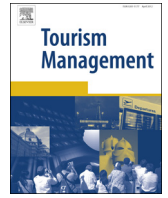




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## Evaluating the relaxation effects of emerging forest-therapy tourism: A multidisciplinary approach



Yasuo Ohe <sup>a,\*</sup>, Harumi Ikei <sup>b,c</sup>, Chorong Song <sup>b</sup>, Yoshifumi Miyazaki <sup>b</sup>

<sup>a</sup> Department of Food and Resource Economics, Chiba University, Japan

<sup>b</sup> Center for Environment, Health and Field Sciences, Chiba University, Japan

<sup>c</sup> Forestry and Forest Products Research Institute, Japan

### HIGHLIGHTS

- Relaxation effects of forest therapy tourism were studied from physiological and economic multidisciplinary approaches.
- Physiological and psychological evidence of relaxation effects lasted for 3 - 5 days after forest therapy.
- Ageing local population makes it difficult to increase the number of households providing home stay services to tourists.
- Integration of scientific evidence to support viable new rural tourism businesses is necessary with marketing strategy.

### GRAPHICAL ABSTRACT

**Title** (red): Rural tourism is expected to play a role in enhancing health. However, objective and subjective scientific evidence of its benefits have not been established.

**Aim** (green): To investigate the relaxation effects of forest therapy tourism both physiologically and psychologically.

**Literature review** (blue): Confirmed that the topic had not been addressed both objectively and subjectively.

**Methodology** (purple): Multidisciplinary approach

- 1) Physiologically and psychologically clarified the relaxation effects of forest therapy tourism.
- 2) Clarified conditions for a viable business.

**Findings** (orange): 1) Relaxation effects in terms of physiological and psychological aspects were revealed, which lasted for 3-5 days after forest therapy. Lasting effects among those with systolic blood pressure >120 mmHg were weaker than those in the entire group. 2) The ageing and depopulation of the local community made it difficult to increase the number of households that provided home stay accommodation services.

**Implications** (yellow): It is necessary to fully integrate scientific evidence to support a viable new rural tourism business. To achieve that, a partnership with stakeholders outside of the community should be developed.

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### ABSTRACT

Considering the increasing demand for rural areas to play a role in easing stress mainly experienced by urban dwellers, we investigated from a multidisciplinary collaborative approach, i.e., physiological, psychological, and rural business management perspectives, the relaxation effects of forest-therapy tourism, an emerging type of rural tourism, on a group of urban office workers. Also investigated were conditions necessary for a sustainable rural business in Chizu, western Japan. First, the results verified physiological and psychological relaxation effects, which lasted from three to five days after forest therapy. The lasting physiological and psychological effects among those with systolic blood pressure  $\geq 120$  mmHg, however, were weaker than in the entire sample. Second, due to the ageing and depopulation of the local community, increasing the number of households that provided home stay services was difficult. In summary, it is necessary to fully integrate scientific evidence to support a viable new rural tourism business.

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\* Corresponding author. Dept. Food and Resource Economics, Chiba University, 648 Matsudo, Matsudo, Chiba, 271-8510, Japan.  
 E-mail address: [yohe@faculty.chiba-u.jp](mailto:yohe@faculty.chiba-u.jp) (Y. Ohe).

## 1. Introduction

With the increases in life span in modern society, it is becoming important not only for individuals but also for the entire society to remain fit as long as possible amid soaring national medical costs under tight state financial constraints. Tourism activity based on

rural resources is expected to play essential and new roles in this context. The connection between wellness or well-being of tourists and rural resource-based tourism has been studied mainly in Nordic countries (Hjalager, 2011; Hjalager & Flagestad, 2012; Konu, Touhino, & Komppula, 2010). Those studies were subjective evaluations of the benefits of such rural tourism by those in the field of tourism. Studies to verify the positive effects of relaxation of body and mind based on physiological evaluations in connection with rural tourism have not been conducted although subjective evaluations by tourists and/or operators are widely available. If physiological benefits in addition to psychological benefits could be verified, such scientific evidence could be used in more effective and more precisely focussed marketing of rural resource-based tourism. Marketing has been considered to be less proficient by rural-tourism operators than by their counterparts in urban areas.

Thus, to demonstrate the significance of the relaxation effects, these effects should be clarified both subjectively and physiologically. A collaborative study between social and natural scientists can more effectively produce novel evidence than a study by a single discipline. To our knowledge such a multidisciplinary collaborative study has not been conducted fully.

Among rural resource-based or rural tourism, “forest bathing” and “forest therapy” are often used interchangeably although forest therapy has been considered to be more advanced in terms of evidence-based disclosure of the multifunctionality generated by producers in forestry and agriculture. Miyazaki, Ikei, and Song (2014) described this type of tourism as forest therapy rather than forest bathing. The difference between the two concepts is quite clearly defined because the effects of forest therapy are evidence-based in contrast to those for forest bathing (Lee, Park, Tsunetsugu, & Miyazaki, 2012). Along with the progress in studies of forest therapy, tourism activity combined with forest therapy has been emerging, which this paper defines as “forest therapy tourism”. In Japan a “forest therapy program” (Ochiai et al., 2015a, 2015b) has been implemented as a revitalization measure in remote forest communities and has been explored as a new rural business opportunity. Thus, we define forest therapy tourism as a type of rural health tourism in forest areas to achieve mental and physical relaxation based on evidence of its effects psychologically and physiologically. From this definition, we can say that forest therapy tourism aims at preventive medicine rather than medical treatment. This evidence-based new feature is the reason why we focus on forest therapy tourism among rural tourism.

The traditional social science approach, however, is likely to have limitations in exploring the potential of this new type of rural tourism. To overcome these limitations, it is necessary to take a multidisciplinary approach with natural science, which enables us to explore evidence-based effects of rural tourism combining an understanding of physiological and psychological relaxation effects. This evidence can then be integrated into a viable business management and marketing strategy.

Thus, this paper sheds light on the relaxation effects generated by forest therapy tourism in terms of physiological and psychological aspects from a multidisciplinary perspective. In particular, we investigated the effects of forest therapy with a group of urban office workers with systolic blood pressure (SBP)  $\geq 120$  mmHg who were presently in good health but whose health could potentially deteriorate in the future. This included the duration of the effects. Additionally, the issues to be overcome in the development of forest therapy tourism as a sustainable rural business were also examined.

## 2. Literature review

This literature review focusses on the demand side in tourism

and how tourists evaluate tourism experiences and gain satisfaction in subjective or objective physiological terms. How tourists view tourism under a given social context has been a main research interest (Urry, 1990). Tourism research that explores issues of tourists' satisfaction is logical because it is widely believed that the aim of tourism is to maximize tourists' satisfaction, resulting in subsequent profit maximization. Rural tourism, which is the focus here, is not the exception. Table 1 summarizes the results of our literature review, which provides an overview of research trends, topics of study, and methodology in rural resource-based tourism focussing on tourists' satisfaction and well-being. In Table 1, the first column from the right shows topics that were not dealt with in the reviewed study. From this table it is evident that previous studies focussed mainly on tourists' subjective satisfaction, providing a rationale for our multidisciplinary approach.

Studies on rural tourism have drastically increased, with topics being highly diversified. For our purpose, we focussed on tourists' satisfaction and well-being, especially the mental health aspects of rural tourism. First, based on the definition by Ohe (2003, 2011) and Ohe and Kurihara (2013), this paper defines rural tourism as an economic activity that internalizes multifunctionality, i.e., positive external effects on society generated by agriculture and rural resources including forestry, which means that rural tourism aims to create income opportunities and establish viable rural businesses. To this end, although Ohe and Kurihara (2013) verified the positive correlation between rural tourism and local farm brand products in Japan, no reference was made to the relaxation effects of rural tourism, especially tourism in forests. From this perspective, forest therapy tourism is defined here as an emerging type of rural tourism that tries to internalize the multifunctionality of forestry, especially focussing on relaxation effects, to create income opportunities.

Generally, rural tourism is comprised of two essential components: nature-based and heritage-based. Although every rural tourism area has one or two of these components or a mixture of the two, the degree of the combination depends on the geographical and historical contexts of the rural areas. Compared with the surge in heritage and cultural tourism research also in the rural tourism field (Ohe & Ciani, 2012), nature-based tourism has been studied less extensively. In contrast to the large number of demand analyses of rural tourism, supply side studies are scant. From the authors' perspective, there have been no strategic assessments of rural tourism on the supply side based on objective evidence from the demand side. As to studies on the demand side, these studies have included a wide range of perspectives ranging from analyses of preferences and segmentation to analyses of tourist satisfaction and well-being.

In the field of rural tourism, Sharpley and Sharpley (1997, pp. 45–65) mentioned that rural tourism is a niche and up-market due to the high income profile of rural tourists. Ohe (2003, pp. 146–161) confirmed the same profile for tourists to rural areas in Japan. Schmitz, De Aranzabal, and Pineda (2007) categorized visitor preferences in the rural cultural landscape in Central Spain. Park and Yoon (2009) revealed various segments of motivations for rural tourism through a Korean case study by a factor-clustering method. Kelley, van Rensburg, and Jeserich (2016) quantitatively evaluated the determinants of demand for walking trails in Ireland. With respect to studies on tourists' satisfaction with rural tourism, Devesa, Laguna, and Palacios (2010) dealt with an orthodox relationship between motivation and visitor satisfaction with rural tourism in Spain. Loureiro (2010) applied the concept of customer delight for rural tourists in Northern Portugal by a partial least squares (PLS) approach. Likewise, Loureiro and Kastenholz (2011) investigated satisfaction, delight, and loyalty towards rural lodging units in Portugal by PLS. Frías-Jamilena, Del Barrio-García, and

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