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Toward Developing Sustainable Tourism: Correlation between Nature Relatedness, Eco-friendly Behavior, Willingness to Sacrifice for the Environment, and Happiness among Indonesian Tourists

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Indonesia has a large amount of nature-based attractions, but a question remains unexplored on how to develop sustainable tourism. This study aims to analyze the relationship between nature relatedness, eco-friendly behavior, willingness to sacrifice for the environment, and happiness. A hundred and fifteen Indonesian tourists participated in the study. Results show nature relatedness correlates positively with eco-friendly behavior, willingness to sacrifice for the environment, but not happiness.

Keywords: *Nature relatedness, eco-friendly behavior, willingness to sacrifice for the environment, happiness.*

1. Introduction

Tourists seek places that make their lives more enjoyable. Nature is potentially the place as people have an innate need of connecting themselves to the nature.^{1,9} This nature relatedness (NR), which refers to the extent of feeling oneness with the nature,² is a trait-like^{2,3} that is relatively stable over time.⁴ NR, is therefore, able to take place and stands for a long time, which is useful to develop sustainable tourism.

NR is addressed in the literature in different names. Among those are: commitment to nature,⁵ connectedness to nature,³ connectivity with nature,⁶ emotionally toward nature,⁷ environmental identity,⁸ inclusion of nature in self,⁹ and love and care for nature.¹⁰ Comparing the concepts and their measures, NR was found consistently the strongest in its association with traits,¹¹ suggesting that NR could be the focus of this study in analyzing its relationship with other variables.

Literature shows potential correlation between nature relatedness and other variables. NR may correlate positively with eco-friendly behavior,² willingness to sacrifice for the environment,⁵ as well as happiness.¹² Though, the relationships need further investigation.¹³ Hence, this study hypothesizes as follows:

H1: Nature relatedness correlate positively with eco-friendly behavior

H2: Nature relatedness correlates positively with willingness to sacrifice for the environment

H3: Nature relatedness correlates positively with happiness

2. Methods

A survey was conducted to study the correlation between nature relatedness, eco-friendly behavior, willingness to sacrifice for the environment, and happiness. A survey is a common and important way for researchers to study behavior as it allows people to tell researchers about themselves and further study the relationship among variables¹⁴ and make an inference about them.¹⁵

Data collection took place in Surabaya, Indonesia. As a city with nature-based attractions nearby, Surabaya is a good place for providing a snapshot of how people think and behave in an eco-friendly way.



Respondents were approached at homes and public places. Upon stating agreement to participate in the study, participants are asked to respond to questions measuring nature relatedness,¹² tourist eco-friendly behavior,¹⁶ willingness to sacrifice for the environment,⁵ and happiness.¹⁷ The above variables were measured using 5-point scale, ranging 1 from totally agree to 5 for totally disagree.

Among 150 distributed questionnaires, there were 115 usable responses, representing a response rate of 74.3%. The response rate is acceptable as it is above 50%¹⁸ or between 70% and 80%.¹⁹ Potential non-response bias was assessed by comparing the scores of variables between early respondents and late respondents (i.e., those who made responses after being contacted for several times) and there were no significant differences, indicating an absence of non-response bias.²⁰

3. Results and Discussion

The factorial validity of the constructs was assessed through convergent and discriminant validity, considering both work together in determining the validity of the construct. Convergent validity refers to “the extent to which different methods of measuring the same trait yield similar results” while discriminant validity refers to “the extent to which similar or identical methods measuring different traits leads to different results”.²³ Hence, convergent and divergent validity need multiple measures of a construct to be highly related one to another and less related to measures of other constructs.²⁴

Items with standardized loading of less than 0.7 were removed,²¹ resulting in items with loadings shown in Table 1. As Table 1 shows, each item loads on the assigned construct with all loadings meet the minimum criteria of 0.7, suggesting convergent validity. Further, Table 2 shows the square roots of the Average Variance Extracted (AVE) exceed the intercorrelation of a construct with other constructs, suggesting discriminant validity.²² The reliability of the scales was then assessed through Cronbach’s alpha. As illustrated in Table 2, all of the values meet the minimum criteria of 0.7,²¹ suggesting an adequate degree of reliability. Results of hypothesis testing appears in Table 3. As seen, nature relatedness correlate positively with eco-friendly behavior ($r = 0.615, p < 0.01$), willingness to sacrifice for the environment ($r = 0.524, p < 0.01$), but not happiness ($r = 0.178, p > 0.05$). Correlation coefficient between 0 and 0.3 indicate a weak relationship, 0.3 and 0.7 indicate a moderate relationship, and 0.7 and 1.0 indicate a strong relationship.²⁵ The above findings suggest that there is a strong positive relationship between nature relatedness and eco-friendly behavior. Similarly, there is a strong positive relationship between nature relatedness and willingness to sacrifice for the environment.

The above findings suggest that the experience of nature relatedness could be useful for developing a sustainable tourism. This potential development is due to contact with nature decreases anxiety and rumination²⁶ that makes people feel relaxed^{27,28} and becoming more productive (Keniger *et al.*, 2013). The possible explanation for the insignificance of correlation between nature relatedness and happiness could be respondents still focus on financial achievement as a determinant of their happiness.

1. Conclusion

The development of sustainable tourism could be based on nature relatedness. Tourists who experience such relatedness may consume less water, electricity, and products with unnecessary packaging materials. Concurrently, they may also sacrifice for the environment, such as by using public transport rather than their own cars.

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Table Captions

Table 1. Measurement Instruments

Table 2. Composite Reliability and Correlation among Construct Scores

Table 3. Summary of Hypothesis Testing

Table 1.

Items	Standardized loadings
Nature relatedness	
My ideal vacation spot would be a remote, wilderness area	0.779
I always think about how my actions affect the environment	0.779
My connection to nature and the environment is a part of my spirituality	0.852
My relationship to nature is an important part of who I am	0.855
Tourist eco-friendly behavior	
When I visit places as a tourist, I buy organic food, whenever possible	0.766
When I visit places as a tourist, I use products made from recycled materials	0.834
I reduce and recycle waste, whenever possible, during my visits to places as a tourist	0.864
As a tourist, I always like to visit environmentally friendly places	0.804
Willingness to sacrifice for the Environment	
I am willing to take on responsibilities that will help conserve the natural environment	0.734
I am willing to do things for the environment, even if I'm not thanked for my efforts	0.820
Even if it is inconvenient to me, I am willing to do what I think is best for the environment	0.783
I am willing to go out of my way to do what is best for the environment	0.766
Happiness	
In general, I consider myself happy	0.803
Compared to most of my peers, I consider myself happy	0.846
I enjoy life, regardless of what's going on	0.872



Table 2.

Construct	AVE	Cronbach				
		Alpha	1	2	3	4
1. NR	0.667	0.833	0.817			
2. EB	0.669	0.836	0.615	0.818		
3. WS	0.602	0.781	0.524	0.481	0.776	
4. HP	0.707	0.800	0.178	0.248	0.082	0.841

Notes: Average variance extracted square root values on the diagonal. NR = nature relatedness, EB = tourist eco-friendly behavior, WS = willingness to sacrifice for the environment, HP = Happiness, CR = composite reliability, AVE = average variance extracted.

Table 3.

Hypothesis		Correlation Value	Sig.	Conclusion
H1	Nature relatedness correlate positively with eco-friendly behavior	0.615	*	Accepted
H2	Nature relatedness correlates positively with willingness to sacrifice for the environment	0.524	*	Accepted
H3	Nature relatedness correlates positively with happiness	0.178	NS	Rejected

Note: * $p < 0.01$ Not significant at $p > 0.05$