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A Three-Day Forest-Bathing Retreat Enhances Positive Affect, Vitality, Optimism, and Gratitude: An Option for Green-Care Tourism in Italy?

Beatrice Guardini [1], Laura Secco [1,*], Angelica Moè [2], Francesca Pazzaglia [2], Giovanna De Mas [1], Matteo Vegetti [3], Rocco Perrone [3], Ann Tilman [3], Manuela Renzi [3] and Stefania Rapisarda [3]

[1] Department of Territorio e Sistemi Agro-Forestali (Land, Environment, Agriculture and Forestry) (TESAF), University of Padova, 35100 Padova (PD), Italy; beatrice.guardini.bg@gmail.com (B.G.); giovanna.demas@unipd.it (G.D.M.)
[2] Department of General Psychology, University of Padova, 35100 Padova (PD), Italy; angelica.moe@unipd.it (A.M.); francesca.pazzaglia@unipd.it (F.P.)
[3] IvyTour, 85100 Potenza (PZ), Italy; matteo@ivytour.it (M.V.); rocco@ivytour.it (R.P.); ann_tilman@hotmail.com (A.T.); manuelarenzi@hotmail.com (M.R.); stefaniarapisarda.itaca@gmail.com (S.R.)
* Correspondence: laura.secco@unipd.it

Abstract: Forest-bathing experiences can be seen as guided recreational activities led by non-clinical trained practitioners in the context of green, slow, and mindful tourism. Notwithstanding its growing practice, there is a lack of research on the psychological benefits which can help support nature-based tourism destination managers in unlocking the potential of this emerging tourism demand. This study will fill in this gap by testing the hypothesis that a three-day forest-bathing retreat, which fits with the most common type of holidays in Europe, will enhance positive affect, vitality, optimism, and gratitude as indicators of hedonic and eudaimonic well-being. Forty-four adults were involved in the residential program and filled-in self-report questionnaires before and after the experience to assess the well-being dimensions considered. Results showed a significant increase for all the assessed variables. We conclude that forest bathing as a mindful tourism practice carried out in natural settings dominated by forests can favor hedonic and eudaimonic well-being, thus becoming a potential source of attractiveness for nature-based touristic destinations, but more transdisciplinary efforts are needed to exploit this potential. In particular, research gaps still exist in Europe on cause–effect relations between forest features and psychological benefits, how forests could be managed to guarantee these benefits to the advantage of a tourism destination, and how tourism and forest management sectors could collaborate in this direction.

Keywords: forest bathing; well-being; tourism; eco-tourism; green care; vitality; optimism; gratitude; transdisciplinarity

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1. Introduction

In Japan, the term forest bathing describes the practice of simply being in a forest while actively and consciously engaging with it through all our senses (e.g., sight, hearing, taste, smell, and touch) [1]. Even though this corporeal practice has become the foundation of what is today defined today as forest medicine—namely, "a research-based healing practice through immersion in forest environments with the aim of promoting mental and physical health and preventing disease" [1]—the idea of walking in the woods to recover or achieve good health has been part of the tradition in most of the world's countries for centuries [2]. Not surprisingly, in Italy, forest bathing and forest therapy are developing as two separate practices that address different target groups and whose activities are guided by different practitioners [3]. Recent scholarship on forest therapy as an intervention targeting the fragile population and guided by clinical practitioners has been carried out by

the National Research Institute (CNR) together with the Italian Alpine Club (CAI), and the first handbooks have been published to frame this emerging field and to inform clinical practitioners about good practices on the subject [4]. At the same time, forest bathing is unfolding as a guided group recreational activity led by non-clinical practitioners trained by independent private organizations (e.g., Forest Therapy Hub, Association of Nature and Forest Therapy Guides and Programs, International Nature and Forest Therapy Alliance). In particular, guided forest-bathing experiences have been proposed as mindful tourism practices that could contribute to a more sustainable use of natural resources besides favoring a general state of well-being [5]. More recently, forest bathing has been recognized as one of the most common practices of green-care tourism, which is described as "a wide range of organized tourism experiences and products that rely on nature and wild spaces for tourists in search of health, well-being, and regeneration" [6]; forest-therapy tourism has been mentioned as an emerging tourism activity [7], and it has been suggested that by combining "forest baths" with recreational and touristic activities a new type of tourist product can be created [8]. However, while forest immersions as therapeutic interventions are under investigation, questions arise concerning the effectiveness of forest bathing as a tourism product in terms of social and psychological outcomes [2], and only a few studies specifically explore this topic [8]. This research intends to contribute to filling in this gap by providing further evidence of the psychological impacts of forest bathing as a reiterative and residential practice prolonged over multiple days as a green-care and eco-tourism activity that has the potential to support the sustainable development of tourism in nature-based tourism destinations.

Research Aims

Previous research demonstrated the effectiveness of one-shot and short-term forest bathing experiences on single health and well-being indicators. This study aimed to go beyond these important results by testing the psychological benefits of a forest-bathing retreat, including a range of hedonic and eudaimonic measures.

In detail, for the first time, this study (i) assessed the psychological benefits of a forest-bathing holiday retreat, set at three days for practical reasons and because this is the typical average length of tourist stays at accommodations in Italy, and (ii) considered as dependent variables a diverse range of hedonic and eudaimonic well-being factors, including vitality, optimism, gratitude, and effect, which have rarely been considered in the contemporary forest-bathing literature. The guiding hypothesis was that the forest-bathing retreat, where tourists reside at the forest location over multiple days, and the benefits of a range of forest-bathing activities increase positive affect, vitality, optimism, and gratitude.

This study also intends to discuss whether a three-day retreat based on forest bathing with these positive psychological benefits can become a green-care tourism product that is able to value nature-based tourism destinations in Italy with a holistic approach to sustainability. While positive socio-psychological effects of forest bathing have been pointed out as factors of the attractiveness of forest-dominated tourism destinations, such as natural parks, we stress that very limited attention has been given so far to forestry- and tourism-related aspects, i.e., how forests are managed to guarantee not only the accessibility and safety of tourists and guided forest-bathing sessions, but also long-term sustainability at the intersection between natural settings and tourism activities.

2. Guiding Concepts

2.1. The Role of Nature in Experiential Tourism

Forest bathing as a tourism product is developing in combination with a new conception of the tourist experience. In fact, while tourism activities have generally been considered as practices of hedonic consumption related to a specific product and strongly connected to feelings of pleasure [7], contemporary scholars disclose new trends toward tourism that is "transformative" [5,9,10] and where the experiential involvement of tourists during their leisure time appears essential [11]. In fact, psychologists differentiate between

two important pathways influencing well-being, that is, hedonic and eudaimonic factors. The first ones are connected to one's own pleasure and enjoyment, while the second ones relate to the experience of meaning and purpose. It is clear that motivations connected to eudaimonic well-being contribute to shaping the tourist's experience as this is perceived as a way to build one's own psychological capital via the experience of hope, optimism, and learning throughout the journey [12,13]. In fact, research at the intersection of tourism and positive psychology focuses on how tourists can experience gratitude, empowerment, and a sense of engagement and purpose during their leisure time [14]. Within this contextual framework, it appears that healthy natural environments will play a key role in supporting tourism as an experiential, transformative practice [9]. In fact, the exponential growth of wellness tourism shows that travelers will increasingly link personal well-being with those of the people and the places that they visit [15] (p. 14), and the rise in the number and diversity of green-care tourism activities, including forest bathing [3,5], shows that tourists often look at natural environments as ideal settings to reach out to for feeling better, but also for learning about themselves and their own well-being [9,16]. At the same time, and particularly after the COVID-19 pandemic, the developments in acknowledging nature's benefits for both mind and body [17,18] have been accompanied by attempts to integrate green-care tourism products and services in an overarching framework of affordable and accessible health interventions to overcome socio-emotional distress [19,20]. In parallel, even before the pandemic, eco-tourism has grown worldwide. This is described as the practice of traveling to relatively less commercialized and exploited natural destinations to appreciate both their natural and culturally genuine settings and to learn about wildlife while contributing to preserving it and the local ecosystems [21,22]. Eco-tourism is, therefore, an experientially oriented nature-based form of tourism, often connected to nature and biodiversity protection in protected areas, such as parks. If managed competently, it can provide high economic benefits to these destinations besides relatively low environmental impacts [23]. Its role in stimulating multiple stakeholders responsible for the co-management of protected areas, e.g., [24], in promoting pro-environmental behavior [25], as well as in supporting the economic development and business management of tourism destinations in connection to sustainability concerns has been studied (and debated); however, research is lacking on the role of eco-tourism in psychological well-being [21] (p. 10).

2.2. Forest Bathing as a Transformative Practice with Potential for Tourism and Sustainability

Forest bathing can be a green-care tourism practice that affords tourists with possibilities for experiential learning and personal transformation while engaging in activities connected to local natural and cultural settings that boost their own individual health and well-being. This is aligned with the concept and intention of eco-tourism [20]. Against this background, we employ psychological well-being theories to investigate the relationship between forest bathing as a prolonged and residential tourism activity and forest bathers' psychological well-being outcomes. In this sense, this paper can contribute to filling the knowledge gap about the role of eco-tourism in psychological well-being, even if it focuses on a special set of tourism practices, i.e., forest bathing and its potential to create a connection with the forests within protected areas. To the best of our knowledge, so far, only a few studies have explored forest bathing as a tourism practice in the European context [5,26], and none have researched the impacts of multiple-day forest-bathing retreats on human flourishing and well-being from a eudaimonic perspective. Therefore, considering different facets of tourist's hedonic and eudaimonic well-being and the relevance that the last one is gaining in contemporary green-care tourism scholarship, we believe that exploring the following well-being factors in the context of forest-bathing activities appears relevant.

2.2.1. Emotions

Nature-based tourism activities can play a crucial role in mitigating socio-emotional distress, thanks to the natural environment's capacity to restore mental resources [11]. The study of human emotional response to different natural stimuli is not new to psychology

literature [27–30], and it has been shown that exposure to natural environments can trigger positive emotions [31,32] and induce feelings of calmness [33]. Research on forest bathing and forest therapy has ascertained that during forest immersions, people tend to experience decreased negative feelings, such as depression, anger, and fatigue, and increased positive emotions that can be maintained over time [34,35].

2.2.2. Vitality

Vitality is defined as a positive feeling of aliveness and energy that is strictly connected to eudaimonic well-being. It is conceptualized as "an energy that is perceived to emanate from the self", and it can be experienced differently by individuals as it depends on both one's own physical and psychological state [36]. Vitality has been studied as a precursor of tourist experience quality, therefore influencing tourists' attitudes and having an impact on environmental stewardship [37,38]. Few studies have investigated the impacts of forest bathing and exposure to forest environments on subjective vitality. One reports that feelings of subjective vitality appear to be stronger after exposure to a forest environment compared to an urban one [39], and another shows that even 15-min winter forest immersion can increase forest bathers' subjective vitality [34].

2.2.3. Optimism

Optimism is described as a "variable that reflects the extent to which people hold generalized favorable expectancies for their future" [40]. Feeling optimistic and sustaining a good mental state are closely interrelated, since the tendency to expect positive outcomes in relation to one's own life can contribute to feeding people's psychological resources [41]. Integrating the concept of optimism in tourism research could be relevant for understanding how the tourism experience has changed in recent years [42], but scholarship is fundamentally lacking at the intersection of these fields. Feeling optimistic can shape the tourist's experience by nurturing the belief of being able to produce positive outcomes during leisure time [11]. Moreover, dispositional optimism could also predict the tourists' adoption of eco-friendly behaviors [43]. To the best of our knowledge, forest-bathing activities' impact on optimism has never been investigated. However, forest bathing has been studied in relation to different mental well-being factors that are indirectly related to optimism, including self-compassion and common humanity, which were found to increase after a three-day forest-bathing retreat [44]. Qualitative studies also showed that a guided mindful engagement with forest environments might help individuals experience optimism [5,35].

2.2.4. Gratitude

Gratitude has been defined as an interpersonal emotional response of wonder, thankfulness, and appreciation for life when one feels loved and esteemed due to the act of receiving kindness [45]. Very few studies have researched gratitude in a tourism context, even though this emotion could impact the travelers' wellbeing [7]. Practicing forest bathing for a few hours can trigger feelings of gratitude toward nature as well as toward other people [5], while ecotherapy interventions that support a mindful engagement with green spaces can also generate gratitude toward others [46].

So far, the positive effects of forest-bathing activities on well-being dimensions reported above have been demonstrated typically in short or single-shot experiences. In this study, we test the effects of a prolonged, reiterative, and residential forest-bathing retreat, with the hypothesis that it might also increase feelings of gratitude, optimism, vitality, and positive affect reported by participants. We look at these psychological effects considering prolonged forest-bathing retreats in natural settings as a special type of eco-tourism. If designed and managed "competently", e.g., in protected areas [23], it may have the potential to address sustainability with respect to all its three main aspects—environment, society, and economy. It can be seen as an activity that can promote not only a more respectful use of natural resources and protected areas (environment), but also a connection with the genuine cultural settings of the local population (society) while providing options for

business development based on tourism (society and economy) in areas that are often economically marginalized [5]. Moreover, and more importantly, while the fact that ecotourism is always positive for the environment is controversial [21], direct, intentional, and appreciative experiences in nature have been mentioned as the forms of person–nature interaction that are most strongly linked to pro-environmentalism [47]. Forest-bathing retreat experiences can be considered both direct and intentional, as they are intentionally undertaken by tourists who want to be in direct contact with forests and to have appreciative experiences in nature, as participants intend to enjoy the natural environment without consuming or altering it [47]. On the one hand, they may have the potential to help the sustainable development of nature-based tourism destinations and enhance the positive attitudes of participants toward the environment, thus possibly contributing to Sustainable Development Goals 8 and 15. However, as mentioned in relation to other countries (e.g., Serbia), "how the implementation of forest bathing in tourism strategies can aid the sustainable development of destinations warrants further attention" [5] (p. 8). On the other hand, they may also have the potential to improve feelings of optimism, gratitude, vitality, and positive emotions, thus possibly contributing to Sustainable Development Goal 3 as well as to the Inner Development Goals 3 and 5, i.e., some of the key elements of the complex construct of wellbeing [48].

3. Materials, Methods, and Procedures

3.1. Participants

Participants were selected via convenience sampling with the mediation of a tour operator that started to offer forest-bathing retreat packages to its clients in 2021. Participants were all tour operator's customers who were contacted via email, social media, or word of mouth directly by the tour operator employees. Forty-four adults (38 females and 6 males) registered for participation via the website and paid in advance for the forest-bathing retreat holiday. Most of them (52%) were aged 43–65, followed by the age group of 26–42 (43%). Only one participant was aged 19–25, and one was over 65. There were 8 groups of adults, 3 to 8 in size; 5 were mixed-gender, and 3 were only women. Most of them did not know each other. Some of the groups contained a couple, while in retreat FBR2, the group included two couples, a senior one and a younger one. Spots were filled on a first-come-first-served basis. All participants, except one, were Italian national domestic travelers.

3.2. Measures

The following questionnaires were administered via paper and pencil by the forest-bathing guides directly at the location where the retreat took place, respectively, at the beginning and at the end of the three-day experience. Participants had been informed in advance, at the time of booking, about the research aims and context and registered voluntarily to participate in the study. Questionnaires did not report any participants' names, and data were processed exclusively in anonymous and aggregated form. To match the pre- and post-activity responses, participants were asked to create a personal alphanumeric code and add it to the questionnaire. During the whole research process, an agreement was in place between the University of Padova and the tour operator to ensure data confidentiality.

3.2.1. Self-Assessment Manikin (SAM)

The Self-Assessment Manikin (SAM) [49] is one of the most used tools to assess people's emotional responses in terms of the degree of pleasure, arousal, and dominance to a wide variety of stimuli. The tool includes three picture-oriented items, where participants are asked to self-assess, on a 5-point figurative scale, to what degree they are experiencing pleasantness/unpleasantness, excitement/calmness, and dependence/independence at a specific time.

3.2.2. Subjective Vitality Scale (SVS)

Participants' subjective vitality was assessed via the Subjective Vitality Scale (SVS) [36,50] validated in its Italian version (forthcoming). The scale includes 6 items, such as "I feel alive and vital" or "I look forward to each new day", that are rated on a 7-point Likert scale (where 1 = "strongly disagree"; 7 = "strongly agree").

3.2.3. Life Orientation Test-Revised (LOT-R) Scale

Optimism was assessed using the short version of the Life Orientation Test-Revised (LOT-R) scale [51], the Italian validation [52]. The questionnaire included 10 items on a 5-point Likert scale (where 0 = "strongly disagree"; 4 = "strongly agree"). Of the ten items, three were negatively worded, such as "I hardly ever expect things to go my way", and thus, were reversed-scored, and four represented filler items, and thus, were not used to calculate the final score. Positive constructs included affirmations, such as "I'm always optimistic about my future" or "In uncertain times, I usually expect the best".

3.2.4. Gratitude (GQ-6)

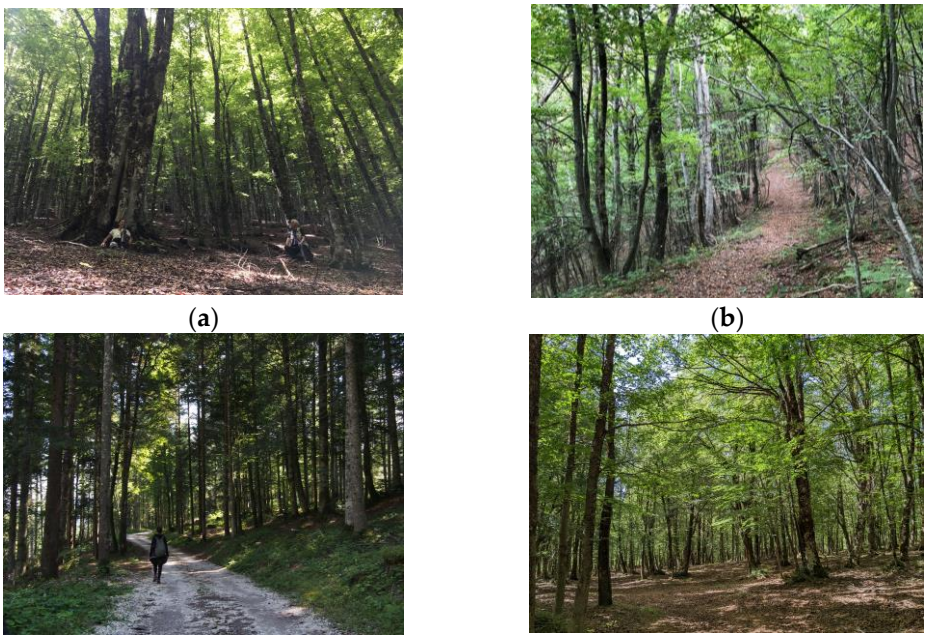
The disposition of participants to experience gratitude was measured via the Gratitude Questionnaire (GQ-6) developed by [53] in its validated Italian version by [54]. Participants answered a 6-item self-reported questionnaire and rated statements on a 7-point Likert scale (where 1 = "strongly disagree"; 7 = "strongly agree"). The questionnaire included four positive constructs (e.g., "I have so much in life to be thankful for) and two constructs with negative wording, thus reverse scored (e.g., "When I look at the world, I don't see much to be grateful for").

The post-intervention questionnaire also included a short section for collecting demographic data, including the participants' age range and gender.

3.3. Procedure of the Retreat

Participants joined a three-day forest-bathing retreat between May and October 2022 in sites chosen by the tour operator according to personal knowledge, on the basis of the availability of recreational services and facilities at the retreat sites and—above all—on the basis of the availability of appropriate forest sites for the forest bathing experiences. The areas were located in four different Italian regions characterized by different altitudes, climates, and forest typologies (Figure 1). In terms of weather conditions, the days of the retreats were set in Spring/early Summer and early Autumn seasons to reduce the risk of having potentially uncomfortable conditions for the tourists who booked the participation in advance. These periods were chosen because, in the various locations, they were typically sunny or cloudy, with mild temperatures. In case of bad weather conditions, indoor alternatives were available (e.g., a spa hotel with water). Overall, four main forest types could be identified in the areas selected for the forest-bathing guided sessions (Figure 2): pure beech forest; coniferous forest; chestnut forest; and mixed beech forest.

Figure 1. The five locations where forest-bathing retreats took place (own elaboration, using Google Immagini © 2023 Terra Metrics).



(**a**) (**b**)

(**c**) (**d**)

Figure 2. Forest environment at the locations where forest-bathing retreats took place: (**a**) Beech forest at Pollino National Park (Basilicata region); (**b**) Chestnut forest Monti Sibillini National Park (Marche region); (**c**) Adamello Brenta National Park (Trentino region); (**d**) Nebrodi National Park (Sicily region).

All forests were located within national or regional protected areas, five to ten kilometers away from the closest urban center, and were reachable by car. The landscape geomorphology was mostly devoid of gradients or characterized by gentle slopes with an alternation of dense forests and clearings along the trails. All the sites have been selected because of some key features, which included the accessibility and visibility inside the forest (i.e., the possibility of walking safely and easily among the trees and having good

visual control on both short and long distances) and the diversity of sensorial stimuli (i.e., various sounds, lights, colors, soil texture, level of moisture, plants and in general wildlife, natural scenarios). The participants stayed in single or double rooms, depending on their availability and preferences; all the accommodations had the same overall quality and services (hotels, private bathrooms, buffet breakfast, and dinner included). The locations of the retreats were all up to 3 km away from the main road. All of the locations were pretty remote, at least 3 km away from the nearest small town and 10 km from the nearest city. Table 1 shows a summary of the forest-bathing retreats, including location, forest type, and number of participants.

Table 1. Location, forest type, and number of participants for each forest-bathing retreat.

Location	Forest-Bathing Retreat	Forest Type	Number of Participants
Pollino National Park	FBR1 FBR2	Beech forest	8 5
Adamello Brenta National Park	FBR3	Conifers (fir, larch, pine)	4
Monti Sibillini National Park	FBR4 FBR5	Chestnut forest	16 3
Nebrodi National Parks	FBR6 FBR7	Mixed beech forest with oak, maple, fir	5 3

The overnight stay of 24 h or more makes this a tourism experience, according to the legal definition used in the official statistics on tourists. This element implies that an authorized tour operator must be involved in offering the experience to guarantee that the rights of tourists as consumers of a tourism service are respected, according to the tourism market regulations. Forest-bathing retreat packages included accommodation, food service, one forest-bathing session per day, and collateral activities aimed at diversifying the tourist offer while also enhancing participants' mind–body and environmental awareness. At the beginning of the sessions, the participants were invited to be extremely respectful of nature and had the opportunity to be introduced to the environmental characteristics of the location, including risks and how to minimize them (e.g., how to avoid or remove ticks). These included both group and individual activities and can be divided into three categories: (1) team building activities in order for participants to get to know each other and develop an open, friendly group atmosphere (e.g., at the beginning, participants were invited to form a circle, share their names and motivations of being in the retreat, and have "mirroring" warming-up exercises; e.g., one person expresses his/herself with a movement or sound, and the others repeat it all together); (2) supportive mindfulness exercises both inside and outside of the forest (e.g., mindful walking, eating), to gradually guide participants in practicing mindfulness techniques in different natural and non-natural contexts (e.g., each session started with an invitation to close their eyes or keep them softly open and focus on "here and now" perceptions through the five senses, one at a time); (3) eco-art activities (e.g., land art, such as the group-creation of mandalas using natural elements—rocks, cones, dry twings and/or leaves, plumes, etc.—that participants were able to find in the site without damaging life), to allow participants apply acquired mindfulness skills to creative and hands-on tasks. Typically, there were 3 h of activities in the morning and 3 h of activities in the afternoon, with breaks, followed by debriefing sessions, which also included the filling in of the questionnaires. Evening activities also took place on the first and, especially, the second day of the retreats. The forest-bathing sessions followed the mindfulness-based protocol adopted by the Forest Therapy Hub (FTH) [46,55], which is very similar in its general structure and types of activity to those proposed by other organizations (e.g., the Association of Nature and Forest Therapy (ANFT), as described in its application in Slovenia [8]). All the sessions were led by trained forest-bathing guides

(one guide was qualified with both the ANFT and FTH, the others with the FTH), who had an ongoing collaboration with the tour operator and applied the same protocol, even if adapted to the specific forest locations.

3.4. Data Analysis

IBM SPSS version 27 was used for analyzing data. Shapiro–Wilk test for normality resulted in significant differences for the variables LOT-R and SAM (1, 2, 3), while normality was assumed for SVS and GQ-6 (Table 2). Therefore, paired-sample *t*-tests were used to check for statistically significant differences in means pre- and post-intervention related to SVS and GQ-6 variables, while Wilcoxon Signed-Ranks Test was applied to assess differences in means for the other variables.

Table 2. Output of test of normality (Shapiro–Wilk) on sample variables (N = 44).

Variable	Statistic	*p*-Value
Subjective Vitality	0.957	0.096
Gratitude	0.971	0.335
Optimism	0.847	<0.001
Effect (Pleasure)	0.944	0.032
Effect (Arousal)	0.906	0.002
Effect (Dominance)	0.916	0.004

An a priori power analysis using G*power [56] revealed that the sample size was large enough to detect an effect size of 0.60 for one-way matched pairs within-subject design with 0.95 power; $p < 0.05$: the minimum number of participants required was 32 for parametric Student *t*-test and 33 for non-parametric Wilcoxon test.

4. Results

Mean values and standard deviations (SD) pre- and post-intervention, as well as output values in the tests, are reported in Table 3.

Table 3. Descriptive statistics and results obtained from parametric and non-parametric tests on the studied variables (*N* = 44).

Variable	Pre-Intervention		Post-Intervention		Paired-Sample *t*-Test	
	Mean	SD	Mean	SD	*t*	*p*
Subjective Vitality	4.74	1.03	5.60	1.02	3.88	<0.001
Gratitude	5.25	0.99	5.86	0.87	6.58	<0.001
Variable	**Pre-Intervention**		**Post-Intervention**		**Wilcoxon Signed Ranks Test**	
	Mean	**SD**	**Mean**	**SD**	***Z***	***p***
Optimism	15.75	3.84	17.61	3.74	3.24	0.001
Valence	2.79	0.68	3.55	0.72	4.23	<0.001
Arousal	2.96	0.89	3.47	1.10	2.38	0.017
Dominance	3.36	0.82	4.00	0.70	3.69	<0.001

The hypothesis on the socio-psychological effects was confirmed for all the variables. Paired-sample *t*-tests showed a significant difference in subjective vitality and gratitude mean scores pre-intervention compared to scores post-intervention. These results indicate an increase in participants' self-reported vitality and gratitude at the end of the three-day forest-bathing retreat compared to the pre-intervention survey (Table 3). Wilcoxon Signed-Ranks Tests indicated that median post-test ranks of non-normally distributed variables, including optimism, valence, arousal, and dominance, all differed statistically compared to median pre-intervention ranks. In particular, Wilcoxon Signed-Ranks Test on optimism showed that median post-intervention ranks were higher compared to pre-intervention, suggesting an increase in participants' self-reported optimism by the end of the three-

day retreat. Moreover, valence pre-intervention median ranks were significantly lower compared to the post-intervention median ranks, while arousal and dominance showed statistically significant differences, indicating that emotional response post-intervention shifted toward pleasantness within the valence domain, toward calmness within the arousal domain and toward independence in the dominance domain after the three-day forest-bathing experience.

5. Discussion

Human beings are "nature-friendly"; they seek connectedness with nature [42,57] to experience stress reduction [27] and energy restoration [26]. Among the various possibilities to spend time in nature, in 1982, the forest-bathing practice was first introduced in Japan. It includes, beyond the natural contact with nature and immersion in forests, mindfulness and awareness of involving all the senses and has become more and more popular. Research summarized in a recent review [58] and a meta-analysis [59] demonstrated its effectiveness when referring to single one-shot experiences, mainly in reducing ill-being. The aim of this research was to move a step further by exploring the psychological benefits of this activity in terms of increased well-being after a prolonged and residential tourism practice in forest-dominated settings of various National Parks in Italy. The results confirmed that a three-days forest-bathing retreat positively impacted different hedonic and eudaimonic well-being factors, including effect, vitality, optimism, and gratitude. These results complement those obtained in single sessions of exposure to nature by also showing that all of the assessed well-being aspects increased. Previous research [5,60–63] indeed considered only a few or found that only some aspects changed, not all. This would suggest that prolonged exposure to nature is more beneficial and can produce enduring advantages on health and well-being. The importance of prolonged experiences in nature is also highlighted by a famous researcher, which proved that human Natural Killer and expression of anti-cancer proteins in female subjects were enhanced after a three-day forest-bathing trip in different forest fields [64].

Our results on psychological effects in different Italian forests complement those obtained specifically in Mediterranean areas, e.g., Refs. [60,63] by showing that a three-day forest-bathing retreat also increases well-being aspects, namely, positive affect, vitality, optimism, and gratitude, thus displaying its potential not only in decreasing ill-being but also in favoring positive aspects. A similar result was found in previous studies that investigated forest bathing in relation to human flourishing. For example, even if based on different variables and indexes (namely, the scale of positive and negative experience SPANE scale and the Pemberton happiness index PHI I and II), a recent study carried out in Slovenia found positive psychological effects of forest therapy sessions structured in a very similar way to those applied in our study as forest-bathing sessions on tourists who spent 2.5 days in the Kranjska Gora tourism destination [8]. With regard to forest-bathing emotional impacts, as [34,35] proved for short, one-shot forest-bathing sessions, participants at the end of a three-day holiday retreat also appeared to report stronger feelings of happiness and fulfillment. In parallel, feelings of autonomy and dominance also increased, and, to our knowledge, this is an aspect of the affective experience that has never been investigated in relation to either prolonged or short-term forest-bathing activities. Nonetheless, since studies by [34,39] show that, in accordance with results in this research, self-reported subjective vitality also increases after forest-bathing activities, this could be considered coherent with an increased perceived self-mastery or a lack of perceived threats to one's own autonomy or control by the end of a three-day retreat [37]. This might have been due to an increased ability of participants to engage with themselves and the surrounding environment in a mindful way after the retreat while being supported by nature's restorative potential [58]. Moreover, as participants felt more thankful and optimistic after the retreat, this research suggests that forest-bathing holidays could, in fact, contribute to building tourist's psychological capital via developing mind–body skills, restoring mental capacities, and enhancing a sense of hope toward the future [5,11].

Looking at the concepts of wellbeing and sustainability in a broad sense, we believe that forest-bathing retreats in natural settings can be interpreted as green-care eco-tourism activities able to support both inner development goals [48] and sustainable development. This can be connected to the development of new economic activities (green jobs) in the tourism destinations [5,6], the recognition of the relevance and value of protected forest areas for human health and well-being as key ecosystem services provided by the biosphere [5,65] and a greater enhancement of pro-environmentalism with respect to other types of experiences in nature [47]. Moreover, being designed as a three-day holiday, a forest-based retreat such as the one we tested would properly fit with the most common stay in hotels not only in Italy but in all the EU Member States, according to the available statistics on arrivals/presences (Eurostat data on tourism, 2023), the average stay in 2021 was 2.84 nights.

5.1. Limitations

This study investigated the impacts of forest bathing on fit adults who did not report any physical or mental health conditions ahead of treatment and participated voluntarily in the study; thus, the results from this research should not be generalized in any case nor employed in a clinical context. Moreover, the study was designed without a comparison group; thus, psychological improvements could not be attributed exclusively to forest-bathing activities but might be ascribed to the overall holiday experience. This limitation, i.e., the presence of other factors that might have influenced the results, has also been pointed out in other similar studies. These factors include relational aspects (meeting new people, living together for three days), weather conditions (e.g., air temperature, humidity, presence of negative air ions), and overall quality of tourism services (e.g., the comfort of accommodations, cuisine) [8,65]. The relatively limited number of participants (N = 44), even if similar to those in other studies (e.g., N = 43 valid questionnaires in the Slovenian study [8]), the uneven sample sizes of the different subgroups, the diversity of the forest locations and dates of retreats contribute to all potentially confounding variables, which might have affected the results. However, on the basis of previous research showing that a holiday trip in a city does not have the same benefits on human health as a holiday trip in a forest [66], we can presume that other factors might have minor implications on the general validity of our results.

Finally, outcomes deriving from the measurement of psychological states based on a set of items, such as the Subjective Vitality Scale (SVS), have been mentioned as questionable because of the too short exposure to the experience in the forest with respect to the time length for which the questionnaires were designed, and a longer period of observations (e.g., 1 month instead of a few days) has been suggested [8]. However, observing tourists for longer periods does not fit with the current tourism practices in Italy and in other European countries. Therefore, not only does this not seem a practicable solution, but it would not align with the real behaviors of tourists who decide to live these types of experiences in nature and self-pay to participate in the retreat. Thus, while having longer periods of observation may help consolidate the validity of the psychological effects, it would not be able to provide insights into the common and real experience of having a three-day holiday in nature. Moreover, a robust counterfactual control group would be very hard to identify [67]. We believe that our approach of comparing the pre- and the post-experience, despite its limitation, allows capturing the effects of real tourism and offers a solution to practical challenges. Against this background, and according to future research recommendations pointed out by other scholars, we long for studies employing control groups and wider samples, as well as long-term health impact monitoring, to consolidate this research field further, which obviously also requires appropriate funding.

5.2. Perspectives

Our results in Italy, in accordance with studies that explored similar (but shorter) periods, show that spending a three-day holiday in natural environments and daily attend-

ing forest-bathing sessions has positive social and psychological outcomes. In particular, our results provide empirical evidence that forest-bathing sessions, conducted in various forests by professionally trained guides and prolonged over multiple days, combined with recreational activities, can represent new and attractive tourism products, as suggested by [6–9].

Future research should, however, go beyond the small sample size issue by also solving the sub-group size flaw and including a control group. More participants would allow for a better assessment of the effectiveness of the forest-bathing retreat. The same sub-group size should be set for every session, maybe around eight (to allow a greater sharing of experiences while guaranteeing a pair number that facilitates certain interactions between participants during the forest-bathing activities). Moreover, previous knowledge of the participants can be considered. Qualitatively speaking, we observed that each couple involved in the retreats stated that their relationship benefited from this experience; apparently, nature-connection activities allowed them to change their established view of each other and experience each other outside the usual dynamics of their relationship, which suggests the opportunity to further explore this aspect in dedicated studies. Control groups should include tourists who visit the same destination, in the same period, for the same number of days, under the same conditions (in terms, e.g., of accommodations and food) of tourists who will join the forest-bathing sessions. On the one hand, this would not solve the issue of the period of observation being too short, which was suggested to be extended to four weeks for more robust results (but also mentioned as a barrier to the research in this field because it is very unlikely that tourists stay for such a long period at a destination at once) [8]. On the other hand, this is difficult to realize in practice unless enough funds are allocated to recruit appropriate counterfactual participants [67]. We hope that our, as well as the others', results can motivate funding agencies to invest in this emerging field of study. However, at least, it would be important to isolate the effects of forest-bathing treatment with respect to other factors. Moreover, the differences among locations could be explored. In particular, comparing National Parks with different wooden or non-wooden landscapes could further help isolate the effects due to the retreat itself or to the contact with specific natural elements, such as trees, rocks, flowers, green grass, and blue spaces. Moreover, the weather conditions and the climate could affect the results and the effectiveness of the three-day retreats, which were assessed globally. Since all the retreats were in spring/summer or early autumn, most of the days, the weather was fine: sunny or cloudy, with mild or warm temperature and only brief episodes of light rain. However, these conditions were not exactly the same in all the retreats and were not assessed punctually. For example, retreat FBR7 was affected by rain every afternoon, and alternative indoor activities were offered to the participants (the spa available at the hotel provided a suitable location for water-based activities, such as guided explorations of sensory contact with and movement within the water). Future research could include measures of temperature and humidity to verify whether and to which extent these aspects moderate the effects on the variables, such as optimism assessed in this study.

From the business point of view of the the tourism industry players, such as tour operators, individual hotels, and tourism destination managers, they could design and offer forest-bathing sessions over 2.5–3 days of experience, which fits with a typical weekend-based tourism product. This is consistent with the average length of tourist stays at accommodations in Italy and other European countries (e.g., Slovenia, [8]); it will help develop green-care tourism, which market demand is likely to increase [6], and it will take advantage of the attitudes of EU citizens toward tourism in 2021. The "natural environment" is the second key aspect considered by Europeans when selecting their tourism destination, together with the price of the overall trip (i.e., 43% of them pay equal attention to the overall price and the natural environment); the "cultural offerings of museums, local events, gastronomy") remains the most important, but with only +1% of the preferences (i.e., 44%) with respect to the natural environment and overall price [68].

Considering the increasing attention toward health and sustainability development, as well as the expected growth of consumer demand for green-care tourism [6], empirical findings, such as those provided by our research, imply that healthy, safe, and accessible forests have the potential for being highly valuable natural assets for the growth or recovery of tourism in the post-Covid era. However, while research is in progress to explore the potential of forest-bathing practices as a new tourism product (e.g., Ref. [8]), to the best of our knowledge, only a few studies have focused so far on forest features and on the characteristics of forest management that can enhance the positive socio-psychological effects in Europe (e.g., Spain, Italy, Sweden, Finland, UK [69–73]). In these studies, general forest settings, such as dominant species, presence of water, or overall age of trees (mature), were taken into consideration. A recently published paper describes the key characteristics of forest therapy trails in North America (USA [74]) in more detail; it combines literature analysis and interviews with forest therapy guides to identify both site-related and trail-related criteria that give rise to health-promoting experiences in forest environments.

On the one hand, it is worth noting that the different tourism destinations included in our study were identified and pre-selected mainly on the basis of the features of the forest sites available near the accommodations by means of several exploratory field trips carried out in advance by both the tour operator and the professionally qualified forest bathing guides who later guided the sessions during the various retreats. This approach, i.e., the pre-selection of single-forest locations near the main tourism destination, undertaken by qualified forest-bathing guides, was similar in other studies, also located in a mountainous valley, very well-known and traditionally chosen by tourists for its natural environment [8]. The general features of the forest sites selected for our study in Italy were somehow homogeneous (e.g., quiet places in valleys dominated by rural landscapes, easy-to-access areas but with diversified scenarios) and consistent with the site-related criteria mentioned by the US study [74], such as tranquility, aesthetic variety, diversity, and integrity of landscapes, and the Spanish study [69], such as mature forest settings. Moreover, some of the general features of the trails chosen by the forest-bathing guides in our Italian locations are consistent with the trail-related criteria reported as relevant by [74], such as multisensory engagement opportunities and slopes that are not too difficult but hilly enough to activate interest.

On the other hand, the homogeneity in our study findings across different geographical locations in Italy, from South to North, and with different forest types, suggest that there are well-being impacts of mindful forest-based activities regardless of the environmental characteristics of the sites where they take place – provided that a few general relevant features are guaranteed, and that trails are pre-selected by professionally qualified guides. Surprisingly, well-known forest-related features, such as the presence, distribution, or percentage in the forest structure of tree species (such as beech) with high potential of emissions of Natural Volatile Organic Compounds or aromatic phytoncides, whose specific effects have been extensively explored in Asian and confirmed in European contexts [69,73], are only marginally mentioned in the USA study [74]. These discrepancies corroborate the idea that the causal relationships between specific forest features and the socio-psychological benefits are not explored enough as of yet [19] and are far from being systematized. This is especially peculiar because certain forest features directly connected with the forest structure and composition, such as the shape of leaves and bark, different shades of colors, the presence of tall and mature trees, presence of wildlife, are mentioned as key aspects by both forest-bathing guides [74] and tourists [8] in different contexts; however, in [8] only general traits such as "forest climate" or "the ambiance" are mentioned as other possible factors to consider for better understanding the effects of forest bathing on people, while [74] explicitly states that "Of the 266 studies [. . .] reviewed, less than 1 in 5 examined the outcome effects of specific forest characteristics in any details" (p. 2). We believe that this gap is due, at least partially, to the limited collaborations undertaken so far among the various scientific disciplines (e.g., medicine, psychology, sociology, tourism, forestry, urban and land planning) in exploring this emerging field of research and practice. For

example, the selection of appropriate forest sites should be combined with the identification or selection of tourism destinations that can provide facilities for alternative experiences (eventually indoor) in case of bad weather conditions. However, this is a common need for other kinds of outdoor nature-based recreational activities, such as trekking. As highlighted by previous studies, e.g., [75], more transdisciplinary, integrative approaches are needed, and we believe that this paper represents an example of this direction.

5.3. Future Research

Further research on the forest features is essential not only in order to enhance our understanding of the cause and effect of the nature-human health interaction mechanisms, but also to guide forest managers, local planners, and tourism destination managers, together with forest-related policy-makers, in co-creating and implementing new forest management strategies and establishing fruitful collaborations. The availability and accessibility of appropriate forest areas and their use for forest-bathing practices are somehow given for granted by tourists, tourism operators, and green-care guides. This assumption might be correct for public-owned forests or natural areas managed by public authorities, such as parks. These areas are typically managed, according to national laws and/or European strategies, for the purpose of generating multifunctional ecosystem services, including the cultural ones and those specifically linked to the benefits of forests for human health and wellbeing [3,19,76]. However, the interests, management attitudes, and scopes of forest owners/managers do not always fit well with the interests of tourists and tourism operators who need to access forested lands, and a correct approach, especially to private property rights, is needed [77]. Moreover, awareness of the empirical evidence of socio-psychological benefits is not sufficient to unblock the full potential of green-care tourism practices based on forest bathing. We advocate for a renewed alliance between tourism and forestry sector actors to prevent or reduce the risks of conflicts over the use of and access to forests and the way in which they are managed, but also to recognize the economic value of forestry in support of the tourism sector, eventually through the establishment of Payment for Ecosystem Services (PES) [78], where the ecosystem service is the human wellbeing deriving from the green-care tourism experience [79].

Then, more research should be conducted with the aim of promoting the involvement in forest-bathing practices since the years of schooling to develop a good habit of enjoying experiences of nature connectedness. A core issue in this aim is how to motivate students to attend. Teachers, parents, friends, and colleagues can play an important role by supporting self-determined motivation [80]. Furthermore, the way the proposals are put forward, possibly also by travel agencies, can make a difference resulting in higher likeability and retention, e.g., the desire to increase one's experience of nature.

More studies comparing the effects of managed forests with unmanaged ones and taking the property rights issue into consideration are needed in Europe. In particular, research should deepen the knowledge of at least three aspects. The first one relates to forest planning and management practices; these should be designed and implemented for the specific purpose of maintaining vital, accessible, and safe forest areas, where effective forest-bathing guided sessions could be offered avoiding or minimizing the potentially negative impacts of an increased number of tourists accessing them. This is strictly connected with the sustainable development of tourism destinations from an environmental perspective. A second aspect regards how contractual agreements between forest owners/managers and tourism operators, as well as the overall institutional and governance reforms, are needed in order for this newly emerging tourism product to be integrated not only into the tourism development strategies, but also into the environment and forest ecosystem protection strategies of tourism destinations. Natural environment settings are the most important assets for several potential green-care tourism destinations, and if they get degraded or damaged by overexploitation of timber or unsustainable management practices, they cannot be easily substituted or quickly restored (if this is technically feasible and economically affordable). Tourism operators should recognize

the role of sustainably managed, healthy, and ecologically vital forests and contribute to protecting them. This is strictly connected with the sustainable development of tourism destinations from both an economic, institutional, and environmental perspective. A third aspect is the role played by urban and peri-urban forests or green areas in increasing the attractiveness of tourism destinations that are traditionally selected for their cultural offerings, such as museums or historical cities. It could be interesting to understand whether and how much the green areas of these cities that could possibly be used for forest-bathing sessions could contribute to increasing the value of the tourism economy in cultural destinations. We believe that preliminary positive outputs derived from this investigation and our final reflections may provide the grounds for future research in this direction.

6. Conclusions

This study explored for the first time the positive effects of forest-bathing retreats in Italy, showing that they can improve participants' well-being. Going beyond previous research showing a decrease in ill-being of short-term experiences, it emphasizes the importance of devising residential experiences to maximize the benefits of repeated forest-bathing sessions in dedicated vacation days. Practically, it confirms that Forest Bathing can be seen as a new tourism product that fits well with both the common tourism practices of three-day long holidays and the potential of forest-based natural destinations with respect to the growing demand for eco-tourism and healthcare tourism. This fits well into a range of Agenda 2030 goals by not only favoring individual well-being and health but also preserving the environment and stimulating greater care for it. Future research could better address whether this kind of experience not only improves well-being but also leads to the development of more established attitudes toward the environment, as opposed to temporary changes of heart, and inspires a broad sense of connectedness not only with nature but with human beings, too. For now, the results suggest that a forest-bathing retreat is a very practical and effective way to improve well-being while having the potential for local, sustainable development of natural tourism destinations, provided that the responsible management and protection of forests is competently designed and implemented through multidisciplinary alliances.

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data and the accuracy of the data analysis. Relevant data privacy protection protocols and ethical principles for the integrity of the research have been accepted and applied by both parties.

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