Assessing Quality of Life of Nature lovers: A Comparative cross-sectional study in Mysuru District

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ABSTRACT

INTRODUCTION

Bringing nature into your everyday life or spending time in green space can benefit your mental and physical well-being. The present study was conducted to assess the difference in the quality of life (QOL) among nature lovers and non-nature lovers in Mysuru District of Southern Karnataka, India.

Methodology

This cross-sectional study was conducted among 129 nature lovers and non-nature lovers in Mysuru District for a period of three months. After obtaining consent, demographic data was collected. WHO-BREF tool was used to assess the quality of life. SPSS V.26 was used for the statistical analysis. Quantitative data showing parametric distribution were expressed as mean and standard deviation. An independent t-test was used for inferential statistics.

Results

The mean age of the nature lovers was 57.60±11.6 years and non- nature lovers was 30.66±11.6 years. The quality-of-life scores among nature lovers were higher in all 4 domains i.e. physical health, psychological health, social relationships and environmental. measured compared to non-nature lovers. Upon conducting an independent t-test on the 2 groups, a statistically significant difference was found for 5 parameters- Global QOL, p= <0.001; self-assessment of one's health, p= 0.001; physical health, p=0.004; social relation, p= 0.015 and environment, p=<0.001.

Conclusion

The present study shows that nature lovers had better quality of life than non- nature lovers emphasizing the importance of inclusion of nature-loving recreational activities from a young age can help reduce the burden of non-communicable diseases such as hypertension, anxiety, depression, obesity, etc. Further studies need to be undertaken to understand the effect of nature-loving activities on existing comorbid conditions.

Keywords: Quality of life, nature, health, environment, nature therapy, WHO- BREF

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INTRODUCTION

Quality of life comprises two distinct notions-opportunities for good health such as adequate nutrition and professional care and outcomes of life. [1]

The definition of health given by the World Health Organization (WHO) assesses the state of health in terms of morbidity and mortality. However, with the increase in the years of life expectancy due to improved treatment and delayed mortality, it is equally essential to improve the quality of life. [2] WHO defines the quality of life (QOL) as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns". [3]

There is an increasing interest to measure the QOL of an individual due to the shift in attention from scientific and technological advances towards an understanding that personal, family, community and societal well-being also contribute to an improved life. There is also an emphasis on community-based services by a person to measure the outcomes of an individual's life. [4]

Measurement of QOL in healthcare is essential for the following reasons:

- It increases self-reporting of chronic diseases along with their risk factors
- It helps to limit preventable causes of disease, injury and disabilities
- It also helps to monitor the progress in achieving the objectives of the nation's health. [2]

According to WHO reports, there has been a 3% increase in diabetes related mortality by age between 2000 and 2019. In 2014, the prevalence of diabetes among adults aged 18 and above was 8.5%.[5] In 2019, 17.9 million people had died from cardiovascular diseases (CVDs) which accounted for 32% of all global deaths- 85% being due to heart attack and stroke.[6] With countries worldwide striving hard to achieve the global developmental goals, the role of mental health has attracted attention as an important determinant. It has been found that suicide was the fourth leading cause of death among 15- 29-year old. Severe mental health conditions also contributed to premature deaths (as early as 2 decades) due to preventable physical conditions.[7]

Among nature lovers, those who are involved in bird-watching activities are found to have several health benefits due to the recreational activity. They have increased physical activity since one needs to walk around the local areas to spot the birds and other animals. It also helps to lower the level of cortisol, a stress hormone, which in turn reduces the risk of conditions such as heart disease, raised blood pressure and obesity. It is also said that bird watching reduces loneliness as the backyard birds serve as companions and simultaneously boost confidence. [8]

It has been observed that a happy individual is surrounded by a livable environment and appropriate abilities. It has also been found that a happy individual has increased life expectancy. [1] QOL is such a tool which helps to understand the degree to which an individual experiences a life of quality and personal well-being. [4]

Limited literature exists on the differences in QOL between nature lovers and non-nature lovers. Thus, the present study was undertaken to study the differences in the quality of life between nature lovers and non-nature lovers.

Methodology

A cross-sectional study was conducted among 64 nature lovers and 65 non-nature lovers for a period of 3 months, from October to December 2022. A person was considered to be a nature lover if they had an intense interest in the natural world, especially one who visits or is involved in bird watching, nature watching, etc for enjoyment and recreation. A non- nature lover was considered as a person who was not frequently involved with the nature. All participants above the age of 18 years and consenting to participate in the study were included.

The study protocol was approved by the Institutional Ethics Committee. Informed consent was obtained from the participants after explaining the purpose and procedure of the study. (JSSMC/IEC/011222/40NCT/2022-23)

Assuming a pooled standard deviation of 25.68 units (based on a pilot study conducted on 30 nature lovers and 30 non-nature lovers), the study would require a sample size of 64 for each group (i.e. a total sample size of 128, assuming equal group sizes), to achieve a power of 80% and a level of significance for detecting a true

difference in mean between the test group and the reference group of -12.77 (i.e. 48.5-61.27) units.

The data was collected from nature lovers in Mysuru using a web-based E-survey link circulated through a social media platform (WhatsApp). The E-survey link was shared with a specific WhatsApp group for nature lovers. The survey's purpose and procedure were added to the web-based E-survey. The option in Google Forms that prevents submission of partially replied or filled items made it impossible to submit an incomplete survey form. The data from the general population was collected using the simple random sampling method through house-to-house interviews among participants (the older non-nature lover in the family present at the time of visit) residing in the urban field practice area of the Department of Community Medicine, JSS Medical College, Mysuru (Medhar Block Urban Health Centre).

Details regarding the socio-demographic characteristics (age, gender, marital status, occupation, education) and personal details (smoking, alcohol consumption, existing illnesses) were collected.

Quality of life among the participants was assessed using the WHO-BREF QOL questionnaire. "WHOQOL-BREF questionnaire was used to assess the perceived quality of life in four domains. The instrument has 26 items: 2 items pertaining to the overall perception of quality of life and health, 24 questions covering the four domains such as physical health (Domain 1), psychological health (Domain 2), social relationships (Domain 3) and environmental (Domain 4). Instructions given at the start of the questionnaire were read out before reading out the questions. Each item is scored on a Likert scale of 1-5. Individual domain scores were calculated as per instructions and transformed into scores of 0-100." [9]Higher the scores, the better the quality of life.

Statistical Analysis

The data collected was entered in Microsoft Excel 2019 spreadsheet followed by analysis using SPSS version 26.0 (Statistical package for social science) Windows, Version 26.0. (IBM Corp. Released 2019. IBM SPSS Statistics for Armonk, NY, USA). The qualitative variables such as demographic characteristics (gender, education, occupation, income, etc.) were represented using percentages. The various domain scores (quantitative variables) were expressed as mean and standard deviation. Chi-square/ Fisher's exact test was applied to study the association between various qualitative variables. An unpaired t-test was used to compare mean scores between nature and non-nature lovers. Pearson's correlation and Spearman's correlation were used to assess the strength and magnitude of associations between the two study groups. p-value < 0.05 was regarded as statistically significant.

Results

A total of 64 nature lovers and 65 non-nature lovers were studied.

Table 1 is a summary of the socio-demographic variables of the study participants. From the table, we find that the majority of the nature lovers belonged to the 20- 40 years of age group (79.7%) while the majority of the non-nature lovers belonged to the 61- 80 years age group (49.3%). Among nature lovers, males comprised 54.7% of the total, compared to 45.3% which were females. Majority of the nature lovers and non-nature lovers were from a professional occupation. Majority of the nature lovers were graduates (53.1%) followed by 37.5% being postgraduates. It was found that nature lovers had lesser occurrences of comorbidities (28.1%) compared to non-nature lovers of which 70.8% have at least one comorbidity. From the table, we find that applying the chi-square test for variables such as gender, occupation, education, smoking status and alcohol consumption were not statistically significant. This shows that the distribution of the participants in the above groups was nearly equal.

Table 1 Socio-demographic profile of the study participants

Variable		Nature lovers		Non-nature lovers		Chi-square value	df	p-value
		N (n-64)	%	N (n=65)	%			
Age	20- 40 years	51	79.7	10	15.4	59.149	3	<0.001
	41- 60 years	11	17.2	21	32.3			
	61- 80 years	2	3.1	32	49.3			
	>80 years	0	0	2	3.1			
Gender	Males	35	54.7	31	47.7	0.632	1	0.483*
	Females	29	45.3	34	52.3			
Occupation	Professional	37	57.8	36	55.4	80.919	6	<0.001
	Semiprofessional	27	42.2	29	44.6			
Educational status	Postgraduate	24	37.5	20	30.8	87.338	6	<0.001
	Graduate	34	53.1	31	47.7			
	PUC/ Diploma	6	9.4	14	21.5			
Comorbidities	Present	18	28.1	46	70.8	23.459	1	<0.001*
	Absent	46	71.9	19	29.2			
Smoking status	Smokers	5	7.8	8	12.3	0.719	1	0.56*
	Non- smokers	59	92.2	57	87.7			
Alcohol consumption	Present	13	20.3	12	18.5	0.71	1	0.827*
	Absent	51	79.7	53	81.5			

Table 2 provides a summary of the scores of the 2 study groups for the 4 domains on the WHOQOL- BREF questionnaire domains. It is assumed that the higher the scores on the scale, the better the quality of life. From the above table, it is seen that nature lovers had higher scores for all 4 domains in the QOL questionnaire compared to non-nature lovers. The table also shows that nature lovers had higher scores on global QOL and self-assessment of one's health questions which shows a better quality of life among nature lovers than non-nature lovers. Upon conducting an independent t-test on the 2 groups, a statistically significant difference was found for 5 parameters- Global QOL, p= <0.001; self-assessment of one's health, p= 0.001; physical health, p=0.004; social relation, p= 0.015 and environment, p=<0.001.

Table 2Summary of the 4 domain scores on the WHOQOL questionnaire

WHOQOL-BREF Domains	Nature lovers score		Non-nature lovers score		Mean difference	t- value[#]	df	p-value
	Mean	SD	Mean	SD				
Global QOL	3.840	0.597	3.077	0.989	0.766	-5.321	127	<0.001
Self-assessment of one's health	3.700	0.770	3.154	1.093	0.549	-3.295	127	0.001
Physical health	62.530	16.408	52.446	22.436	10.085	-2.910	127	0.004
Psychological	58.980	16.966	54.708	16.949	4.277	-1.432	127	0.155
Social relation	63.00	21.203	53.140	24.234	9.862	-2.458	127	0.015
Environment	69.390	11.058	56.110	24.589	13.283	-3.496	127	<0.001

Table 3 is a summary of the correlation findings for various socio-demographic variables and domains of QOL for nature lovers. From the table, we find that Pearson's product correlation of the Psychological domain (r= 0.670) and Environment domain (r= 0.645) with physical health showed a moderately positive correlation which was statistically significant (p<0.001). This shows that with improvement in psychological health and environmental conditions, physical health showed an improvement among nature lovers.

Table 3 co relation matrix for non-nature lovers

			Age	Gender	Marital status	Occupation	Smoking	Alcohol	Physical health	Psycho-logical	Social relation	Environ-ment
Non-nature lovers	Age	r	1.000									
		p	.									
	Gender	r	.110	1.000								
		p	.383	.								
	Marital status	r	-.116	.047	1.000							
		p	.356	.708	.							

Occupation	r	.188	.356**	.104	1.000							
	p	.134	.004	.410	.							
Smoking	r	.083	.392**	-.014	.228	1.000						
	p	.512	.001	.912	.068	.						
Alcohol	r	-.024	.498**	-.079	.137	.063	1.000					
	p	.848	.000	.534	.275	.617	.					
Physical health	r	.069	.015	-.010	-.073	-.040	-.088	1.000				
	p	.582	.906	.937	.565	.751	.484	.				
Psychological	r	.012	.036	.012	-.058	-.025	-.013	.822**	1.000			
	p	.927	.778	.925	.648	.842	.919	.000	.			
Social relation	r	.100	.141	.054	.045	.028	.043	.840**	.681**	1.000		
	p	.430	.263	.672	.723	.827	.736	.000	.000	.		
Environment	r	.077	.102	.002	.024	-.006	.005	.908**	.856**	.852**	1.000	
	p	.544	.417	.990	.851	.960	.967	.000	.000	.000	.	

**- Spearman's Correlation is significant at 0.01
*- Spearman's Correlation is significant at 0.05
##- Pearson Correlation is significant at 0.01

Table 4 is a summary of correlation test for non- nature lovers for various socio-demographic and domain variables. From the table we find that Pearson's product correlation for domains of psychological health (r= 0.822), social relation (r= 0.840) and environment (r= 0.908) showed strong positive correlation with physical health domain and this was found to be statistically significant (p<0.001). this shows that the physical domain would have great positive impact on the remaining domains of QOL. Pearson's correlation for environment domain with psychological (r= 0.856) and social relation (r= 0.852) also showed strong positive correlation which was found to be statistically significant (p<0.001). this shows that improvement of environment would have profound positive changes for the psychological and social relations among the non- nature lovers. Pearson's correlation for social relation with psychological domain was found to have moderate correlation which was statistically significant (r= 0.681, p<0.001) which shows that social relations only moderately affected the psychological domain.

Table 4 co relation matrix for nature lovers

			Age	Gender	Marital status	Occup-ation	Smok-ing	Alcohol	Physical health	Psycho-logical	Social relation	Environ-ment
Nature lovers	Age	r	1.000									
		p	.									
	Gender	r	-.383**	1.000								
		p	.002	.								
	Marital status	r	-.677**	.231	1.000							
		p	.000	.067	.							
	Occupation	r	.346**	-.318*	-.357*	1.000						
		p	.005	.010	.004	.						
	Smoking	r	.146	.148	-.161	.132	1.000					
		p	.248	.243	.203	.299	.					
	Alcohol	r	-.026	.069	-.026	.037	.142	1.000				
		p	.841	.585	.841	.773	.261	.				
	Physical health	r	.168	-.028	-.139	.010	.060	.065	1.000			
		p	.183	.825	.274	.936	.636	.612	.			
	Psychological	r	.214	-.086	-.335**	.074	.057	.203	.670##*	1.000		
		p	.089	.497	.007	.563	.654	.107	.000	.		
	Social relation	r	.165	-.053	-.392**	.206	.029	-.142	.266##	.245	1.000	
		p	.193	.680	.001	.102	.821	.263	.034	.051	.	
	Environment	r	.082	.066	-.149	-.050	.003	.009	.645##	.478##	.376#	1.000
		p	.522	.606	.241	.695	.980	.946	.000	.000	.002	.

**- Spearman's Correlation is significant at 0.01
*- Spearman's Correlation is significant at 0.05
\#\#- Pearson Correlation is significant at 0.01
\#- Pearson Correlation is significant at the 0.05

DISCUSSION

Quality of life (QOL) can be seen as an individual's sense of well-being which includes the physical, psychological, social and spiritual condition. (10) With the increasing pace of life and rising incidence of psychosomatic disorders such as non-communicable diseases, it is essential to identify factors that can improve/ hamper one's quality of life.

The present study attempted to assess the differences in QOL among 2 study groups- nature lovers and non-nature lovers using the WHOQOL- BREF questionnaire. This questionnaire assessed the 4 domains of QOL namely physical health, psychological health, social relationships and environmental domain. Higher scores of individual domains indicated better QOL.

The current study found that nature lovers had better scores in all 4 domains as compared to non-nature lovers, and this difference was found to be statistically significant for all except the psychological domain. This shows that spending time in nature resulted in better outcomes for quality of life.

Table 1 also showed that the majority of the nature lovers were of the 20- 40 age group which indicates the rising awareness among the younger age group of the need to spend time outdoors thus improving one's quality of life.

The study also found that the incidence of comorbidities was less frequent among nature lovers as compared to the non- nature lovers. Since the difference was found to be significant it further supports the fact that recreational activities such as bird watching and other nature-oriented activities can help to reduce the incidence of comorbid conditions.

It is imperative to ascertain QOL as understanding the factors affecting QOL scores can help improve healthcare. It can help in understanding resource allocation and healthcare policy formation, can serve as a prognostic indicator and/ or indicate the need for supportive interventions. (11)

LIMITATIONS

- This study was limited to exploring the overall QOL and domain-specific QOL of nature lovers and non-nature lovers.
- WHO QOL -BREF questionnaire is subjective, and the researchers depended on the self-reported data of the QOL, which may not be the actual perception of the patients.
- Multiple follow-ups and clinical follow-ups would be necessary to assess the long-term effect of nature on the health of the individual.

CONCLUSION

The health-related quality of life among nature lovers was more compared to the non-nature lovers according to our study, which shows that spending adequate time with nature is important both for our physical well-being as well as our mental health status. The rising incidence of comorbid conditions such as obesity and other non-communicable diseases in the younger age groups warrants the need to include recreational activities such as becoming a part of nature through bird watching, river walks, etc. which have several direct and indirect positive effects on one's health. It is essential to improve the quality of life in the early years to ensure healthy ageing. Further research into the effect of nature on health and educating people about it is important.

ETHICAL APPROVAL

The study was approved by the Institutional Ethics Committee

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