Ecotourists' intentions, worldviews, environmental values: does climate change matter?

Abstract

Although ecotourism has been widely researched, much of ecotourists' characteristics, values, and worldviews are still poorly understood - particularly concerning climate change. This study profiles a sample of 2,733 Italians based on their intention to undertake ecotourism and to ascertain whether significant differences exist among them based on their socio-demographic characteristics; environmental values and worldviews (i.e., the psychological distance of climate change, materialism); and their intention to act to cope with climate change. The study identifies three clusters including high-ecotourism-intention, neutral-ecotourism-intention, and low-ecotourism-intention - significantly differing on sociodemographic characteristics (i.e., family members, level of education, occupation, occupation sector, and association membership), psychological distance, materialism, and intention to act. Potential ecotourists show themselves more sensitive and concerned toward climate change and overall, more prone to act on it. Contributions to the body of knowledge and managerial implications are discussed and suggestions for further research are given.

Keywords: ecotourism; psychological distance; materialism; climate change; sustainability; segmentation

1. Introduction

Ecotourism finds its origins in the 1980s when alternative forms of tourism were foretold to safeguard environmental, economic, and socio-cultural factors (Mondino & Beery, 2018; Weaver, 2006; Wondirad, Tolkach, & King, 2021). Like other forms of alternative tourism, ecotourism gained rapid popularity (Walter, 2011; 2013). The same popularity was evident for tourism authorities, which have adopted ecotourism approaches in a variety of countries with varying success (Buckley, Cater, Linsheng, & Chen, 2008; Carvache-Franco, Carvache-Franco, Víquez-Paniagua, Carvache-Franco, & Perez-Orozco, 2021). While in some developing nations ecotourism exceeded traditional export revenue (Stem, Lassoie, Lee, Deshler, & Schelhas, 2003), there are numerous cases where ecotourism projects have failed, mostly due to management issues (Kousis, 2000; Palmer & Chuamuangphan, 2018; Stone & Stone, 2011).

Generally, ecotourism is defined as a type of nature-based, educational/learning-based, and sustainable form of tourism (Blamey, 2001; Weaver, 2008; Carvache-Franco et al., 2021) and is mostly driven by the demand side. As such, it is a common assumption that ecotourists base their travel choices on sustainable principles (Dolnicar & Leisch, 2007;). However, past research has shown that effective/actual sustainable tourist behaviour is relatively rare (e.g., Juvan & Dolnicar, 2014; Miller, Rathouse, Scarles, Holmes, & Tribe, 2010); for instance, Weaver (2008) find that only a minority of “hard” ecotourists are highly motivated by a sustainable paradigm. In this sense, Adam, Adongo, & Amuquandoh (2019) note the importance of analysing complex and continuously evolving tourist attitudes and behaviour in the context of sustainable tourism.

While recent exploration has paid attention to the effective sustainable behaviour of ecotourists (e.g., Holmes, Dodds, & Frochot, 2019; Cini & Passafaro, 2019), more detailed profiling of the ecotourist market is still relatively overlooked. In terms of demographics, Weaver (2008) had suggested earlier that ecotourists generally tend to be female, higher-educated, higher-income, and from Western countries. Ecotourists are believed to be, at least in part, motivated by their environmental values and worldviews (Beall, Boley, Landon, & Woosnam, 2021). However, these assumptions have been mostly theoretically hypothesized, but hardly been deeply explored, thus calling for further research aiming at deepening our scientific understanding about tourists' attitudes and behaviour towards ecotourism possibly enriching the body of knowledge about new and unexplored moderator variables reflecting whether and the extent to which ongoing environmental and social-related trends and concerns are reflected in pro-environmental behaviour.

For example, the contemporary rise in concerns about climate change in academia has only timidly found its way into ecotourism studies (Khanra, Dhir, Kaur, & Mäntymäki, 2021). The consideration thereof is exceptionally important for several reasons. Tourism is extremely climate-sensitive as the climate is a tourist resource and the impacts of climate change have a significant influence on tourism in many different aspects (Hubner & Gössling, 2012; Chin et al., 2019; Scott, Hall, & Gössling, 2019). This is particularly relevant to destinations in which tourism is largely nature-based, such as sun, beach, and snow-based tourism destinations. Climate change affects the ecosystem at multiple levels and environmental degradation, which especially denotes a serious threat to the sustainable development of ecotourism (Mkiramweni, DeLacy, Jiang, & Chiwanga, 2016;

Jamaliah, Powell & Sirima, 2020). Such vulnerability to climate change and the associated impacts have been reviewed by assessing impact and vulnerability (Steiger, Scott, Abegg, Pons & Aall, 2019) in tourism studies and addressed by developing adaptation strategies and policies (Kaján & Saarinen, 2013; Jamaliah & Powell, 2018; Becken et al., 2020; Shijin et al., 2020).

In terms of tourists, perceived impacts of climate change on tourism differ by individual tourists depending on their knowledge and certainty about their, or human's, contribution to climate change through tourism (Hares, Dickinson, & Wilkes, 2010). Becken (2007) suggests that this may demonstrate that knowledge about and perception of the implications of climate change are strongly influenced by surroundings, e.g., media, which in turn can lead to pro-environmental behaviour (intention to act). However, there is still a lack of research attempting to investigate whether, and the extent to which, individuals' perceptions about climate change influence/moderate their willingness to undertake green-oriented choices and actions, such as travelling embracing the principles of ecotourism (Buzinde, Manuel-Navarrete, Yoo, & Morais, 2010; Atzori, Fyall & Miller, 2018; Dube, Mearns, Mini, & Chapungu, 2018),

Materialism is another important concept, which has only been recently introduced to ecotourism studies (e.g., Lu, Gursoy & Del Chiappa, 2016). Materialism is commonly described as a value placed on the physical consumption process than the instrument value of goods that consumers consume (Kilbourne & Pickett, 2008). As an enduring, abstract belief, the values of an individual influence their behavioural intention and behaviour through midrange cognitions, i.e., attitudes, which is often explained by a value-attitude-behaviour model (Homer & Kahle, 1988). That is, different levels of

materialistic values among individual tourists can be used to explain tourists conducting environmentally friendly behaviour, such as participating in ecotourism, at a different scale. This, therefore, calls for research on how materialistic values influence the environmental behaviour of tourists (Tang & Hinsch, 2018).

In this context, this study was therefore carried out to further deepen the scientific debate about ecotourism behaviour. Specifically, it aims to profile a sample of 2,733 Italians based on their intention to undertake ecotourism and to ascertain whether significant differences exist among them based on their socio-demographic characteristics, as well as environmental values and world views (i.e. psychological distance of climate change and materialism) and their intention to act to cope with climate change. Specifically, our study is aimed at answering the following research questions:

RQ1: Is pro-ecotourism attitude related to high/low psychological distance from climate change?

RQ2: Is high/low pro-ecotourism attitude related to high/low intention to act to cope with climate change?

RQ3: Is high/low pro-ecotourism attitude related to high/low materialism?

RQ4: Is high/low pro-ecotourism attitude related to socio-demographic characteristics?

Our results would be beneficial both in terms of theory building (i.e. deepening our scientific understanding around a somewhat overlooked research area) and managerial implications (i.e. providing policymakers, destination marketers, and tourism businesses with fresh knowledge on how to tailor their marketing and promotion activities recognising the nuances in tourists profile).

2. Literature Review

2.1. Ecotourism and Ecotourists

In the last 40 years, the definition of ecotourism has undergone many different adaptions and remains imprecise (Buckley, 2016). Blamey (1997; 2001) identifies the core criteria of ecotourism as nature-based, educational/learning-based, and sustainable. Weaver (2008) specifies that nature-based implies that attractions should be primarily based on the natural environment or some element thereof. This can also include cultural components related to the environment. The learning component can be formal, such as research or studies, while informal types of learning can include guidebooks and individual learning. Sustainability refers to meeting the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987). Weaver (2008) furthermore specifies that ecotourism is strictly related to tourist activities, and does not include migrations, commuting, military activities, and so forth.

Recent definitions also include a wider perspective, particularly on sustainability. In this vein, for example, the International Ecotourism Society (2018) adds that ecotourism in addition to the above-mentioned factors also considers sustaining the well-being of the local community. Sustainability related to ecotourism thus includes economic, environmental, and sociocultural dimensions (Wondirad et al., 2021). Conceptually, there is consequently only a fine line between ecotourism and sustainable tourism (Khanra et al., 2021). According to existing literature (e.g. Del Chiappa, Grappi, and Romani, 2016; Dolnicar and Leisch, 2007) sustainable tourism generally refers to supply-side efforts for conservation, while ecotourism is a concept driven by tourist demand. To enforce this

point, Weaver (2011) claims that in recent times, the shortage of success that many ecotourism projects have encountered is mainly due to a lack of industry understanding and commitment. In terms of research, it is thus crucial to focus on the understanding of ecotourists.

Khanra et al. (2021) identify tourist mobility and the related carbon footprint, as well as tourist attitudes and behaviour towards sustainability as two key thematic areas in ecotourism research. In terms of carbon footprint, ecotourism destinations are particularly vulnerable to climate change as it potentially impacts their attractiveness (Gössling, Hall, Ceron, & Dubois, 2012). Particular attention in this research area has been paid to mobility and the proportionally large impact of the aviation sector (Gössling & Peeters, 2007; Higham & Cohen, 2011) and possibilities to reduce flying for ecotourists (Becken, 2007; Cohen Higham, & Cavaliere, 2011).

In terms of profiling ecotourists, Weaver (2008) offers several insights. Motivation-wise, he divides them into hard and soft ecotourists, with some hybrid possibilities. Accordingly, hard ecotourists are the most extreme, physically active, make their arrangements, travel in small groups, and their travel is based on a sustainable ideology. Soft ecotourists are in the majority, making up an estimated 20% of international travel, while hard ecotourists are rare (Weaver, 2011). Soft ecotourists have a shallow need to engage with nature, have a higher crowding threshold, often use tour operators, and generally enjoy contact with nature. In terms of geographical distribution, ecotourism is a phenomenon that is most popular in western and developed countries, with other markets lagging far behind. Weaver (2011) points out that females are more likely to be ecotourists, with males being more prevalent for physical activities and bird watching. Finally, ecotourists are generally

older than overall tourists and come from higher education and higher income background. While ecotourism destinations are highly vulnerable to climate change (Gössling et al., 2012), it is anyhow not evident that ecotourists are more concerned about phenomena such as climate change than traditional tourists and their overall environmental values, worldviews and intention to act have seldom been studied. The next section will discuss this more in detail.

2.2. Environmental Values, Worldviews, and Intention to act

The need to understand the motivations of specific tourist segments (e.g. ecotourists) has been crucial and tourist motivations, at least partly, reflect their values and worldviews (Adam, Adongo, & Amuquandoh, 2019). In terms of these, understanding tourist perceptions of the impacts of climate change is the most significant and the most crucial to anticipate the tourist decision-making process and potential behavioural patterns (Gössling et al., 2012). However, a lack of research has attempted to investigate how tourists' perceptions of climate change influence their behavioural responses (Buzinde et al., 2010; Atzori et al., 2018; Dube et al., 2018).

In terms of environmental values, ecotourists and their general perceptions of climate change are crucial (Gössling et al., 2012). Another important factor to consider is the perceived distance of climate change. Construal Level Theory propagates that a high/low distance level from a psychological stimulus is related to an abstract/concrete mental representation of said stimulus (Trope & Liberman, 2010). In other words, the less psychological distance there is between an individual and the stimulus, the more concrete the mental representation will be. On the other hand, psychologically more distant stimuli are perceived as more abstract. Based on Construal Level Theory introduced by Trope

and Liberman (2010) and Spence, Poortinga, and Pidgeon (2012) define climate change distance as a psychologically distant issue, with their risks affecting only other people, nations, or people born in a distant future. The proposed dimensions of climate change distance are (1) spatial or geographical distance, (2) temporal distance, (3) social distance, and (4) uncertainty. Generally, climate change can be perceived as distant on all these dimensions, although related studies are rare (McDonald, Chai, & Newell, 2015). Research however shows that in terms of climate change, higher perceived distance leads to less sustainable behaviour (Spence et al., 2012).

The spatial or geographical distance of climate change refers to the perception that a phenomenon takes place in a geographically close or distant location (Liberman, Trope, & Stephan, 2007). Accordingly, the further away climate change impacts are perceived to manifest themselves, the less environmentally responsible behaviour is likely. Spence et al. (2012, p. 959) highlight that this is common for climate change perception in western countries, where it is often seen as a geographically distant issue.

Temporal distance refers to phenomena that are perceived to be imminent or to be happening in a more distant future. Climate change discussions are often focused on prevention (Spence et al., 2012), with a focus on future impacts. This is potentially critical, as acting on climate change often requires immediate action for a perceived long-distant benefit (Weber, 2010). Research shows that future costs and benefits are often discounted psychologically and make imminent action more unlikely (Lowenstein & Elster, 1992; Liberman, Sagristano, & Trope, 2002).

Distance between the perceiver and a social target is synonymous with social distance. Liberman et al. (2007, p. 357) indicate that this potential distance between the self and

others, familiar and unfamiliar others, ingroup and outgroup members, and status differences. Research has shown that climate change is frequently perceived as a society more than an individual risk (Leiserowitz, Maibach, Roser-Renouf, & Smith, 2010; Spence & Pidgeon, 2010) and more impactful for developing rather than developed societies (Spence et al., 2012).

Uncertainty – often referred to as "climate change skepticism" – is the most discussed dimension of psychological distance in climate change studies (Steynor et al. 2020). Generally, studies indicate that most Americans and Europeans believe that climate change is anthropogenic (Pidgeon, Lorenzoni, & Poortinga, 2008), but skepticism on the human cause is prevalent particularly among males with conservative ideologies in western societies (Milfont, Abrahamse, & MacDonald, 2021). Vázquez, Larzabal-Fernández, & Lois (2021) claim that climate change skepticism is associated with certain values or worldviews rather than a lack of knowledge in the matter. Often this is also related to beliefs in conspiracy theories and/or religious affiliations (Haltinner & Sarathchandra, 2021). According to Spence et al. (2012), individuals who were found to be uncertain about climate change were found to generally behave less sustainably. Meanwhile, some recent studies find the opposite cases, with an implication that lowering the degree of skepticism would not be a top priority for climate change management (e.g. Hall, Lewis Jr., & Ellsworth, 2018).

Worldviews concerning sustainability are often subdivided into anthropocentrism and ecocentrism (Washington, Taylor, Kopnina, Cryer, & Piccolo, 2017). Accordingly, anthropocentrism is defined as a set of values that sees humans as more important than other parts of nature; while ecocentrism is the most extensive of all worldviews, including

environmental systems as a whole and their abiotic aspects. Lu, Gursoy, and Del Chiappa (2014) highlight that anthropocentrism often relates to materialism – a worldview that places a great emphasis on the satisfaction in life and happiness derived by the possession of material goods. Accordingly, this often conflicts with ecocentric worldviews, as materialist individuals often engage in unsustainable overconsumption.

In other words, values stimulate tourist pro-environmental beliefs and attitudes while influencing tourist intention to engage in pro-environmental consumption practices, e.g., ecotourism (Homer & Kahle, 1988). Tang and Hinsch (2018) suggest understanding this phenomenon incorporating with materialism is particularly important to marketers and other stakeholders, given the increasing materialistic lifestyle and tourism's environmental impacts from tourist irresponsible consumption patterns.

Some studies show a negative relationship between materialism and tourist environmental beliefs, attitudes, and behaviour. Lu et al. (2016) find that highly materialistic tourists tend to be less favourable to ecotourism, which leads to a lower intention to engage in ecotourism activities. Hultman, Kazeminia, and Ghasemi (2015), however, find that the relationship between materialism and tourist beliefs, attitudes, and behaviour towards ecotourism can be either negative or positive as they found Taiwanese tourists with a high level of materialistic values are likely to have positive attitudes towards ecotourism because ecotourism activities are seen as part of a materialistic lifestyle whereas Swedish tourists holding similar values are not, highlighting the importance of cultural attributes in the exploration. In this regard, Tang and Hinsch (2018) reveal that materialistic individuals may engage in pro-environmental activities under certain circumstances: when morally compensating for their everyday materialistic consumption;

highly aware and knowledgeable of environmental issues. While materialistic values govern certain environmental behaviour, how they influence individual tourist environmental attitudes and behaviour are largely unknown especially in the context of ecotourism (Kilbourne & Pickett, 2008).

Contrary to the common belief that materialistic individuals are not interested in behaving in an environmentally friendly way, the question of whether materialistic values can spur environmental behaviours, at least under certain conditions, remains open and need to be investigated and answered.

Based on these pieces of evidence, this research aims to answer the following research questions:

RQ1: Is pro-ecotourism attitude related to high/low psychological distance from climate change?

RQ2: Is high/low pro-ecotourism attitude related to high/low intention to act to cope with climate change?

RQ3: Is high/low pro-ecotourism attitude related to high/low materialism?

RQ4: Is high/low pro-ecotourism attitude related to socio-demographic characteristics?

3. Methodology

For this study, a structured questionnaire was developed and included three sections. In the first part, respondents were asked to assess their level of agreement (5-point Likert scale: 1= strongly disagree; 5=strongly agree) with a series of items devoted to measuring

respondents' general perceptions of climate change (13 items) (Atzori et al., 2018), their perceived geographical distance (3 items), social distance (3 items) and temporal distance (5 items) of climate change, their perceived uncertainty and scepticism about climate change (4 items), their level of concerning about climate change (3 items) and their intention to act to cope with climate change issue (3 items) (Spence et al., 2012). In the second section, a series of items (5-point Likert scale: 1= strongly disagree; 5=strongly agree) were used to measure respondents' ecotourism intention (4 items) and their attitudes with materialism (8 items) (Lu et al., 2014) (Appendix C).

In the last part, respondents were asked to provide a series of sociodemographic information (i.e. gender, age, level of education, family members, occupation, occupation sector, and association membership).

The questionnaire was prior reviewed by four independent researchers and then a pilot test was done with 49 graduate students to check wording and question order.

The survey was administered online using a snowball sampling technique. In general, this sampling technique is widely adopted when subjects are difficult to locate and access (Goldenberg, Han, Lehmann, & Hong, 2009). Despite not being a random sampling approach, this approach was considered to be the best suitable for this research for two main reasons. Further than being methodologically widely used, also in studies aiming to study ecotourists behaviour (e.g. Lu et al., 2016), this technique was adopted mainly to collect data from a large sample of individuals across different Italian regions (including those from remote areas), meanwhile coping with the financial constraints in conducting this research and related data collection (Wrenn, Stevens & Loudon, 2007). Initial subjects were generated from personal contacts of the research team members. The e-

mail invitation included the link to the online survey. All the recipients were also encouraged to forward the survey to their friends and acquaintances. At the end of the data collection (April-June 2019) a total sample of 2,955 surveys was obtained, of which 2,733 were free of missing data and usable for the statistical analysis.

4. Results

Respondents were mostly females (62.9%) aged under 45 years old (34.7 <25 years; 21.5% between 25-35 years old; 12.9% 36-45 years old), mostly belonging to families composed by 4 (39.2%) or 3 (24.6%) members, with a secondary school degree (55.7%), employees (40.7%) in the services sector (66.8%) or students (31.2%). 66.2% of respondents were not a member of any association (Appendix A).

Overall, people interviewed showed a neutral position towards ecotourism destination willingness to visit (M=3.07) and a slightly negative propensity to visit an ecotourism destination in the future (M<3.00).

In terms of worldviews, the respondents expressed a slightly negative attitude towards materialism (i.e. MAT2, M=2.15). Furthermore, they perceived climate change as a real and imminent problem (i.e. TD1, M=4.33) and expressed a certain level of concern about the potential effects of climate change (CONC1, M=4.19). These respondents' perceptions were well associated with their opinions that actions to mitigate climate change effects and to cope with it should be undertaken by everyone. Further, they thought that several actions should be taken to mitigate climate change effects and to cope with it. This indicates that the majority of the respondents thought they were partially,

but substantially, responsible for environmental issues and thus more environmentally sustainable behaviour (Liobikienė, Liobikas, Brizga, & Juknys, 2020).

For this study, a cluster analysis approach was used to identify similarities and differences among groups (Kaufman & Rousseeuw, 2005) based on their ecotourism intention. In particular, a two-step clustering procedure was used to determine the optimal cluster solution (Müller & Hamm, 2014). A hierarchical cluster analysis (Ward method – Manhattan distances) was applied. The dendrogram was then analysed and the three cluster-based solutions were selected based on the inspection of the bigger increase in the distance among clusters.

Further, a non-hierarchical method (k-means) was then performed, and the two, three, and four clusters solutions were compared separately by the four authors who examined the group association, group sizes, and the dendrograms. All the authors indicated that the three-cluster solution was the most appropriate and the most suitable to interpret the data and the ANOVA test (p-value<0.000) (Table 2) confirmed the validity of three cluster-based solutions (Hair et al., 2014).

Multiple discriminant analysis with bootstrapping was then applied to assess clustering validity and robustness. Findings showed high and significant canonical correlation ($p<0.001$) and Wilks's lambda test confirmed that the items are consistent with the 2 discriminant functions, which explained the majority of the variance. Further, the overall hit-ratio (99.8%) showed an excellent accuracy rate in the classification pattern, which is further corroborated by the bootstrapping procedure with cross-validation, which showed 99.9% of cross-validated cases were correctly grouped (Appendix B).

The goal of this research is thus to profile individuals based on their intention to undertake ecotourism and to ascertain whether significant differences exist among them based on their socio-demographic characteristics, as well as environmental values, worldviews (psychological distance of climate change, and materialism) and intention to act. Post hoc tests to know the difference between groups were subsequently performed.

4.1. Cluster Profiles

Based on their intention to undertake ecotourism, clusters were labelled, as follows: HET (high-ecotourism-intention), NET (neutral-ecotourism-intention), LET (low-ecotourism-intention) (Table 1).

Table 1 – Cluster Analysis – Ecotourism attitudes and intentions

	HET (N=651)	**NET (N=1,237)**	**LET (N=845)**	**Total (N= 2,733)**	**F**	**Sig.**
There is a high likelihood that I will visit an ecotourism destination within a foreseeable future	4.36	2.86	1.36	2.75	2,864.72	0.000
I want to visit an ecotourism destination	4.59	3.29	1.57	3.07	2,981.80	0.000
I intend to visit an ecotourism destination within a foreseeable future	4.46	2.96	1.34	2.82	4,129.77	0.000
I will visit an ecotourism destination within the next 12 months	4.10	2.65	1.29	2.58	2,155.06	0.000

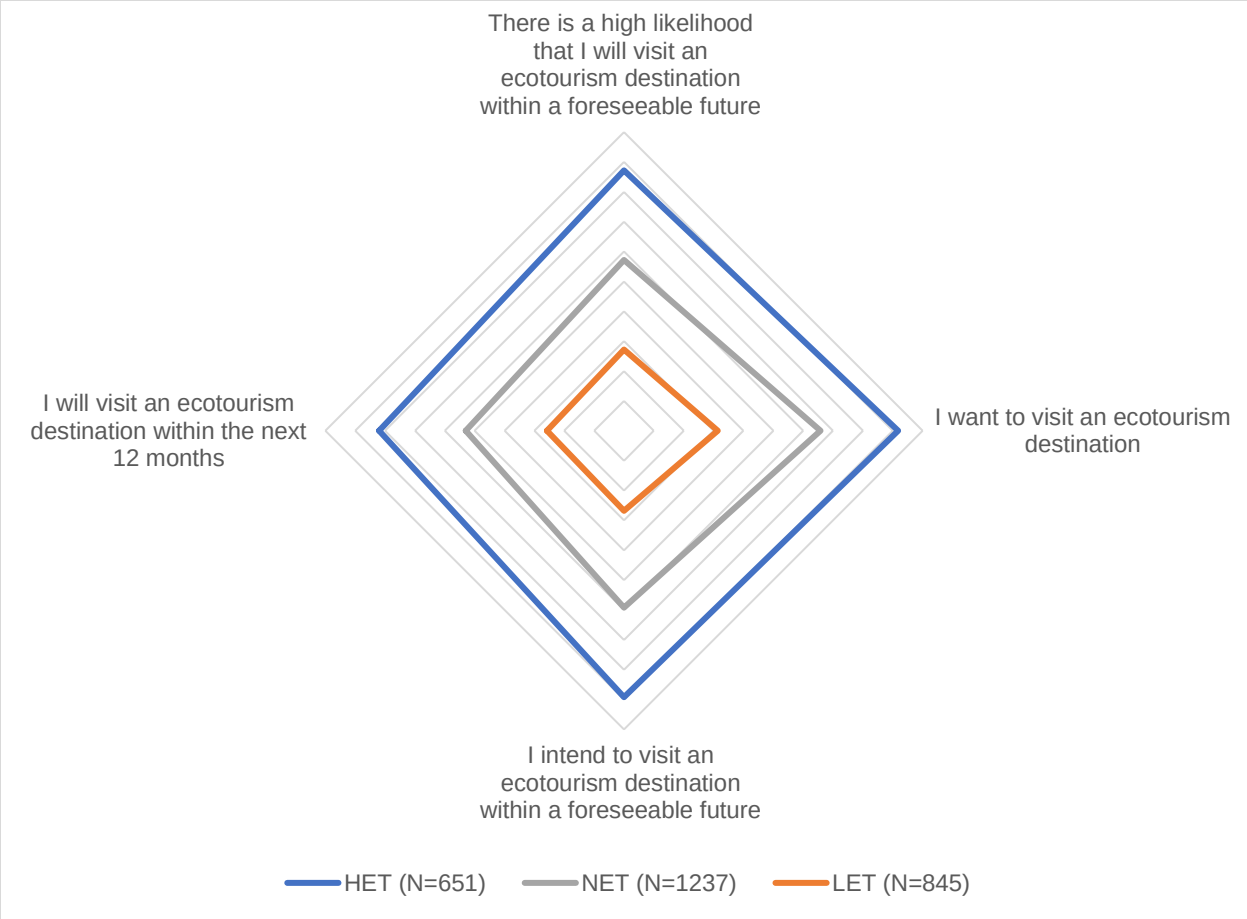

Figure 1 – Cluster analysis

The first cluster (HET) was the smallest group composed of 651 individuals mostly females (64.6%), aged under 25 years old (38.5%), belonging to families of four people (37.2%), with a secondary school degree (55.3%), employed (42.7%) in the services sector (62.3%). 57.5% of them were not members of any association (57.5%).

NETs (N=845) were females (63.7%) aged less than 35 years old (54.7%), mostly with families of four individuals (41.7%) with a secondary school degree (57.5%) employed (38.2%) in the services sector (67.1%) or students (35.8%), 66.6% of them with no association membership.

The LET group (N=1,237) was composed of mostly females (60.3%) belonging to the age bracket 25-35 years old (23.4%) or aged less than 25 years old (33.3%), living in families of 3 (26.1%) or 4 (37.1%) people, with a secondary school degree (53.4%), employed (42.8%) in the service sector (70.3%) and with any association membership (72.3%).

4.2. Intention to practice ecotourism and its moderator variables

4.2.1. Socio-demographic characteristics

To ascertain whether significant differences among clusters existed based on socio-demographic characteristics of respondents, a series of Chi-Squared tests were run (Table 2). Results showed significant differences between groups based on family members (X^2=48.97, p<0.01), level of education (X^2=26.62, p<0.01), occupation (X^2=42.83, p<0.01), occupation sector (X^2=20.88, p<0.01) and association membership (X^2=53.54, p<0.01). Contrariwise, no significant differences were highlighted based on gender (X^2=3.17, p>0.05) and age class (X^2=15.71, p>0.05). In particular, HETs highlighted the higher percentage among clusters of families with 1 (8.4%) and 2 (15.2%) members, while NETs and LETs highlighted higher percentages of families with 5 (NETs=13.4%; LETs=14.1%) or 6 or over (NETs=4.2%; LETs=3.8%) individuals if compared with HETs (5 members=12.2%; 6 or over 6 members=2.9%). This finding seems to suggest higher attitudes toward ecotourism for singles or couples.

With most interviewees, regardless of their group, holding a secondary school degree, HETs accounted for the higher percentage of people with a University degree (4.1%) when compared with NETs (2.1%) and LETs (1.4%) who, conversely, included a higher

percentage of people with primary school degree (NETs=20.4%; LETs=24.3%) when compared with HETs (19.5%), suggesting that the higher educational level, the higher attitude to ecotourism.

Concerning the individuals' occupation, the analysis highlighted that all groups reported a majority of employees, but HETs reported the highest percentage of Self-employed (16.6%) and retired (5.0%), while NETs and LETs included the highest proportion of students (respectively, 35.8% and 30.3%). Not surprisingly, HETs included the highest percentage among groups of individuals working in the tourism sector (19.5%) and with association membership (42.5%), particularly in the environment (3.6%) and cultural (11.8%) field, while LETs were reported to have no association membership for 72.3% of them (the highest percentage among clusters).

Table 2 – Clusters profiles and Chi-squared tests

	Chi-squared	**Sig.**
Gender	3.17	0.205
Age range	15.71	0.108
Number of family members	**48.97**	**0.004**
Level of education	**26.62**	**0.003**
Occupation	**42.83**	**0.000**
Occupation sector	**20.88**	**0.002**
Association membership	**53.54**	**0.000**

4.2.2. Environmental values, world views and intention to act.

This section investigates the differences among the three cluster groups in their general perceptions of climate change, as well as in their environmental values (psychological distance of climate change) and worldviews (materialism), and in their intention to act to cope with climate change (Table 3).

The findings showed significant differences in terms of their general perceptions of climate change among all clusters and on all 13 items employed in the scale ($p < 0.01$). The HET cluster scored the highest mean on all items, followed by the NET and LET clusters, respectively. Overall, a high level of the respondents' environmental concerns is evidenced except for Item SR12 by the LET. When it comes to actions to climate change, the majority of respondents agreed on the importance of collective actions of governments (SR2) and individuals (citizens, SR5) against climate change despite the significant differences among clusters, thus providing further support to the finding of relatively recent studies (e.g. De Guttry, Süsser, & Döring, 2019). Most respondents were reported to be concerned about the potential effects of climate change, with the HET cluster being most concerned, followed by the NET and LET clusters (see, SR8 and CONC1 in Table 5). These findings are consistent with previous studies concluding that environmental beliefs and concerns significantly influence tourists' intention to visit an ecotourism destination (Walker & Moscardo, 2014; Hultman et al., 2015; Pham & Khanh, 2020). This includes overall effects, as well as effects on the person or society.

Furthermore, the analysis highlighted significant differences between clusters based on their intention to act to cope with climate change issues. Indeed, when compared to the NET and LET clusters, respectively, the HET cluster was willing to act most in terms of

energy use reduction (ITA1), lifestyle changes (ITA2), and waste management rationalization (ITA3). Nonetheless, it is important to acknowledge that all respondents across cluster groups showed a high willingness to act overall. This suggests that understanding tourists' perception of climate change and the associated impacts are critical, which are likely to be linked to their intention to change their behaviour more environmentally sustainable such as partaking in ecotourism, thus providing further support to Atzori et al. (2018).

The psychological distance of climate change dimensions has also shown significance in differences among the clusters, although this varies. In terms of Geographical Distance, even if with similar mean values, there were significant differences among the clusters when personal factors were involved. For example, the HET cluster was more concerned about their local area, family area, and impact on people who were perceived in a similar situation (i.e. GD1). On the contrary, there was no significant difference in the items measuring the perceived impact of climate change on further away areas ($p>0.05$). Related to Social Distance, all clusters did not think that climate change would impact developing countries more with no significant differences among the clusters (SD1, $p>0.05$). Meanwhile, the HET cluster was more concerned that climate change would impact people like them directly (i.e. SD2). These results are partially contrasting with Spence et al. (2012) who find that people living in the UK perceive climate change are likely to affect not only themselves but also developing socially distant counties. This may suggest that people in the UK (Western Europe) and Italy (Southern Europe), despite both living in developed countries, are not bounded when it comes to the proximity to social dimensions (Poortinga, Whitmarsh, Steg, Böhm & Fisher 2019), where cultural

influences may play a role (Weaver, 2008; Hultman et al., 2015; He & Filimonau, 2020). In terms of Time Distance, only items measuring short time frames showed a significant difference between the clusters where the HET cluster was more concerned about feeling the effects of climate change already or within the next ten years (i.e. TD1 and 2) than other clusters, while there was no difference between the clusters among the perception of the impacts on a longer timeframe ($p>0.05$). This supports Kim and Filimonau (2017) that suggest people who have a greater temporal distance to the impacts of climate change, i.e. considering the impacts long-term and abstract, are less likely to have pro-environmental attitudes and behaviour.

The consistent results about geographical, social, and temporal distances in comparison of three clusters (i.e. the HET perceive the impacts of climate change close geographically, socially, and temporally) indicate that the process of the three psychological distance dimensions is interlinked as found in Spence et al. (2012) and De Guttry et al. (2019). That is, the three dimensions influence each other in the process of how an individual perceives the impacts of climate change. Psychological closeness, therefore, was found to encourage tourists to engage in ecotourism, supporting the findings of Spence et al. (2012).

In terms of climate change Uncertainty and skepticism, there was no difference among the clusters in their beliefs if climate change was happening or its representations exaggerated, where all the groups agreed with the idea that climate change is happening seriously. However, there was a significant difference among the clusters on the belief that scientists support the climate change theory, despite consensus, in which the HET cluster was least skeptical on the issue, indicating that the more likely individuals are

certain over the current climate issues, the more likely they are going to travel to ecotourism destinations. This is in line with Spence et al. (2012) claiming that it does not much make sense to expect that people with skepticism over the effects of climate change would behave environmentally friendly, reinforcing the importance of convincing climate change skeptic individuals or deniers.

In terms of worldviews, seven out of the eight items measuring Materialism were also significant ($p<0.01$), with the LET intention cluster being the most materialist. The HET cluster was found to be the least materialist of the three (i.e. MAT6). While some studies find that material values can help perform environmentally-friendly (Evers, Gruner, Sneddon, & Lee, 2018; Liobikienė et al., 2020), the findings are consistent with the findings of Lu et al. (2016), Campos-Soria, Núñez-Carrasco, and García-Pozo (2020) and Sreen, Purbey and Sadarangani (2020). In other words, tourists with high materialistic values are less likely to undertake ecotourism (i.e. the LET). No difference was found only in the items that mentioned admiring other people owning certain types of properties, potentially because this was not directed at the respondents' materialism (i.e. MAT1, $p>0.05$).

Table 2 - Clusters' perceptions towards climate change, environmental values, intention to act, and world views

	HET (N=651)	NET (N=1,237)	LET (N=845)	Total (N=2733)	**F**	**Sig.**
CODE	**MEAN**					
SR1	4.84	4.80	4.71	4.78	9.24	**0.000**

SR2	4.84	4.81	4.70	4.78	10.55	**0.000**
SR3	4.69	4.64	4.50	4.61	11.40	**0.000**
SR4	4.71	4.66	4.58	4.65	6.94	**0.001**
SR5	4.75	4.64	4.49	4.62	21.61	**0.000**
SR6	4.50	4.38	4.25	4.37	15.18	**0.000**
SR7	4.61	4.36	4.10	4.34	55.04	**0.000**
SR8	**4.45**	4.25	3.94	4.20	53.68	**0.000**
SR9	**4.29**	4.07	3.97	4.09	19.94	**0.000**
SR10	**4.24**	4.04	3.88	4.04	20.45	**0.000**
SR11	**4.21**	3.96	3.68	3.93	46.26	**0.000**
SR12	**3.63**	3.26	2.96	3.26	51.57	**0.000**
SR13	4.17	3.96	3.81	3.96	20.35	**0.000**
GD1	2.31	2.20	2.35	2.27	3.27	*0.038*
GD2	2.18	2.14	2.24	2.18	1.64	0.193
GD3	1.91	1.84	2.05	1.92	8.17	**0.000**
SD1	2.53	2.57	2.67	2.59	1.84	0.159
SD2	3.72	3.54	3.30	3.51	23.80	**0.000**
TD1	**4.51**	4.34	4.19	4.33	22.59	**0.000**
TD2	2.82	2.66	2.61	2.69	4.77	**0.009**
TD3	2.38	2.41	2.35	2.39	0.41	0.664
TD4	2.29	2.33	2.33	2.32	0.18	0.838
TD5	2.20	2.26	2.26	2.24	0.43	0.648
TD6	1.35	1.35	1.37	1.35	0.16	0.854

US1	1.59	1.62	1.67	1.63	0.77	0.463
US2	1.80	1.78	1.86	1.81	0.93	0.394
US3	4.46	4.30	4.22	4.31	13.15	**0.000**
CONC1	**4.49**	4.20	3.95	4.19	55.21	**0.000**
CONC2	**4.22**	3.97	3.60	3.92	60.23	**0.000**
CONC3	**4.51**	4.23	3.99	4.22	52.57	**0.000**
ITA1	**4.61**	4.29	3.93	4.26	94.89	**0.000**
ITA2	**4.57**	4.20	3.85	4.18	95.10	**0.000**
ITA3	**4.64**	4.40	4.11	4.37	58.54	**0.000**
MAT1	1.89	1.98	1.97	1.96	1.49	0.225
MAT2	2.02	2.19	2.20	2.15	4.60	**0.010**
MAT3	**3.91**	3.55	3.47	3.61	28.82	**0.000**
MAT4	**4.20**	3.85	3.79	3.91	31.28	**0.000**
MAT5	**3.03**	2.76	2.58	2.77	24.74	**0.000**
MAT6	**3.87**	3.45	3.23	3.48	52.97	**0.000**
MAT7	2.81	3.02	3.10	2.99	8.82	**0.000**
MAT8	2.68	2.93	3.03	2.90	12.82	**0.000**

SR: general perceptions of climate change, GD: geographical distance, SD: social distance, TD: temporal distance, US: uncertainty and scepticism, CONC: concerns about climate change, ITA: intention to act to cope with climate change issue, MAT: materialism.

5. Discussion and Conclusion

This study aimed at profiling respondents based on their intention to undertake ecotourism and to ascertain whether significant differences exist among them based on

their socio-demographic characteristics, as well as environmental values, world views (i.e. psychological distance of climate change and materialism), and intention to act to cope with climate change.

The findings of this study show a complex relationship between ecotourism and environmental values, particularly in terms of climate change perception, which leads to several theoretical and practical contributions.

First and foremost, it is noteworthy that respondents more prone to ecotourism perceived clarity about the scientific evidence of climate change. This was mostly reflected in their belief that they or people close to them would be personally impacted by climate change. While most of the respondents showed a high level of concerns about the impacts of climate change, which was also reported in previous studies conducted in the US, UK, and Australia (Spence et al., 2012; Hart & Nisbet, 2012; Jones, Hine & Marks, 2017), a scientifically supported belief that they would be personally impacted was predominant in our ecotourism-prone cluster.

This raises two points of interest, namely the potential importance of egoism/individualism and the need for environmental education in undertaking ecotourism. Altruism has been critically investigated in the context of volunteer tourism (e.g., Mustonen, 2007; Paraskevaidis & Andriotis, 2017), with some of them concluding that volunteering represents more of a “social egoism”, which relies on personal benefits as the main motivator for the social activities undertaken (Coghlan & Fennell, 2009; Beall et al., 2021 2020). Similar studies in the context of ecotourism were missing, and the literature suggests implicitly that ecotourists might be motivated by altruistic values (e.g., Weaver, 2008). Our findings, on the other hand, confirm previous studies highlighting that

individuals tend to be less likely willing to undertake environmentally driven action when they perceive a high psychological distance (e.g., Liberman et al., 2007; Leiserowitz et al., 2010; Spence et al., 2012). Hence, our findings suggest that ecotourism scholars should investigate concepts such as “social egoism” when studying ecotourism motivations.

Next, this underlines the importance of environmental education for tourists. Ecotourism is learning-based (Weaver, 2008), but this learning often occurs only on-site. Previous studies have suggested that ecotourism should sensitize people toward climate change (Atzori et al., 2018), but this study shows that environmental education can be potentially a motivator for – and a result of – ecotourism activities. Indeed, environmental education as a learning tool about the environment and sustainable behaviour can be delivered across different channels, from formal education (Olatunde-Aiyedun, Ogunode, & Ohiosumua, 2021), to employers (Istiana, Retnowati, & Darmasakti, 2021) to activities undertaken, among which tourism (Weaver, 2008). It is not so much climate change skepticism, but uncertainty about the sources of information and effective short-term impacts that was prevalent among our clusters with lover ecotourism intention. This lack of information has been reported also in other contexts of study (e.g., Leiserowitz et al., 2010; Spence & Pidgeon, 2010; Spence et al., 2012). Our findings thus suggest not only a linear attitude leads to behaviour patterns (e.g., Joshi & Rahman, 2017; Lee, 2014; Krosen, Handy & Chorus, 2017), but a circular relationship where ecotourism can be an outcome and a means of education regarding environmental issues. Informing (potential) ecotourists about the imminent dangers of climate change which have been confirmed by

scientific sources is potentially a way to boost this and other sustainable tourist activities (see, for example, Kapeller & Jäger, 2020).

This is also confirmed by our findings based on ecotourism attitudes and intentions, where groups did not differ in terms of age and gender, but they differ in terms of the level of education and occupation. Higher educational levels have shown higher attitudes to ecotourism, higher consciousness about climate change, and intention to act to cope with climate change. This is consistent with previous studies that found environmental concern and time perspective being positively correlated with ecotourism intention (i.e., Pham & Khanh, 2020), but could also be considered an outcome of ecotourism learning-based experiences. This suggests that ecotourism should sensitize people toward climate change and other environmental issues and can prompt tourists to engage more in acting to cope with it (Atzori et al., 2018).

Finally, the relationship between ecotourism and materialism has been ambiguous in past literature (Hultman et al., 2015; Kilbourne & Pickett, 2008; Lu et al., 2016). This study confirms past research where higher levels of materialism are found in lower ecotourism intention groups (Campos-Soria et al., 2020; Lu et al., 2016; Sreen et al., 2020). This highlights that worldviews and ideology might be important motivators for sustainable tourism activities, as claimed by Zou and Chan 2019. It is believed that mostly a minority of “hard” ecotourists are ideologically motivated (Weaver, 2008), but our findings suggest this might be true for a much larger proportion of the segment.

For management and governing bodies, these findings can have several practical implications. Firstly, according to existing literature (e.g. Leslie, 2013), especially in the short term the most effective way to bring individuals about climate change and its impacts

on travel behaviour, is through government policy and direct action (e.g. taxation, ecolabeling, regulation, setting up incentives for undertaking travelling behaviour that help in coping with climate change issues, etc.). Secondly, policymakers and destination marketers should focus on education through marketing., In other words, potential tourists get educated about environmental issues such as climate change before undertaking the trip, thus promoting the shift from extrinsic to intrinsic social values and beliefs (Leslie, 2013) that is needed to promote an actual behavioural change that can render individuals more naturally prone to embrace the principles of ecotourism when travelling (Leslie, 2013). These information campaigns should be scientifically supported and aimed at informing tourists about the direct consequences they could suffer from environmental degradation. Findings have shown that among the lower ecotourism intention groups, climate change is perceived as more distant geographically, socially, and temporally. Marketing campaigns should scientifically/objectively highlight that this is not the case. Regarding world views such as materialism, management bodies dealing with ecotourism should not shy away from promoting the activity as low-key materialistic for existing ecotourists, a strategy which has been proven successful for other forms of tourism, such as backpacking (Binder, 2004). For potential ecotourists with higher levels of materialism, marketing tactics similar to “flashpacking” could be considered, which have attracted more materialistic markets into backpacking activities (Rosenberg, 2019). Given that our findings highlighted that clusters differ based on certain socio-demographics of individuals (i.e. family members, level of education, employment status, occupation sector, and association membership), our study also suggests that all the aforementioned marketing and information campaigns should be tailored accordingly.

Although this study helps to fill a gap in the existing knowledge in the literature and proposes some implications for practitioners, limitations remain. First, despite the sample size being relatively big, our study is highly site-specific (i.e. Italy) and utilized a convenience sample obtained from a web-based survey with a snowball sampling approach. This said, our findings are hardly generalizable (both at a national level and even more in other countries). Second, the data collection was carried out before the COVID-19 pandemic, thus rendering our findings able to capture the influences that this health crisis could generate in terms of tourists' behaviour. In this vein, existing and ongoing literature devoted to analyzing the impacts and effects of the pandemic in tourism and hospitality tends to interpret COVID-19 as a kind of disorienting dilemma (Mezirow, 1991) leading individuals to reflect on their sense of self concerning the world. In line with the human flourishing theory, authors theoretically postulated that COVID-19 is (will be) generating a deep shift in values (Cheer, 2020), with consumers and travelers becoming more conscious of their behaviours (Lew, Cheer, Haywood, Brouder, & Salazar, 2020), more prone to appreciate and respect the natural environment also trying to do their best to mitigate the climate change (Galvani, Lew & Perez, 2020) and, broadly, more interested in embracing sustainable tourism (economic, socio-cultural and environmental) (Sigala, 2020). However, these considerations remain to be deeply empirically investigated to understand whether, and the extent to which, these theoretical assumptions are reflected consumer attitudes and behaviours. In this direction, it would be interesting to repeat the study over time (during and after the pandemic) to make the temporal cross comparison (i.e. longitudinal studies) thus contributing to answering the recent call for further research aiming to investigate whether individuals be more

interested in ecotourism experiences (Sigala, 2020). Future studies could also consider other potential moderator variables that were not investigated in this study, such as income (i.e. sociodemographic), frequency of travelling (i.e. tripographics), personality traits (i.e. psychographic variables), and consciousness about global warming. Regarding this latter point, it is noteworthy to be noticed that individuals might have a different understanding and consciousness about climate change and global warming, as suggested by existing literature (i.e. Schuldt, Konrath & Schwarz, 2011). Finally, it would be interesting to repeat the study in other countries to make a cross-cultural comparison thus ascertaining whether also cultural background of individuals (i.e. another sociodemographic variable) might exert an influence on tourist attitudes toward climate change and their intention to undertake ecotourism tourism experiences.

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