

# Preferences of Forest Healing Implementation using Discrete Choice Experiment: A Case of Wanagama, Gunung Kidul, Indonesia

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## 1. Introduction

The global pandemic has raised awareness of the environmental conservation and wellness that led to a shift in tourism. Forest healing is a concept that follows forest therapy and forest bathing as a valuable experience that combines nature and physical interactions to improve various aspects of human life. The practice of forest healing has been identified as a potential countermeasure to the negative effects of modern life. It offers a range of benefits for physical and mental health, as well as environmental sustainability (Bowler et al, 2010).

Aligning with the global trend toward multipurpose forests as therapeutic ecosystems, Indonesia has been exploring similar development initiatives (i.e., forest healing). Some studies on forest healing have addressed user benefits and site suitability, and the discrete choice experiment focused on tourists' preferences, policy, and community partnerships (Farkic et al, 2021; Permadi et al, 2018). However, they have research gaps in terms of preferences for forest healing, particularly in Indonesia. Therefore, this study aims to understand the preferences as well as the willingness-to-pay of local communities and visitors regarding features and prospects of forest healing in Wanagama.

## 2. Methodology

This study was conducted in Wanagama, Gunung Kidul, Special Region of Yogyakarta, Indonesia. It is situated within the geopark karst mountainous in southern area with the increased diversity of the species since its success of rehabilitation program from 1951 to 1964. This study selected Wanagama as a study site because it is progressing towards the development of forest healing, characterized by proximity to local communities, an emerging

educational forest, and special interest tourism sectors with the support of the medical institution.

In order to attain comprehensive insight into the site, a preliminary survey was conducted in a series of focus group discussions with a total of 54 participants from surrounding communities—Banaran, Ngleri, Gading, and Bunder. The survey was further supplemented by key informant interviews with each community representatives, the Head of Wanagama, the Regional Tourism Agency, and the Regional Health Agency.

This study employed a discrete choice experiment (DCE) as a scenario-based decision-making approach to quantify preferences for specific attributes by observing choices among proposed alternatives, estimate the value of a good or service based on its distinctive features. It has the assumption that individuals ( $i$ ) will choose the alternative ( $m$ ) from a set that gives them the highest utility ( $U$ ) from the observable part ( $V$ ) and the unobservable part (error) (Bateman, 2004).

$$U_{im} = V_{im} + \varepsilon_{im}$$

The choice set was designed with three alternatives for each set of eight cards. The sampling process followed Orme (2010). From a total of 94 required samples, we obtained 63 visitors, in accordance with the previous visit population of 638. We also obtained a total of 125 respondents from a total of 223 members of the tourism community in surrounding villages adjacent to Wanagama.

## 3. Result

According to the survey FGDs with local communities, despite their inactive tourism group, they pursue a collaborative effort to promote local growth, revitalize local tourism organizations to gain

role, and aspire for enhanced nature health awareness. While key informant interviews highlighted that the current forest healing national standard principally focuses on site and management criteria; however, there is lack of inclusivity with local communities or holistic cultural incorporation, which was a matter rarely addressed and reached local government.

Preference results demonstrated a reflection of the community's expressed desire (Table 1.). It identified significant variations among the proposed attributes. Collaboration was the most preferred attribute, followed by landscape, program, and guide for the combined and local communities. Meanwhile, for visitors, the program attribute ranked second after collaboration, followed by landscape and guide. The price's significant negative correlation indicated that a price increase is associated with less favorable among respondents.

**Table 1.** Preferences by characteristic interaction

	4,512	3,000	1,512
<i>Number of obs</i>			
<i>Pseudo R<sup>2</sup></i>	0.46	0.47	0.46
Variable	Combined	Local Community	Visitor
Program	1.01*	0.91*	1.21*
Guide	0.43*	0.40*	0.51*
Landscape	1.21*	1.33*	0.98*
Collaboration	1.68*	1.66*	1.73*
Price	-0.003*	-0.003*	-0.001 <sup>ns</sup>
ASC ( <i>current</i> )	8.88*	8.47*	28.47 <sup>ns</sup>
Collab x age	0.023*	0.022*	0.033***
Prog x age	-0.2*	-0.024*	-0.02 <sup>ns</sup>
Prog x edu	0.17**	0.10 <sup>ns</sup>	0.30***
Prog x inc	-0.06***	-0.29*	0.07 <sup>ns</sup>
Guide x edu	0.15*	0.12**	0.19***
Land x gender	0.35***	0.55***	0.12 <sup>ns</sup>

\*) Significant of 1%, \*\*) Significant of 5%, \*\*\*) Significant of 10%, ns) Not Significant

The prioritization of these factors showed diversity, with older individuals favoring collaboration and those with higher education prioritizing programs and guides. In the context of negative preference, the program was less appealing to older age groups and those with higher incomes. The landscape category was identified as the preferred option for the higher gender, as indicated by the data sets.

Only the combined group and the local community exhibited a Willingness-to-Pay (WTP) (Table 2). It was mainly due to the insignificant effect of the price

variable on the visitor group. The WTP assigned a higher value to the forest in its current state (ASC) than to the other options. Therefore, the result indicated that, although forest healing development had potential, the combined and local community inherently values the forest in its current state as a regular educational forest tourism destination.

**Table 2.** MWTP estimates for each groups in Rp

Categorical Variable	Combined	Local Community	Visitor
ASC	2.854	2.240	0
Sum	1.397		
Alternatives	1.504	1.241	0

#### 4. Discussion

The findings indicate the preference for collaboration holds higher utility than specific improvements to the landscape, program, or guide services. This aligns with studies such as Shoyama et al. (2013) which revealed distinct prioritizations for specific ecological outcomes, and Zong et al. (2017) underscored the most important attributes's unique and profound experiences. For other lower-level features, a series of targeted adjustments are necessary to ensure adaptive forest healing operations. Chaminuka et al. (2012) suggest specific challenges require detailed approaches by tailoring program plans that resonate specifically with diverse groups.

This study provided insights into development that consider factors for implementation to involve local communities, as well as attentive pricing strategies. For successful forest healing, it is important for regulation and policy to prioritize public preferences and socio-cultural characteristics.

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