores between the groups is moderate small .The effect size calculated using eta squared, was 0,067. Post hoc tests are not performed for total connectedness because at least one group had fewer than two cases.

Table 7: Proportion of scores on the connectedness with nature scale, with age



The impact of education in connectedness with nature

A one way between groups analysis of variance was conducted to explore the impact of education on total connectedness with nature.

There was a statistically significant difference at the $p < 0.05$ in total connectedness with nature scores for the education groups [F=2,729 p<.03]. The actual difference in mean scores between the groups was small .The effect size calculated using eta squared, was 0,045. Post hoc comparisons using the twokey HCD test indicated that the mean score for the group of university education (M = 42, 52, SD=4.97) was significantly different from the group postgraduate/PhD (M=44, 85, SD= 4, 72).

Independent –sample-t-test between the places of growth (rural, urban) for the coloration to the total body appreciation scale's scores

Independent samples T–test was conducted to compare the total body appreciation scale's scores for people who have grown in rural and for those who have grown in urban areas. There was a significant difference in total body appreciation scale's scores for those who have grown up in rural areas (M=50,9 , SD= 9,14) and those who have grown up in urban (m=47,57 ,SD=9,32) t = -1,99 ,p=0,04

Data that did not show statistically significant differences in the analysis

Independent sample T-test were conducted to compare the total connectedness scale's scores and total relatedness scale's scores for males and females ,as well as for people who had grown up in urban areas and for those who have grown up in rural areas. There was no statistically significant difference for males and females or for urban or rural place of growth for neither of the two scales.

A one way between groups analysis of variance was conducted to explore the impact of place of residence on total connectedness with nature scores. There was also not a statistically significant result in the one way between group analysis of variance that was conduct to explore total connectedness with nature scores.

Discussion

The results of the research have demonstrated the existence of links between connectedness - relatedness to nature and body appreciation .Specifically, it was found that connectedness with nature is associated with relatedness and the body appreciation but not with self-esteem. The fact that there was no correlation found to exist between them, contrasts the findings of previous research which indicated the existence of links between them (Swami, 2016).Additionally, according to the results, there is negative correlation between self-esteem and body appreciation. Although there were indications from surveys and experiments that the increase of one affects the increase of the other one (O'Dea, 2000), our own findings show the exact opposite.

These findings may be due to the location the research was conducted. It is very probable for people living in Athens, self-esteem to be related to other factors to a greater extend.

For residents of large urban centers, self-esteem is more likely to be related to professional

acquirement, economics and marital status than the shape and size of their body. At the same time, contact with nature, especially in urban and industrialized areas, can give individuals the ability to better understand their bodies.This difference between the results of these two pieces of research, should be studied thoroughly in order to identify the factors that affected the outcome.

It is important to point out that it has been found that the relationship that participants feel to have with nature has had a great positive correlation with their scores on relatedness with the nature scale as well as with the scores on connectedness to nature scale.

The findings also indicated that, although previous research has shown that women have a more developed relationship with the natural environment (Swami, 2016), sex did not seem to affect scores on any scale.Similarly, the subjects' place of residence did not seem to have a statistically significant impact on the scales' scores.

From the findings of the statistical analysis age was found to be a strong factor of connectedness with nature, although there was no indication of this relationship so far. In addition, in the correlation of the level of education and the score of the connectedness with nature scale, the respondents in the postgraduate / doctoral degree had the greatest statistical significance. This can be explained by the fact that education gives man the necessary supplies to recognize the importance of nature for the proper functioning of life at the biological and emotional level, as well as at the level of conservation. On the other hand, age could give the individual a more collective perception of nature and a greater understanding of the negative influence that man has over natural environment.These combined can create a strong sense of protection against nature.

In addition, it is very interesting that a statistically significant correlation was found between the area where respondents grew and the scores in the body appreciation scale. It appeared that the participants who grew up in rural areas had a higher score in the BAS.
In order to further analyze the influence of the person's area of growth, on how she/he perceives her/his body in his adult life and be considered as a critical factor, there should be a further research focused on the specific elements.

To conclude, our findings showed that people who have been raised in rural areas present the biggest scores in body appreciation scale, while, those who are highly educated and they are in a 66-78 age group present the biggest scores in connectedness to nature scale. As regards the correlations between the scales, the most interesting findings were the negative correlation between self-esteem and body appreciation and the lack of correlation between self –esteem and connectedness to nature.

The findings of this research could be used as a starting point for conducting other investigations into more specific correlations between connectedness to nature and every aspect of well-being, separately. Furthermore, the total correlations found to exist between demographics and association with the nature, could be used as the basis for creating a standard profile for people who seem to be closest to the physical world and are more affected by it. The existence of such a guide and the knowledge it would provide, would open new paths for environmental education and introduce new approaches to environmental awareness. At a later stage, it could also be a measure of selecting people for political positions that influence decisions about the environment.

This research can be, also, used as the foundation for the development of deeper questions, such as the type of influences the individual has for his relationship with nature since his childhood and how this is reflected in his adult life and his psychological state.

Limitations

There were some limitations in the conduct of the survey. First of all, the entire sample came from an urban-industrial area, consequently there was no possibility of examining and comparing a sample of a rural area. Moreover after observing the comments left by the participants, it appeared that, for many question there was a difficulty in understanding for a lot of them.

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