A Research of Millennials And Pro-Sustainable Tourism Behaviors: A Perspective Of Value-Belief-Norm (VBN) Theory

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Theses guidelines

Introduction
Define the objectives and the application methods used in the Master's thesis.
I. Theoretical Part

- Prepare a literature review related to sustainable tourism, pro-sustainable tourism behaviors, millennial alignment, and depict research gaps.

II. Practical Part

- Conduct a comprehensive survey targeting diverse millennials to understand their pro-sustainable behaviors.
- Analyze the survey data and the proposed model, clarify the relationships between millennials' values and pro-sustainable behaviors.
- Conclude by defining actionable recommendations for tourism businesses, practitioners and related stakeholders about sustainable tourism practices.

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Recommended resources:

HAN, Heesup. *Sustainable Consumer Behaviour and the Environment*. Oxfordshire: Routledge, 2021. ISBN 9781000531114.
KOZAK, Metin and KOZAK, Nazmi. *Tourist Behavior: An Experiential Perspective.* Izmir: Springer, 2018. ISBN 978-3-319--78552-3.
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MOWFORTH, Martin and MUNT, Ian. *Tourism and Sustainability Development, Globalisation and New Tourism in the Third World* Fourth edition. New York: Routledge, 2016. ISBN 978-1-138-01325-4.
SHARMA, Anukrati. *Sustainable Tourism Development: Futuristic Approaches.* Oakville: Apple Academic Press, 2020. ISBN 978-1-77188-772-4.

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ABSTRAKT

Tato práce se zabývá pro-udržitelným turistickým chováním mileniálů v rámci teorie Value-Belief-Norm (VBN). Studie zkoumá vztahy mezi hodnotami mileniálů (biosférické, altruistické), přesvědčeními (uvědomění si důsledků, převzetí odpovědnosti), osobními normami a jejich pro-udržitelným chováním v cestovním ruchu. Je navržena trojrozměrná konceptualizace pro-udržitelného turistického chování, zahrnující environmentální, ekonomické a sociální dimenze.

Analýzou dat ze vzorku 152 cestovatelů v Egyptě pomocí modelování strukturních rovnic výzkum zdůrazňuje kritické psychologické faktory, které řídí odhodlání mileniálů k udržitelnému cestovnímu ruchu. Zjištění ukazují, že altruistické hodnoty a biosférické hodnoty pozitivně ovlivňují uvědomění si důsledků, což zase zvyšuje převzetí odpovědnosti a posiluje osobní normy. Bylo zjištěno, že osobní normy mají významný pozitivní vliv na proenvironmentální chování, proenvironmentální spotřební chování a prosociální chování mezi turisty milénia.

Empirická studie poskytuje cenné poznatky pro podniky cestovního ruchu, odborníky z praxe a příslušné zainteresované strany. Nabízí se praktická doporučení, jak podpořit kulturu udržitelnosti v odvětví cestovního ruchu využitím psychologických hnacích sil identifikovaných v teorii VBN. Patří mezi ně zvyšování environmentálního a sociálního povědomí, kultivace smyslu pro osobní odpovědnost a posilování udržitelných a altruistických osobních norem mezi cestovateli milénia. Práce přispívá k teoretickému pochopení pro-udržitelného chování v cestovním ruchu a nabízí použitelné strategie na podporu udržitelných postupů v sektoru cestovního ruchu.

Klíčová slova: Turistické chování, Millennials, Value-Belief-Norm Theory, Hospitality, Sustainable Tourism, Structural Equation Modelling, Smart PLS

ABSTRACT

This thesis examines the pro-sustainable tourism behaviors of Millennials within the framework of the Value-Belief-Norm (VBN) theory. The study investigates the relationships between Millennials' values (biospheric, altruistic), beliefs (awareness of consequences, ascription of responsibility), personal norms, and their pro-sustainable behaviors in tourism. A three-dimensional conceptualization of pro-sustainable tourism behaviors is proposed, encompassing environmental, economic, and social dimensions.

By analyzing data from a sample of 152 travelers in Egypt using structural equation modeling, the research highlights the critical psychological factors driving Millennials' commitment to sustainable tourism. The findings show that altruistic values and biospheric values positively influence awareness of consequences, which in turn increases ascription of responsibility and strengthens personal norms. Personal norms were found to have a significant positive effect on pro-environmental behavior, pro-environmental consumption behavior, and pro-social behavior among the Millennial tourists.

The empirical study provides valuable insights for tourism businesses, practitioners, and relevant stakeholders. Practical recommendations are offered on how to foster a culture of sustainability in the tourism industry by leveraging the psychological drivers identified in the VBN theory. These include enhancing environmental and social awareness, cultivating a sense of personal responsibility, and reinforcing sustainable and altruistic personal norms among Millennial travelers. The thesis contributes to the theoretical understanding of pro-sustainable tourism behaviors and offers actionable strategies to promote sustainable practices in the tourism sector.

Keywords: Tourism Behavior, Millennials, Value-Belief-Norm Theory, Hospitality, Sustainable Tourism, Structural Equation Modelling, Smart PLS

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CONTENTS

INTRODUCTION

Global tourism, an essential engine of economic growth, has experienced exponential expansion over the past few decades. As a multifaceted industry, it encompasses various sectors including hospitality, transportation, and entertainment, contributing significantly to the GDP of many countries. However, this growth has raised pressing concerns about sustainability, given the environmental, social, and economic impacts associated with tourism.

The theory of sustainable tourism is based on the more general concept of sustainable development, which seeks to meet current needs without compromising the capacity of future generations to satisfy their own. Sustainability in the context of tourism refers to resource management that preserves biological diversity, essential ecological processes, cultural integrity, and life support systems while meeting economic, social, and aesthetic demands (World Tourism Organization, 2004).

Figure 1. Contribution of travel and tourism to gross domestic product worldwide

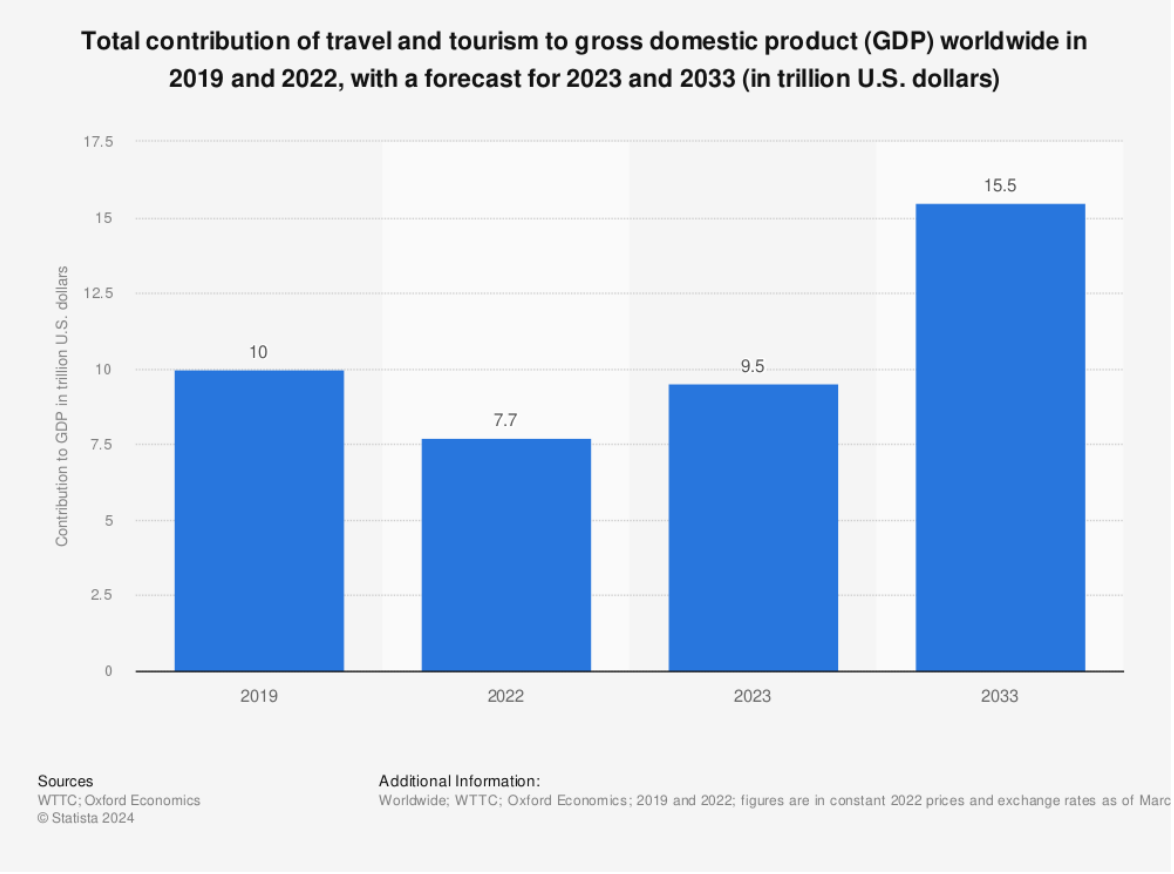


Figure 1. Contribution of travel and tourism to gross domestic product worldwide

Source: Statista 2024

Sustainable tourism has emerged as a critical concept in the tourism industry, emphasizing the need to balance tourism development with environmental protection and social responsibility. The demand for tourism in the future is expected to be influenced by future travel habits that are specific to each generation and demography. In an increasingly globalized world, it is necessary to understand the consumption patterns of various generations and evaluate their degree of awareness regarding sustainable consumption behaviors (Ribeiro et al., 2023).

As the largest and most diverse generation in history, Millennials represent a key target market for sustainable tourism. Their strong environmental consciousness, heightened sense of social responsibility, and preference for authentic and meaningful travel experiences align closely with the principles of sustainable tourism. Despite such significant importance, the factors influencing Millennial's sustainable tourism behavior are underexplored. This emphasizes the significance of developing a more in-depth precise knowledge of the factors that influence this cohort's pro-sustainable behavior (PSB), which is the focus of this study. Egypt, with its widespread popularity as a popular tourist destination, has a great deal of potential to be explored along these lines. Therefore, the primary goal of our research is to understand the factors that influence millennials' pro-sustainable tourism behaviors and promote the adoption sustainable tourism practices.

Research Questions

RQ1: What values Millennials hold stronger influence a heightened awareness of consequences associated with tourism choices?

RQ 2: Does a greater awareness of the environmental consequences of tourism choices lead Millennials to feel a stronger sense of responsibility towards the destinations they visit?

RQ3: What is the impact of responsibility Millennials ascribe to themselves regarding the on their development of personal norms for sustainable tourism practices?

RQ4 4: What is the relationship between strong personal norms and sustainable tourism behaviors among Millennial tourists?

To answer these questions, a robust theoretical model is proposed. An empirical study was conducted survey targeting diverse millennials to understand their pro-sustainable behavior. The analysis is based on a quantitative online questionnaire targeting diverse millennials and additional research studies.

Objectives and methods of Master thesis

The purpose of this thesis is to gain an understanding of the impact that the values, beliefs, and personal norms of Millennials (VBN theory) have on their intentions to engage in environmentally responsible tourism practices (PSB) in Egypt. The general introduction is the first step that this research takes in order to accomplish its objectives. Pre-existing definitions of the primary concepts of VBN theory are presented in the second chapter, which focuses on the relationships between values (in this case, biospheric and altruistic), awareness of consequences, ascription of responsibility, and personal norms. This chapter also includes the theoretical background of the study. In addition to this, the chapter investigates the concept of pro-sustainable tourism behaviors that are relevant to Millennials. A description of the research design and methodology that was utilized in order to answer the research questions is provided in the third chapter. It details the demographics of the target audience, which are Millennial tourists, the methods of data collection (such as questionnaires), and the techniques of data analysis that were utilized. The fifth chapter contains the presentation of the information that was arrived at through the analysis of the data. A discussion of the most important findings regarding the influence of VBN theory constructs on the environmentally conscious travel behaviors of Millennials is presented here. The conclusion of the thesis is presented in the sixth chapter, which also includes recommendations that can be put into action based on the findings that were obtained. Additionally, the limitations of the study and potential future research directions pertaining to the sustainability of the tourism industry are defined.

I. THEORY

2 THEORITICAL BACKGROUND

In the following sections, we will examine the details of VBN theory and how it sheds light on tourists' pro-sustainable decision-making processes. The theory outlines three core components that influence behaviors: values, beliefs, and norms. Understanding these components and their interrelationships is crucial for promoting pro-sustainable behaviors in the tourism industry.

2.1 Theoretical framework of VBN theory

The Value-Belief-Norm (VBN) theory of sustainable behavior provides a valuable framework for understanding the factors that influence pro-sustainable tourism behaviors.
According to VBN Theory, the first component is comprised of three distinct value orientations (egoistic, altruistic, and biospheric), which strongly determine individuals' environmental perceptions. Environmental beliefs act as a mediator between values awareness of consequences (AC) and ascription of responsibility (AR), as well as having a direct impact on them. Awareness of consequences and responsibility serves as a bridge between personal norms (PN) and values and environmental ideas, while also having a direct impact on personal norms and one another (Ribeiro et al., 2023). Individual norms, which are founded on an individual's values and the desire to safeguard those values through proper behavior, play a significant part in the process of influencing behavior in the direction of sustainability (Landon et al., 2018).

2.1.1 Value

Today, the VBN Theory includes three main value orientations: egoistic, altruistic, and biospheric (Groot and Steg, 2007; Stern, 2000). While egoistic orientation refers to acting environmentally friendly for one's own benefit or personal perceived costs, altruistic orientation refers to acting environmentally friendly for oneself with the addition of perceived costs to other people, and biospheric value orientation refers to acting environmentally friendly for the sake of the entire ecosystem and biosphere (Groot & Steg, 2007).
The work of Heesup Han in "Sustainable Consumer Behaviour and the Environment" (2021) provides an insightful examination of this relationship, delving into the intricate mechanisms by which values, beliefs, and norms influence sustainable consumer behavior, particularly within the realm of tourism. According to (Han & Kim, 2010), individuals who hold strong

environmental values, believe that their actions can make a difference, and are more likely to engage in pro-environmental tourism.

2.1.2 Beliefs

In this context, belief relates to one's perceptions of the natural environment and human behavior. Schwartz (1992) identified two categories of beliefs: awareness of consequences (AC) and ascription of responsibility. AC is described as one's knowledge of the negative environmental consequences of something that one values, whereas AR relates to one's personal duty to decrease such adverse consequences. In the study conducted by Landon et al. (2018), it was found that not only are awareness of consequences and ascription of responsibility necessary for the activation of moral (or personal) norms, but they also "refer to beliefs that one's behaviors may influence valued-objects, and that limiting those influences is within one's control."

2.1.3 Personal norms

Personal norms are the specific acts that individuals perform due to the activation of environmental beliefs. As being the prior construct to the pro-environmental behaviors in the causal chain of the Value-Belief-Norm theory, personal norm is significantly influenced by beliefs about human-environment connections, their consequences, and the individual's obligation to take remedial action, and these beliefs are formed by people's values (Stern, 2000).

2.1.4 Behavior

In Stern’s study, The VBN Theory's causal chain end with pro-environmental behaviors. These actions are distinct from those of other people and are directly influenced by personal norms. These behaviors could be environmental activism (e.g., active participation in environmental organizations), non-activist behaviors in the public sphere (e.g., voting for a pro-environmental candidate), private sphere behaviors (e.g., purchasing eco-friendly products), and organizational environmentalism (e.g., making environmentally friendly decisions in organizations or at work) (Stern, 2000).

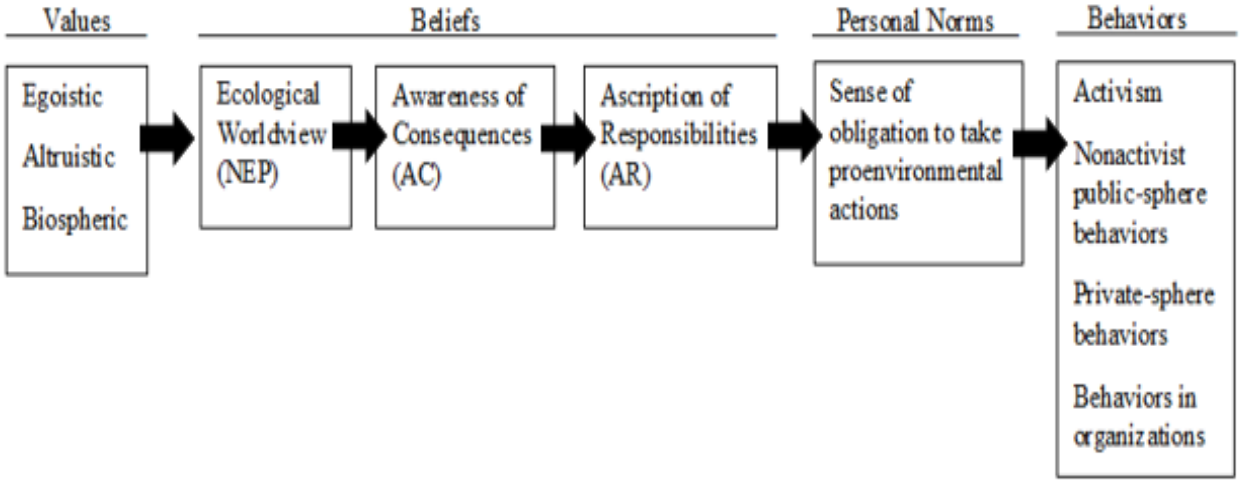


Figure. 2 The Value Belief Norm (VBN)

Source: Theory (Stern, 2000)

The VBN theory was used in conjunction with other theories, such as the Expectancy Theory and the Theory of Planned Behavior (TPB), in a number of different research projects. Taking everything into consideration, it is clear that VBN is considered to be one of the most credible theories for doing research in the area of social sciences.

A depiction of the theory together with its constructions is shown in the figure that follows.

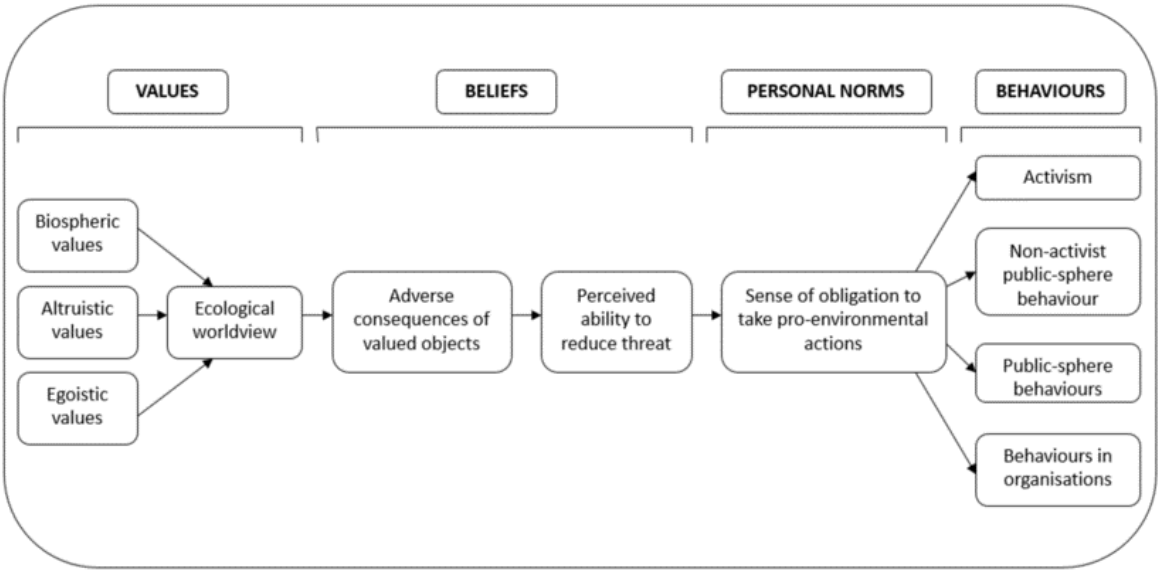


Figure. 3 Value-Belief-Norm theory scheme

Source: (Morrissey et al., 2016)

2.2 Application of VBN theory in Tourism

VBN theory (Stern, 2000) was initially developed to predict "actual significant environmental behaviors" rather than "intention of behaviors." However, recent research has used VBN theory to investigate "behavioral intention," with the assumption that intention is the primary determinant of actual behavior. The VBN theory has gained traction within the sustainable tourism and hospitality literature, with a primary focus on the pro-sustainable behavioral intentions (Han et al., 2021) (Landon et al.,2018).

The study by Choi et al. (2015) on the application of the extended Value-Belief-Norm (VBN) theory to understand consumer decisions regarding green hotels introduces subjective norms and green trust as additional factors. The VBN theory has been used to predict actual significant environmental behaviors, and Choi's study contributes to the hospitality literature by proposing and testing the theory as a framework to understand consumers' decision-making processes regarding their intentions to visit a green hotel .Utilizing a web-based survey targeting faculty members and structural equation modeling for hypotheses testing, the findings reveal that biospheric values, awareness of consequences (AC), ascription of responsibility (AR), personal norms, and green trust significantly influence the intention to visit green hotels, while subjective norms do not. This enhanced VBN framework highlights the significance of green trust and personal values over social pressure, providing new insights into consumers' environmental decision-making process. Through an understanding of the reasons underlying consumers' selections for green hotels, the research highlights the potential of the extended VBN theory in assisting hotel management in implementing environmentally friendly practices. (Choi et al.2015).

Based on another previous research, the VBN model was applied to understand tourists' adoption of pro-sustainable behaviors, emphasizing values, beliefs, and personal norms. They analyzed the internal factors that influence three dimensions of visitors' pro-sustainable behavior associated with behaviors that limit environmental consequences, consumption of local goods and services, and a willingness to sacrifice time and money to select sustainable solutions. The results show that Personal Norms significantly influence tourists' pro-sustainable behavior. Biospheric values impact behavioral intent through value-belief-norm model structures (Landon et. al, 2018)

2.3 Theoretical Framework of Pro-Sustainable Behavior (PSB)

There is a substantial amount of research work that has explored pro-environmental behaviors in the context of tourism, however it does not extend to pro-sustainable behaviors. Pro-sustainable tourism behaviors would extend beyond an examination of passengers' environmental concerns to include pro-economic, pro-social, and pro-cultural actions that better match the sustainability idea. In this approach, pro-sustainable tourist behaviors demonstrate a more comprehensive awareness of sustainability than pro-environmental tourism behaviors alone (Salinero et. al,2022).

Following recent studies, Pro-environmental behavior (PEB) refers to actions that limit negative impacts on the natural environment and promote sustainable resource use, such as recycling, litter pick-up, energy conservation, and volunteer work for conservation projects (Wu et al., 2021). Pro-economic tourism behaviors represent tourists' intention to contribute to the local economy's growth by providing financial benefits to the local industry by visiting local boutiques, purchasing local products, and encouraging creation and support of local employment (Sakdiyakorn et al., 2021). Pro-social tourism behaviors refer to visitors' respect for society norms, expressing the social aspect of sustainability (for example, tourists supporting local communities and connecting with people to better understand the local community) (Moscardo & Murphy, 2016). One recent study suggested that having access to credible information on the sustainability of destinations has a positive impact on travel behaviors that are environmentally conscious, which in turn influences the destinations that tourists choose to visit (Gomes and Lopes, 2023)

2.4 Generational difference in Pro-Sustainable Behavior (PSB)

Despite the growing body of research on sustainable tourism behaviors and the role of millennials, there are still several gaps in our understanding of this important topic. One gap is the need for more research on the specific factors that influence millennials' pro-sustainable tourism behaviors. Existing literature exploring the relationship between millennials and sustainable tourism behaviors are limited. The majority of studies focus on pro-environmental behaviors of tourists and do not identify differences in travel behaviors based on generational difference especially millennials.

2.4.1 Pro-Sustainable Tourism Behavior among Young Travelers

Born between the middle of the 1990s and the beginning of the 2010s, Generation Z is becoming increasingly recognized for its environmentally conscious behavior and sustainable behaviors. There is a wide range of environmental consciousness among consumers of the Gen Z generation, with some of them being sustainable activists, believers, or moderates, according to research (Su et al., 2019). However, sustainable moderates place a greater emphasis on extrinsic factors such as price and convenience when making purchasing decisions, in contrast to sustainable activists and believers who give priority to environmentally friendly and healthy product attributes. Additionally, the engagement of Generation Z with social media plays a significant role in shaping the environmentally conscious behaviors that they exhibit. Individuals who are members of Generation Z can gradually develop environmentally conscious behaviors if they are exposed to environmentally friendly messages from their peers on social platforms (Harmon et al., 2022), (Ribeiro et al.,2023). Furthermore, it has been discovered that the utilization of cutting-edge technologies, such as artificial intelligence products, can benefit Generation Z in terms of achieving environmental sustainability by reducing costs, managing waste, and conserving natural resources (Ameen, 2023).

According to Salinero's study (2022), pro-sustainable tourism behaviors among Gen Z travelers in the UK are significantly correlated with three internal antecedents (awareness of consequences, ascription of responsibility, and personal norms) and two external factors (social media engagement and membership of online community). Another study contributes to pro-environmental research by developing and empirically examining an integrated model of values and ascribed responsibility in driving pro-environmental travel behavior of Gen Z tourists. The findings of Ribeiro's study confirm that environmental concern, positive attitudes, and willingness to sacrifice contribute to Gen Z's pro-environmental travel behavior. (Ribeiro et al. 2023)

2.4.2 Pro-Sustainable Tourism Behavior among Millennials

Born between the 1980s and 2000s, millennials are also referred to as Generation Y and the Next Generation. Sociologists and historians have been closely observing them for distinct attitudes and behaviors from previous generations; they are recognized for being unique experience-seekers, socially connected, civic-minded, and selfless behavior (Veiga et al., 2017)(Nur'afifah & Prihantoro, 2021).

The behavior of millennial tourists is an essential factor in determining the sustainability of tourism destinations. It is possible to contribute to the development of sustainable tourism practices by gaining an understanding of the tastes and preferences of young adults, such as their interest in mountain landscapes or cultural experiences (Ding et al., 2021)

Millennials exhibit significant purchasing power because, in contrast to previous generations, they prefer to spend a larger portion of their income on experiences like dining out and travel. Their ethical perspectives on the environment convey the moral connection between people and their natural surroundings (El Demerdash, 2019). Despite that, El Demerdash discovered that there was no significant correlation between the environmental consciousness of Millennials and their acceptance of environmentally responsible hotel practices. In addition, there is no significant correlation between the environmental consciousness of millennials and their willingness to pay a higher price for green hotels.

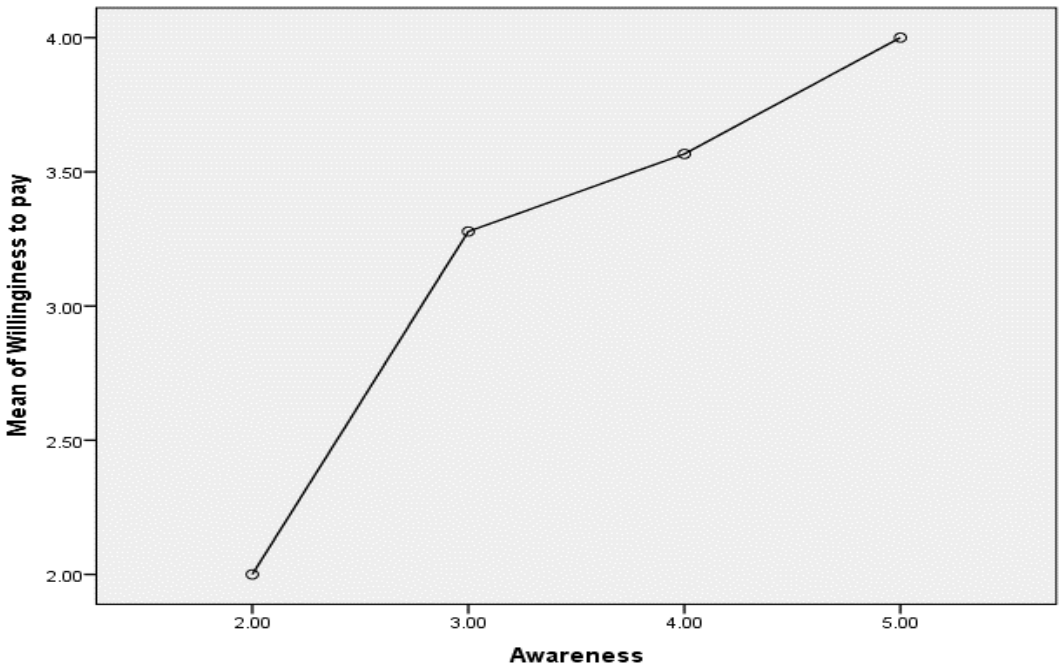


Fig. 4 Impact of environmental awareness level on willingness to pay

Source: EL Demerdash, 2019

Empirical studies cited by (Han & Kim 2010) illustrate that millennials exhibit a higher propensity for engaging in pro-sustainable tourism behaviors when they perceive a strong alignment between their personal values, the environmental and social impact of their travel choices, and the norms within their social circles. This alignment is crucial for motivating actions such as choosing eco-friendly accommodations, participating in conservation activities, and minimizing one's carbon footprint while traveling.

There is also a contextual gap in the research on sustainable tourism behaviors, as most studies have been conducted in Western countries. More research is needed to understand the factors that influence pro-sustainable tourism behaviors in non-Western countries, such as Egypt. This would help in developing tailored strategies and initiatives that are culturally relevant and effective in promoting sustainable practices in diverse global contexts.

2.5 Sustainable Tourism Concept

The concept of sustainable tourism arose concurrently with the concept of sustainable development. Sustainable tourism consists of three basic dimensions: environmental, economic and social dimensions. Those are interconnected and complement each other to create a holistic approach (Sharma, 2020),(Mowforth & Munt, 2016).

In their book, Mowforth & Munt (2016) raise a controversial question of whether tourism can be sustainable in developing countries. This is a complex question that there is no easy answer to. It depends on a number of factors, such as the type of tourism, the way it is managed, and the political and economic context of the developing country as seen in figure 5. Mowforth and Munt probably examine the unique challenges faced by developing countries in harnessing tourism as a tool for sustainable development. These challenges may include limited financial resources, inadequate infrastructure, political instability, and a lack of institutional capacity for effective tourism management

Figure 5 also suggests powerful actors in developed countries may have a significant influence on the development of tourism in developing countries. This can lead to unequal relationships of power, where local communities have little control over the direction of tourism development.

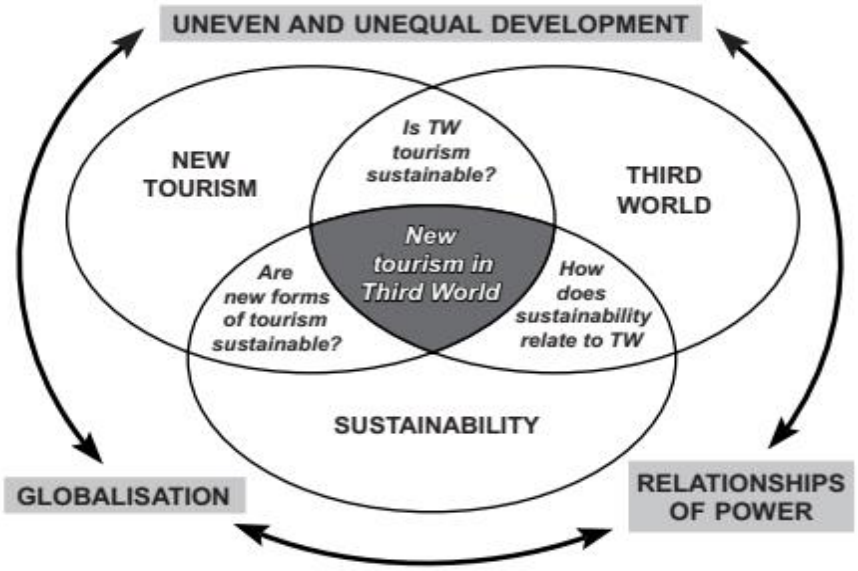


Figure 5: The uneven development of sustainable tourism

Source: Mowforth & Munt (2016)

As seen in the figure above, the central overlap between the areas denoted as "New tourism in Third World" and "Sustainability" prompts an inquiry into the sustainability of these nascent tourism modalities. Furthermore, it poses a broader interrogation of whether the tourism industry in these regions can be considered sustainable and how this concept of sustainability relates to the overarching development trajectories of the Third World.

More over, globalization can influence both the type of tourism and sustainability. The book may analyze the power dynamics inherent in tourism globalization, emphasizing how multinational corporations and tour operators often wield significant influence over destination communities and local economies (Mowforth & Munt, 2016).

Egypt is a popular tourist destination with a rich cultural heritage and diverse natural attractions. However, the Egyptian tourism industry has been criticized for its negative impacts on the environment and local communities. There is a growing need for sustainable tourism practices in Egypt, and millennials represent a key target market for this sector as they make up 43% of the Egyptian population (EL Demerdash, 2019). A recent study attempts to investigate the determinants of guests' intentions to visit green hotels in the

Egyptian hospitality context using a robust framework by integrating theory of planned behavior TPB and value-believe-norm (VBN) theory (Eid et al.,2020).
Another study explored the consumer behavior in the hospitality industry and acknowledges that millennials' environmental awareness will not be a significant factor in their acceptance of hotel green practices or their willingness to pay more for them (Eldemerdash 2019).
In their study, Lu et al. (2022) investigate the reasons that tourists engage in responsible behavior. They highlight the importance of conducting research and gaining an understanding of the factors that motivate tourists to participate in sustainable practices. It is possible for Egypt to tailor its tourism strategies to foster more responsible behavior among tourists after identifying the motivations that drive tourists.

In order to address the value-belief-norm framework in the context of sustainable tourism behavior in Egypt, it is essential to take into consideration the interaction between values, beliefs, and norms in the process of shaping the attitudes and behaviors of tourists, particularly with regard to sustainability. Despite the fact that there is a wealth of literature on the value-belief-norm theory in a variety of contexts, there is a research gap in the application of this framework specifically to understand sustainable tourism behavior in Egypt, particularly among Millennial age group. This research gap needs to be addressed in order to gain a deep understanding of the factors shaping travellers‘ sustainable behavior and develop effective strategies for promoting sustainable tourism practices in Egypt.
Thus, we introduced pro-sustainable behavior as a new construct in our research model and adjusted our study objectives are to fill this particular gap in this research area.

3 RESEARCH MODEL AND HYPOTHESES

3.1 Research Hypotheses

Drawing from the Value-Belief-Norm (VBN) theory within the context of pro-sustainable touristim behavior, this study proposes a series of hypotheses to highlight the key variables in the decision-making process based on literature sources:

Hypothesis 1a: Biospheric values positively impacts Millennials' awareness of consequence.

Hypothesis 1b: Altruistic values positively impact Millennials' awareness of consequence.

Hypothesis 2: Awareness of consequences significantly impacts Millennials' ascription of responsibility.

Hypothesis 3: Ascription of responsibility significantly impacts Millennial's personal norms.

Hypothesis 4a: Personal norms have a positive influence on pro-environmental tourism behaviors of Millennials.

Hypothesis 4b: Personal norms have a positive influence on pro-economic tourism behaviors of Millennials.

Hypothesis 4c: Personal norms have a positive influence on pro-social tourism behaviors of Millennials.

3.2 Proposed Research Model

The proposed theoretical research model explored the relationship between the five attributes of VBN theory and pro-sustainable tourism behavior. Figure 1 shows the proposed research model with all hypotheses of the study. All research constructs were adapted and modified from previous studies (see table 1). The antecedents of VBN theory were selected and classified according to a literature review that identified five attributes: biospheric values, altruistic value, awareness of consequences, ascription of responsibility and personal norm.

In order to understand the role of values, beliefs, and personal norms in shaping sustainable behavior, that theoretical model will be used in this paper for hypotheses testing.

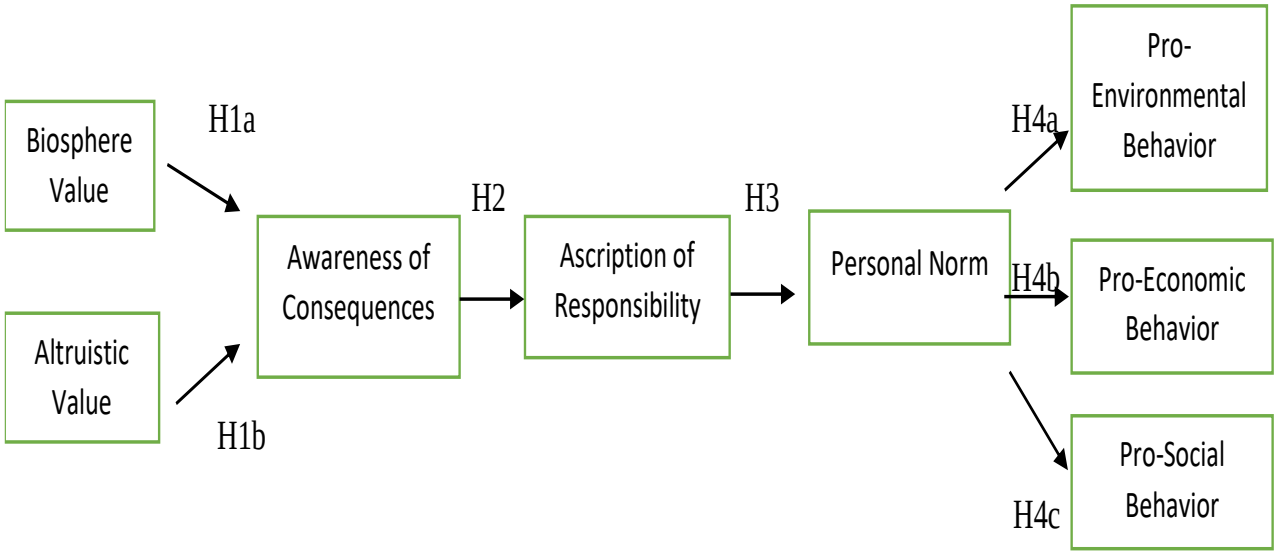


Figure 7: Proposed Theoretical Model

Source: author's own processing adapted from (Ribeiro et al., 2023)

The figure 7 shows all the hypotheses which we are proposing and testing in the theoretical model.

3.2.1 Biosphere values and awareness of consequences

The impact that actions have on ecosystems and the biosphere is the primary focus of biospheric values, which are fundamental in environmental concern and behavior. These values are a part of the universalist value orientation, which places an emphasis on the wellness of individuals, as well as the environment and society. It has been found through research that people who have high biospheric values are more likely to engage in environmentally friendly behaviors (Ribeiro et al., 2023). This is because they are more concerned about the costs and benefits of ecosystems, which in return increases their awareness of the environmental repercussions that their activities may have (Denley et al., 2020). Based on this context, this research proposes the following hypotheses:

Hypothesis 1a: Biospheric values positively impacts Millennials' awareness of consequence.

3.2.2. Altruistic values and awareness of consequences

The VBN theory, which was created by Stern (2000) to explain behavior connected to environmental conservation from the perspectives of both self-interest and altruism, serves as the foundation for the hypothesized model (Henry and Dietz, 2012). Individuals' awareness of the consequences of their actions is increased as a result of the connection between altruistic values and a more comprehensive environmental worldview (Choi et al., 2015). In this context, we propose this hypothesis:

Hypothesis 1b: Altruistic values positively impact Millennials' awareness of consequence.

3.2.3 Awareness of consequences and ascription of responsibility

The internal drivers of pro-environmental tourism behaviors are well researched, including the use of existing theories such as Norm Activation Model (NAM) and Value-Belief-Norm (VBN) to understand awareness of consequences, ascription of responsibility and personal norms guiding tourist behavior (Han et al., 2018) (Sharma, 2020). Results of other studies indicate that individuals who have a greater awareness of the consequences of their actions are more likely to feel a stronger sense of responsibility and to engage in behaviors that are beneficial to the environment (Landon et al., 2018). In this context, we propose the following hyptothesis:

Hypothesis 2: Awareness of consequences significantly impacts Millennials' ascription of responsibility.

3.1.4 Ascription of responsibility and personal norms

The ascription of responsibility can significantly influence an individual's norms and can shape their sustainable behaviors. Moreover, according to Denley et al. (2020) ascribing responsibility can activate personal norms related to moral obligations towards the environment . Therefore, in this aspect we hypthosize that:

Hypothesis 3: Ascription of responsibility significantly impacts Millennial's personal norms.

3.1.5 Personal norms and pro-sustainable tourism behaviors

Personal norms are the primary factor that determines the extent to which individuals are motivated to address sustainability issues by modifying or enhancing their own travel behavior (Han et al., 2018) This suggests that the personal norms of travelers can have a significant impact on the ways in which they engage in sustainable behaviors while they are traveling (Salinero et al., 2022). However, there is a lack of empirical evidence regarding this relationship for Millennials. When it comes to travelling, we argue that members of the Millennial generation who have stronger personal norms regarding issues of sustainability will exhibit more pro-sustainable tourism behaviors. This leads us to put forward to the following hypotheses:

Hypothesis 4a: Personal norms have a positive influence on pro-environmental tourism behaviors of Millennials.

Hypothesis 4a: Personal norms have a positive influence on pro-environmental tourism behaviors of Millennials.

Hypothesis 4b: Personal norms have a positive influence on pro-economic tourism behaviors of Millennials.

Hypothesis 4c: Personal norms have a positive influence on pro-social tourism behaviors of Millennials.

The research variables used are:

- Biosphere value: adapted from Ribeiro et al. (2023) &Choi et al. (2015)
- Altruistic value: adapted from Ribeiro et al. (2023)
- Awareness of consequences : adapted from Choi et al. (2015)

- Pro-environmental behavior: adapted from Filimonau et al.(2018)
- Pro-economic behavior: adapted from Salinero et al. (2022)
- Pro-social behavior: adapted from Salinero et al. (2022)

The authors developed measure items for each construct:

- Three items capturing biosphere value
- Four items capturing altruistic value
- Five items measuring ascription of responsibility
- Five items measuring personal norms
- Six items measuring pro-environmental behavior
- Four items measuring pro-economic behavior
- Four items measuring pro-social behavior

Each of the five dimensions, along with the respectable measure items that correspond to them, were modified for the purpose of our survey.

Detailed information about the study is presented in Table 1:

Table 1. Research constructs and measurements.

Constructs	**Measurement Items**	**Literature Sources**
Biosphere Value	1. In my opinion, it is necessary to protect the environment of a tourist destination to conserve the natural resources for sustainability. 2. In my opinion, it is necessary to protect a tourist destination from pollution and maintain harmony for sustainability. 3. In my opinion, it is necessary to respect the earth at a tourist destination to create harmony and unity with nature for sustainability.	**Ribeiro et al. (2023); Choi et al. (2015)**

Altruistic Value	1. In my opinion, it is necessary to strive for equal opportunity for all, regardless of background or circumstance. 2. In my opinion, it is necessary to work towards a world free of war and conflict, where peaceful solutions are always sought. 3. In my opinion, it is necessary to actively fight against injustice and advocate for social justice, ensuring everyone receives fair treatment and care. 4. In my opinion, it is necessary to be helpful and contribute to the well-being of others in our community and the world.	**Ribeiro et al. (2023)**
Awareness of Consequences	1. In my opinion, global warming is a problem for society. 2. In my opinion, energy savings are an important way to help reduce global warming. 3. In my opinion, the exhaustion of fossil fuels is a problem that needs to be addressed. 4. In my opinion, relying less on all energy sources, not just fossil fuels, would be beneficial for the environment. 5. In my opinion, using less energy can contribute to improving environmental quality.	**Choi et al. (2015)**
Ascription of Responsibility	1. It is my responsibility to minimize my impact on the environment as a tourist. 2. I take some responsibility for the environmental problems potentially caused by tourism activities. 3. I feel jointly responsible for tourism's impacts on the environment.	**Ribeiro et al. (2023)**

Personal Norm	1. I would be a better person if I stayed in a green hotel and use environmentally friendly products and services. 2. People like me should do everything they can to save the environment. 3. I feel obliged to bear the environment and nature in mind in my travel behaviors. 4. I feel morally obliged to use green hotels, regardless of what others do. 5. I feel personally obliged to save as much energy as possible.	**Choi et al. (2015)**
Pro-Environmental Behavior	1. I perform green practices to help the environment on my trips. 2. I usually report to the destination administration of any environmental pollution I see when on my trips. 3. I act responsibly to protect the destination's environment on my trips. 4. I do not disrupt the fauna and flora on my trips. 5. I consume natural resources responsibly on my trips. 6. I try to persuade others to adopt environmentally responsible behavior on my trips.	**Park et al. (2018)**
Pro-Economic Behavior	1. On my trips, I stay at locally owned tourist accommodations. 2. On my trips, I taste the local food. 3. On my trips, I purchase local souvenirs. 4. On my trips, I support the local economy.	**Salinero et al. (2022)**

Pro-Social Behavior	1. I usually help the local communities in their development on my trips. 2. I usually help the underprivileged on my trips. 3. I usually invest my time in social projects on my trips. 4. I usually interact with the local community on my trips.	**Salinero et al. (2022)**

All variables are measured on the basis of a five-point Likert scales with the anchors as indicated (with exception to demographic questions) :

- 1=Strongly disagree
- 2=Disagree
- 3=Neither agree nor disagree
- 4= Agree
- 5=Strongly agree

II. ANALYSIS

4 ANALYSIS

In this chapter we will describe the statistical methods applied to the data analysis. To be able to analyze the data, we will first go over the procedures used for data collection and preparation. Second, we will describe the procedures followed and the outcomes of the assessment that was necessary to verify the validity and reliability of the measurement items. The section's last section is devoted to descriptive and inferential statistics, both of which have been useful to us in testing our theories. The textual sections provide an explanation of the analysis results, which are further illustrated with tables and figures.

4.1 Data collection

As previously indicated, the study's questionnaire was made with Google Docs and sent to respondents via email. Researchers can benefit from a certain amount of automation with Google Docs because all answers are automatically entered into a spreadsheet that can be downloaded and examined. As a result, the data preparation stage in this instance turned out to be fairly straightforward:

- Non-random sampling was used for selecting the respondents, in which participants refer to and include their acquaintances. It is considered that travelers are familiar with sustainable tourism behavior already.
- Through social media platforms like Facebook and WhatsApp, a live survey URL was shared, providing a brief description of the survey's process. inviting travelers to participate A total of 152 surveys were filled out by travelers in Egypt.
- Data entry: as was previously indicated, Google Docs handled this step automatically.
- Data transformation: the information gathered through open-ended questions had some format inconsistencies, so it had to be modified to match the same format.

This method was appropriate because the questionnaire has several benefits that are essential to our study including the following: determining the relationships between variables and constructs, providing an objective means of testing hypotheses in addition to being simple and inexpensive to administer to a large number of participants (Recker, 2013). Besides the benefits, there are several disadvantages associated with questionnaires, such as a higher chance of receiving a low response rate.

In the course of carrying out the study, great consideration was given to the ethical issues that could arise as a result of doing research of this kind. There are no adverse effects linked with this research, whether they be psychological, social, or physical in nature. In addition, each participant is kindly requested to fill out the questionnaire; however, they are free to decline the request at any time. In addition, the researcher assured the individuals who participated in the survey that their names would be kept confidential and that they would not be included in any part of the report that was produced for the project.

4.2 Measurements

The questionnaire was composed of two parts: a measure of the constructs and demographic information. There are 34 questions in the first part that ask visitors about their values, beliefs, personal norms, and opinions on sustainable tourism behavior. Multi-measurement items that were modified specifically for this study were taken from existing literature and used to measure the constructs. Five questions concerning personal information make up the first section. A five-point Likert scale, ranging from 1 for totally disagree to 5 for totally agree, was utilized to allow respondents to select their responses accordingly. Every question on the survey was created with the goal of gathering the most precise information possible to support or refute the theories in our suggested research model. The survey's purpose, guidelines for answering, and a disclaimer about protecting respondents' privacy and confidentiality were all taken into consideration.

4.3 Descriptive analysis

An overview of the demographic characteristics of the respondents is provided in Table 2, which may be seen below. These factors include gender, age, educational level, employment status, and marital status.

Table 2. Demographic characteristics of respondents (n=152)

Demographic Characteristic	**Frequency**	**Percentage**
Gender		
Male	84	55.3%
Female	66	44.7%
Age		

Demographic Characteristic	**Frequency**	**Percentage**
18-25 Years	35	23%
21-26 Years	62	40.8%
34-40 Years	55	36.2%
Education Level		
High School	23	15.1%
Bachelor's Degree	79	52%
Master's Degree or higher	48	31.6%
Others	2	1.3%
Occupational Status		
Student	67	44.1%
Employee	38	25%
Self-employed	18	11.8%
Unemployed	26	17.1%
Other	3	2%
Marital Status		
Single	48	31.6%
Married	52	34.2%
In a Relationship	35	23%
Divorced	17	11.2%
Total Responses	152	100.00%

Regarding the gender breakdown of respondents, the survey reveals that there is a slight majority of male respondents (55.3%), in comparison to female respondents (44.7%). It is necessary to take into consideration the possibility of gender-specific differences in attitudes and behaviors with regard to sustainable tourism, as indicated by this gender distribution. The ways in which gender influences perceptions of sustainability, travel preferences, and engagement with sustainable tourism initiatives could be investigated further through further research investigations.

A significant proportion of respondents (77.8%) are between the ages of 21 and 34 years old. The majority of respondents fall within the age range of 21–40 years, with the majority of respondents falling within this age range.

There is a strong correlation between this age distribution and the Millennial demographic cohort, which suggests that there may be a potential focus on gaining an understanding of the preferences and behaviors of this influential demographic group with regard to sustainability. Studying Millennials can provide valuable insights that can be used to inform targeted strategies that aim to engage younger travelers in environmentally responsible tourism practices.

The sample population has a high level of educational attainment, as evidenced by the fact that more than eighty percent of the respondents have earned at least a bachelor's degree. This suggests that the respondents may have a higher capacity for critical thinking and decision-making in relation to sustainable tourism, as well as a greater awareness of issues related to sustainability. The educational background of respondents can have an effect on how receptive they are to messages about sustainability and how easily they are able to adopt sustainable travel behaviors.

The sample demonstrates a diverse range of occupational statuses, with students making up the largest group (44.1%) and employed people coming in second (25%). This occupational diversity reflects varying levels of disposable income, leisure time availability, and travel preferences among respondents. Understanding how different occupational groups engage with sustainable tourism can provide insights into the role of lifestyle factors in shaping pro-sustainable behaviors.

The respondents come from a variety of different marital statuses, including being single, married, in a relationship, and divorced. With factors such as family responsibilities, travel companionship, and financial considerations playing a role in destination choices and travel behaviors, marital status can have an impact on the decision-making processes that are involved in travel. It is possible to gain valuable insights for the purpose of designing targeted interventions by investigating the ways in which attitudes towards sustainable tourism intersect with marital status.

5 EMPIRICAL RESULTS

Smart PLS v 3.2.9 software was used to obtain the empirical results of structural equation modeling. This type of modeling has been widely used in the social sciences among the research community since it is capable of assessing complex model structures with numerous constructs and variables. We have chosen this specific analytical strategy because we want to test the proposed hypotheses of relationships in this study.

5.1 Data analysis

The data analysis process consists of two main procedures: the measurement model's validation and the structural model's evaluation. The relationship between latent variables and observed data is represented by the measurement model, while the relationship between latent variables is represented by the structural model.
In addition to this, the questionnaire was designed in closed questions so that all of the data collected was in the numeric format. This is because open-ended questions are not analyzed in the same manner.

Furthermore, the statistical method that we utilized for the analysis of our empirical data offers benefits that contribute to the enhancement of the validity of the study that we carried out. One of the benefits of PLS is that it has minimal demands when it comes to the sample size, which means that this factor is not of great importance when performing calculations with PLS. This is despite the fact that our research had a smaller sample size. PLS is distinguished by this feature, which leads to the increased validity and generalization of our findings.

5.2 Multicollinearity

Multicollinearity is a statistical phenomenon that occurs when there is a high degree of linear intercorrelation between independent variables in a multiple regression model. This phenomenon causes the results of the regression analysis to be inaccurate. The variance inflation factor (VIF) was utilized for each component in order to perform multicollinearity testing as a diagnostic application. (VIF) is a ratio that indicates how much the variance of an estimated regression coefficient is overestimated due to multicollinearity. In General, if the variance inflation factor (VIF) is less than 5, it indicates that multicollinearity is no longer an issue in the model (Hair et al., 2017).

According to the findings of the research, no constructs have a VIF greater than 10, which is a commonly used threshold for severe multicollinearity. However, a few constructs: Ascription of responsibility (ASC2), personal norms (PER2 & PER3) and pro-social behavior (PSB2) have VIF values above 5. This suggests there might be some degree of multicollinearity.

Table 3. Variance Inflation Factor values (VIF)

Constructs	VIF
Altruistic Value 1	2.223
Altruistic Value 2	2.591
Altruistic Value 3	3.047
Altruistic Value 4	2.725
Ascription of Responsibility 1	3.052
Ascription of Responsibility 2	5.037
Ascription of Responsibility 3	2.504
Awareness of Consequences 1	3.690
Awareness of Consequences 2	5.500
Awareness of Consequences 3	3.593
Awareness of Consequences 4	3.691
Awareness of Consequences 5	2.787
Biospheric Value 1	3.584
Biospheric Value 2	4.434
Biospheric Value 3	2.835
Pro- Environmental Behavior 1	4.296
Pro- Environmental Behavior 2	4.060
Pro- Environmental Behavior 3	5.364
Pro- Environmental Behavior 4	3.846
Pro- Environmental Behavior 5	5.220

Pro- Environmental Behavior 6	2.988
Pro- Economic Behavior 1	2.301
Pro- Economic Behavior 2	3.792
Pro- Economic Behavior 3	4.333
Pro- Economic Behavior 4	2.852
Personal Norms 1	3.726
Personal Norms 2	6.670
Personal Norms 3	7.421
Personal Norms 4	4.783
Personal Norms 5	3.379
Pro-Social Behavior 1	3.962
Pro-Social Behavior 2	6.297
Pro-Social Behavior 3	4.179
Pro-Social Behavior 4	2.579

Source: Authors' output from Smart PLS 3.2.9

5.3 Internal consistency reliability

The Cronbach's Alpha test is widely used for the purpose of assessing the consistency of respondents to questionnaires (Mitchell and Jolley 2012). Additionally, it offers an estimation of reliability by utilizing indicator correlations. According to Mitchell and Jolley (2012), values of the alpha coefficient that are greater than 0.70 are considered as being acceptable.

Table 4. Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Altruistic Value	0.864	0.887	0.862	0.617
Ascription of Responsibility	0.884	0.906	0.885	0.722
Awareness of Consequences	0.886	0.886	0.884	0.605
Biospheric Value	0.919	0.922	0.919	0.792
Pro- Environmental Behavior	0.884	0.897	0.888	0.573
Pro- Economic Behavior	0.891	0.899	0.894	0.679
Personal Norms	0.910	0.913	0.911	0.673
Pro-Social Behavior	0.879	0.898	0.884	0.659

Source: Authors' output from Smart PLS 3.2.9

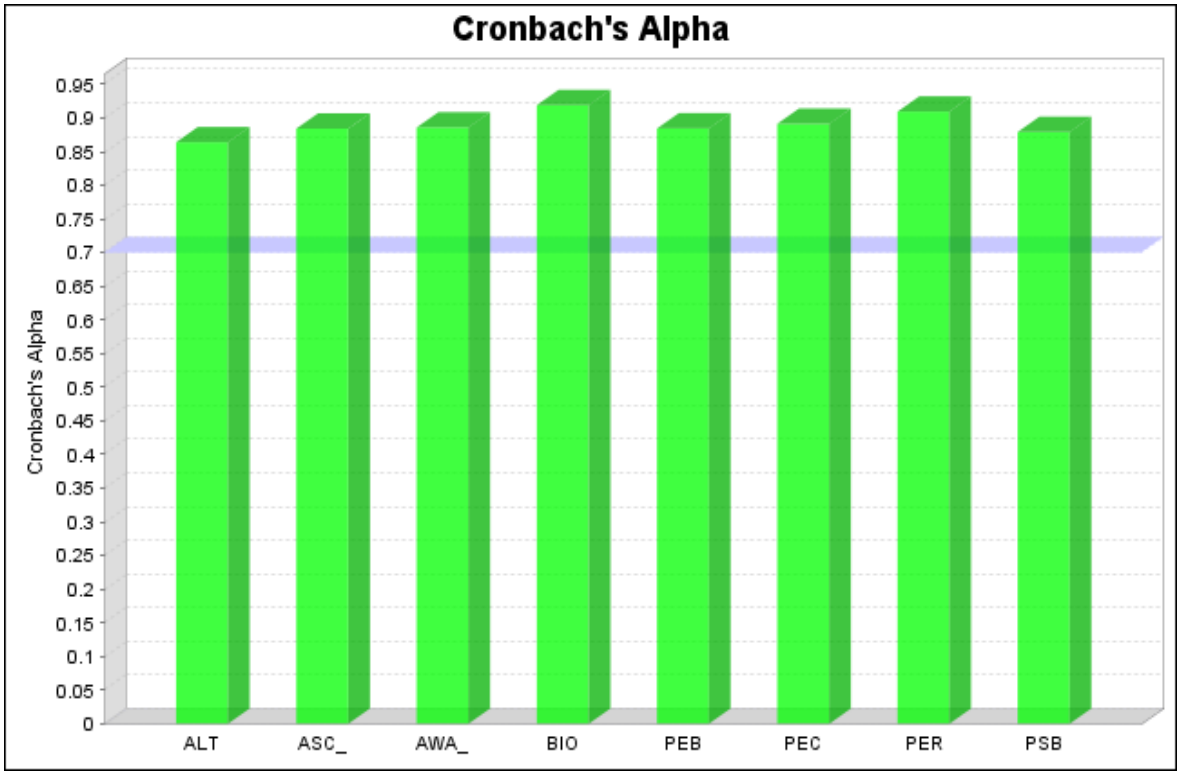


Figure 8 Cronbach's Alpha values of measurements

Source: Authors' output from Smart PLS 3.2.9

As we can see in the figure above All the constructs have Cronbach's Alpha values above 0.8, indicating excellent internal consistency reliability. The high Cronbach's Alpha values lend support to the validity of the measurement constructs employed in the study. Constructs with high internal consistency reliability are more likely to accurately capture the intended concepts and provide valid assessments of respondents' attitudes, perceptions, and behaviors related to sustainable tourism.

5.4 Factor loadings

The factor loadings of each indicator variable are a representation of the strength and direction of the relationship that exists between that variable and the underlying construct. A factor loading of 0.7 or higher is generally considered to be indicative of a strong relationship, which suggests that the observed variable effectively captures variance in the latent construct.

‘

Table 5. Factor loadings

	ALT	ASC	AWA	BIO	PEB	PEcB	PER	PSB
ALT1	0.667							
ALT2	0.654							
ALT3	0.806							
ALT4	0.971							
ASC1		0.713						
ASC2		0.824						
ASC3		0.990						
AWA1			0.738					
AWA2			0.732					
AWA3			0.768					
AWA4			0.815					
AWA5			0.831					
BIO1				0.836				
BIO2				0.922				
BIO3				0.910				
PEB1					0.581			
PEB2					0.656			
PEB3					0.850			
PEB4					0.816			
PEB5					0.810			
PEB6					0.789			
PEcB1						0.722		
PEcB2						0.899		
PEcB3						0.849		
PEcB4						0.816		
PER1							0.835	
PER2							0.798	
PER3							0.867	
PER4							0.848	
PER5							0.750	
PSB1								0.659
PSB2								0.883
PSB3								0.925
PSB4								0.754

Note: ALT = Altruistic Value, ASC = Ascription of Responsibility, AWA = Awareness of Consequences, BIO = Biospheric Values, PEB = Pro- Environmental Behavior, PEcB = Pro- Economic Behavior, PER = Personal Norms, PSB = Pro-Social Behavior

Source: Authors' output from Smart PLS 3.2.9

Overall, the majority of factor loadings exceed the recommended threshold of 0.7, indicating a satisfactory fit between the observed variables and their latent constructs. The biospheric values construct is comprised of three items (BIO1, BIO2, and BIO3),

all of which have factor loadings that are greater than 0.8.

These high factor loadings (ranging from 0.836 to 0.922) indicate a robust representation of biospheric values, which suggests that the items are able to accurately measure the environmental concerns of respondents.

A strong factor loading for the majority of indicator variables is also demonstrated by various constructs, including Altruistic Value (ALT), Ascription of Responsibility (ASC), Awareness of Consequences (AWA), Personal Environmental Behavior (PEB), Personal Economic Benefit (PEcB), Personal Norms (PER), and Pro-Sustainable Behavior (PSB). These constructs exhibit a good alignment between the observed variables and their respective constructs.

5.5 Convergent validity

In the process of assessing validity, it is generally accepted to investigate two subtypes of validity: the convergent validity and the discriminant validity (Henseler et al. 2015). According to Hensler et al. (2015), convergent validity is a study that demonstrates that a group of indicators all represent the same underlying construct. Using the Average Variance Extracted (AVE) method, which was proposed by Fornell and Larcker (1981), we were able to evaluate this validity subtype where a value of AVE equal to or greater than 0.5 indicates that there is sufficient convergent validity. As observed in table 4, the high AVE values (all above 0.5) indicate that the constructs are able to explain a substantial portion of the variance in their respective measurement items. This provides strong evidence that the items within each construct are indeed converging and measuring the same underlying concept.

5.6 Discriminate validity

Assessing discriminant validity is crucial in ensuring that the measurement model accurately captures the distinctiveness of each construct. This process involves two key steps:

The first step involves examining the factor loadings of indicators on their respective constructs. Stronger factor loadings indicate that the indicators effectively represent the intended constructs and are more closely associated with them than with other constructs in the model. This step makes sure that each construct in the model is distinct from other constructs and that its indicators adequately represent it.

The second step is comparing the average variance extracted (AVE) for each construct to the correlations between constructs. The inter-construct correlations show the degree of overlap between constructs, whereas the AVE shows the percentage of variance in the

indicators that the construct itself is able to capture. To establish discriminant validity, the square root of the AVE for each construct should be greater than the correlations with other constructs. This comparison ensures that each construct explains more variance

5.6.1 Fornel-Larcker criterion

Fornell-Larcker test. This test determines whether a construct is empirically different and whether or not it represents a phenomenon of interest that other measures in the model do not capture (Henseler et al., 2015). It compares the square root of the average variance extracted (AVE) for each construct (diagonal elements) with the correlations between constructs to assess discriminant validity.

In Table 6, the diagonal elements represent the AVE for each construct, while the off-diagonal elements represent the correlations between constructs. Based on the Fornell-Larcker criterion, if the diagonal elements (AVE) are higher than the off-diagonal elements (correlations) for each construct, it indicates that the constructs have adequate discriminant validity.

Table 6. Discriminant Validity – Fornell-Larcker Criterion

	ALT	**ASC_**	**AWA_**	**BIO**	**PEB**	**PEcB**	**PER**	**PSB**
ALT	0.785							
ASC_	0.650	0.850						
AWA_	0.765	0.722	0.778					
BIO	0.751	0.423	0.800	0.890				
PEB	0.664	0.584	0.759	0.737	0.757			
PEcB	0.556	0.598	0.569	0.528	0.600	0.824		
PER	0.487	0.653	0.705	0.589	0.771	0.491	0.821	
PSB	0.317	0.520	0.486	0.354	0.557	0.655	0.486	0.812

Note: ALT = Altruistic Value, ASC = Ascription of Responsibility, AWA = Awareness of Consequences, BIO = Biospheric Values, PEB = Pro- Environmental Behavior, PEcB = Pro- Economic Behavior, PER = Personal Norms, PSB = Pro-Social Behavior

Source: Authors' output from Smart PLS 3.2.9

5.6.2 Heterotrait-Monotrait ratio

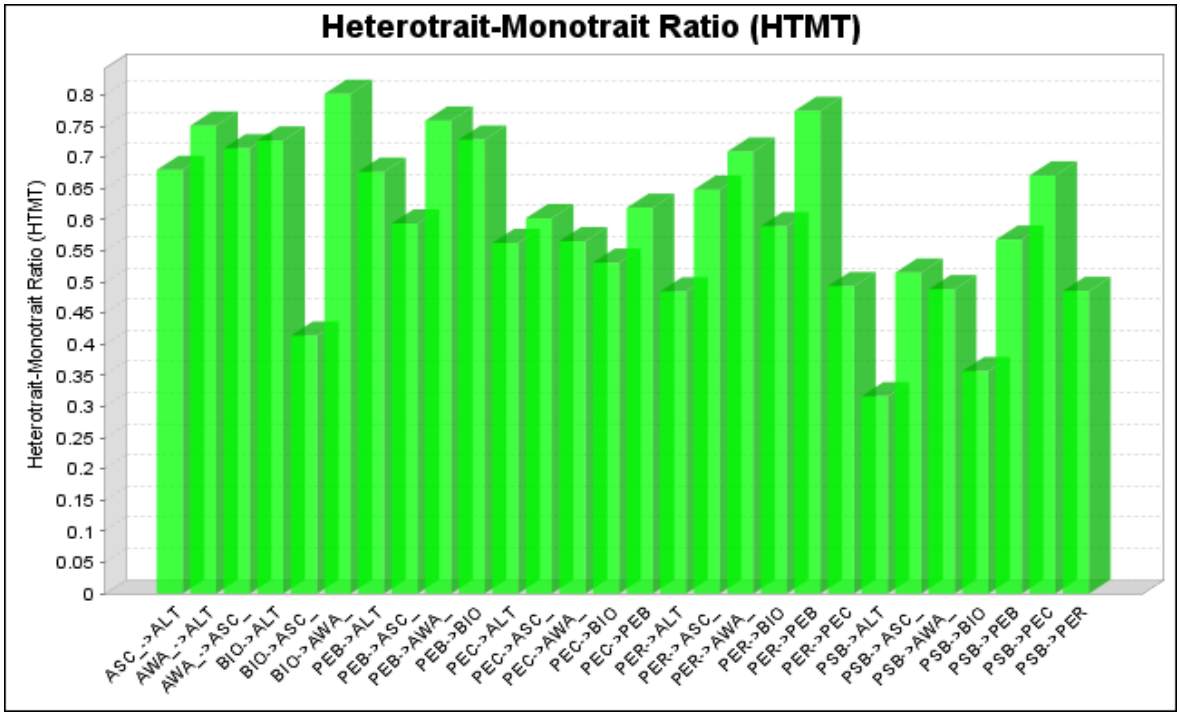
Table 7. Discriminant Validity – Heterotrait-Monotrait Ratio (HTMT)

	ALT	ASC_	AWA_	BIO	PEB	PEcB	PER	PSB
ALT								
ASC_	**0.680**							
AWA_	**0.751**	**0.715**						
BIO	**0.727**	**0.414**	**0.802**					
PEB	**0.677**	**0.594**	**0.759**	**0.728**				
PEcB	**0.563**	**0.603**	**0.566**	**0.531**	**0.619**			
PER	**0.485**	**0.648**	**0.709**	**0.590**	**0.775**	**0.494**		
PSB	**0.317**	**0.515**	**0.489**	**0.357**	**0.568**	**0.671**	**0.486**	

Note: ALT = Altruistic Value, ASC = Ascription of Responsibility, AWA = Awareness of Consequences, BIO = Biospheric Values, PEB = Pro- Environmental Behavior, PEcB = Pro- Economic Behavior, PER = Personal Norms, PSB = Pro-Social Behavior

Source: Authors' output from Smart PLS 3.2.9

Figure 9. Discriminant validity - Heterotrait-Monotrait Ratio (HTMT)



All the HTMT values in the figure are below the 0.90 threshold, and most are below the 0.85 threshold. This suggests that the constructs in the study are suitable and demonstrate adequate discriminant validity, meaning they are distinct from one another.

5.7 Structural model and hypotheses testing

Path analysis of the structural model is needed in order to maintain the quality of the fit of the model. The identification and establishment of relationships between variables, as well as the construction of relationships that underlie research hypotheses and assumptions, are significant areas in which this analysis is highly relevant.

5.7.4 Direct effect

Table 8. Path Coefficient -direct relationships

	Original Sample (O)	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Values**	**Decision**
H1 b: ALT -> AWA	0.351	0.355	0.078	4.495	0.000	Supported
H3: ASC_ -> PER	0.594	0.597	0.072	8.231	0.000	Supported
H2: AWA_ -> ASC	0.649	0.651	0.052	12.362	0.000	Supported
H1 a: BIO -> AWA	0.484	0.485	0.078	6.209	0.000	Supported
H4 a: PER -> PEB	0.698	0.698	0.056	12.506	0.000	Supported
H4 b:PER -> PEcB	0.445	0.447	0.076	5.843	0.000	Supported
H4 c: PER -> PSB	0.440	0.446	0.077	5.720	0.000	Supported

Note: ALT = Altruistic Value, ASC = Ascription of Responsibility, AWA = Awareness of Consequences, BIO = Biospheric Values, PEB = Pro- Environmental Behavior, PEcB = Pro- Economic Behavior, PER = Personal Norms, PSB = Pro-Social Behavior

Source: Authors' output from Smart PLS 3.2.9

The table provides clear evidence of the significant direct relationships between the constructs, as hypothesized in the conceptual model. The strong statistical support for the hypotheses strengthens confidence in the proposed theoretical framework and the validity of the research findings. A smaller p-value (<0.05) suggests stronger evidence against the null hypothesis and supports the existence of a significant relationship between the variables. In this case, all p-values are less than 0.001, indicating highly significant relationships.

The path coefficients represent the strength and direction of the relationships between the predictor (independent) and outcome (dependent) variables in the structural model. Each coefficient indicates the change in the dependent variable for a one-unit change in the predictor variable. The path coefficients are depicted as green bars in the figure below, with values ranging from approximately 0.25 to 0.8. These coefficients indicate the strength and direction of the relationships between variables in the model.

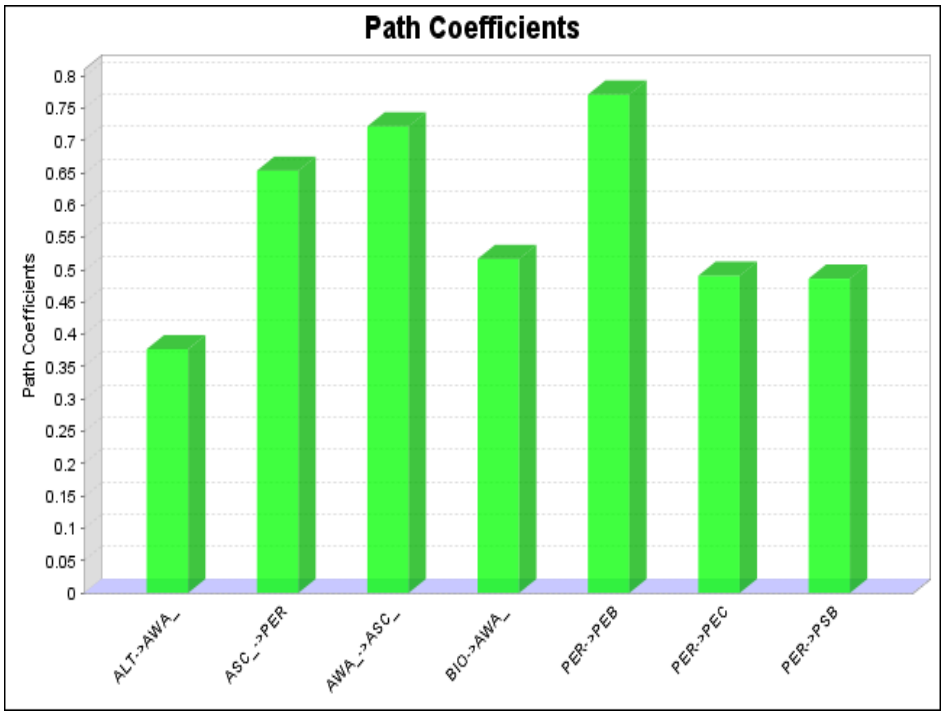


Figure 10. Path Coefficient (Direct effect) results

Source: Authors' output from Smart PLS 3.2.9

As in the direct relationship results, pro-sustainable behavior was significantly positively related with personal norms. In other words, PER positively influences PEB, PEcB, and PSB where (H4a, H4b, H4c) were supported,

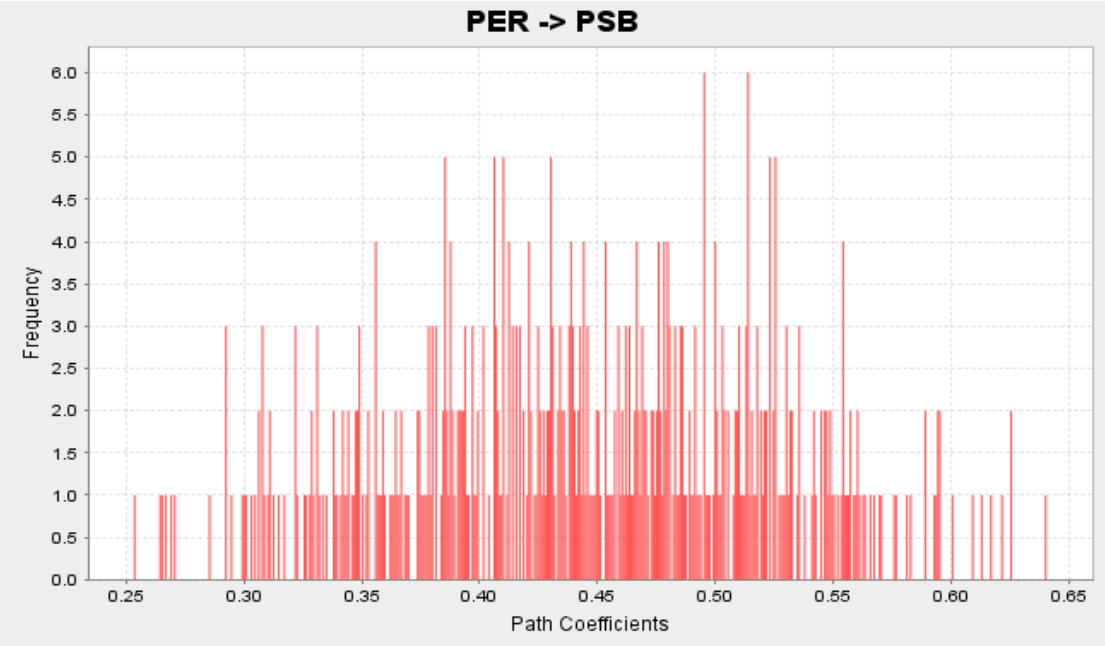


Figure 11. the direct effects of the path Biospheric Values on Pro-Social Behavior

Source: Authors' output from Smart PLS 3.2.9

The histogram depicts a roughly normal distribution, with the majority of the path coefficients clustering around the range of 0.35 to 0.55. This suggests that the direct effect of biospheric values on pro-social behavior is generally positive and moderate in strength across the observations or samples included in the analysis.

5.7.5 Indirect effect

Table 9. Path Coefficient -indirect relationship

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Decision
ALT -> AWA_ -> ASC_	0.228	0.232	0.058	3.917	0.000	
BIO -> AWA_ -> ASC_	0.314	0.315	0.054	5.768	0.000	
ALT -> AWA_ -> ASC_ -> PER -> PEB	0.094	0.097	0.031	3.042	0.002	
ASC_ -> PER -> PEB	0.415	0.417	0.067	6.153	0.000	
AWA_ -> ASC_ -> PER -> PEB	0.269	0.273	0.059	4.576	0.000	
H4a:BIO -> AWA_ -> ASC_ -> PER -> PEB	0.130	0.133	0.038	3.428	0.001	supported
ALT -> AWA_ -> ASC_ -> PER -> PEC	0.060	0.063	0.025	2.401	0.017	
ASC_ -> PER -> PEC	0.264	0.270	0.070	3.767	0.000	
AWA_ -> ASC_ -> PER -> PEC	0.171	0.177	0.054	3.164	0.002	
H4b:BIO -> AWA_ -> ASC_ -> PER -> PEcB	0.083	0.086	0.031	2.709	0.007	supported
ALT -> AWA_ -> ASC_ -> PER	0.135	0.139	0.041	3.301	0.001	
AWA_ -> ASC_ -> PER	0.385	0.390	0.066	5.842	0.000	
BIO -> AWA_ -> ASC_ -> PER	0.186	0.189	0.046	4.066	0.000	
ALT -> AWA_ -> ASC_ -> PER -> PSB	0.060	0.062	0.023	2.619	0.009	
ASC_ -> PER -> PSB	0.262	0.269	0.067	3.930	0.000	
AWA_ -> ASC_ -> PER -> PSB	0.170	0.176	0.050	3.396	0.001	
H4c:BIO -> AWA_ -> ASC_ -> PER -> PSB	0.082	0.086	0.030	2.766	0.006	supported

Note: ALT = Altruistic Value, ASC = Ascription of Responsibility, AWA = Awareness of Consequences, BIO = Biospheric Values, PEB = Pro- Environmental Behavior, PEcB = Pro- Economic Behavior, PER = Personal Norms, PSB = Pro-Social Behavior

Source: Authors' output from Smart PLS 3.2.9

The results show that the indirect effects of biospheric values (BIO) on pro-environmental behavior (PEB), private-sphere environmentalism (PEC), and pro-social behavior (PSB), mediated through awareness of consequences (AWA_), ascription of responsibility (ASC_),

and personal norms (PER), are statistically significant, as indicated by the p-values being less than the chosen significance level (e.g., 0.05 or 0.01).

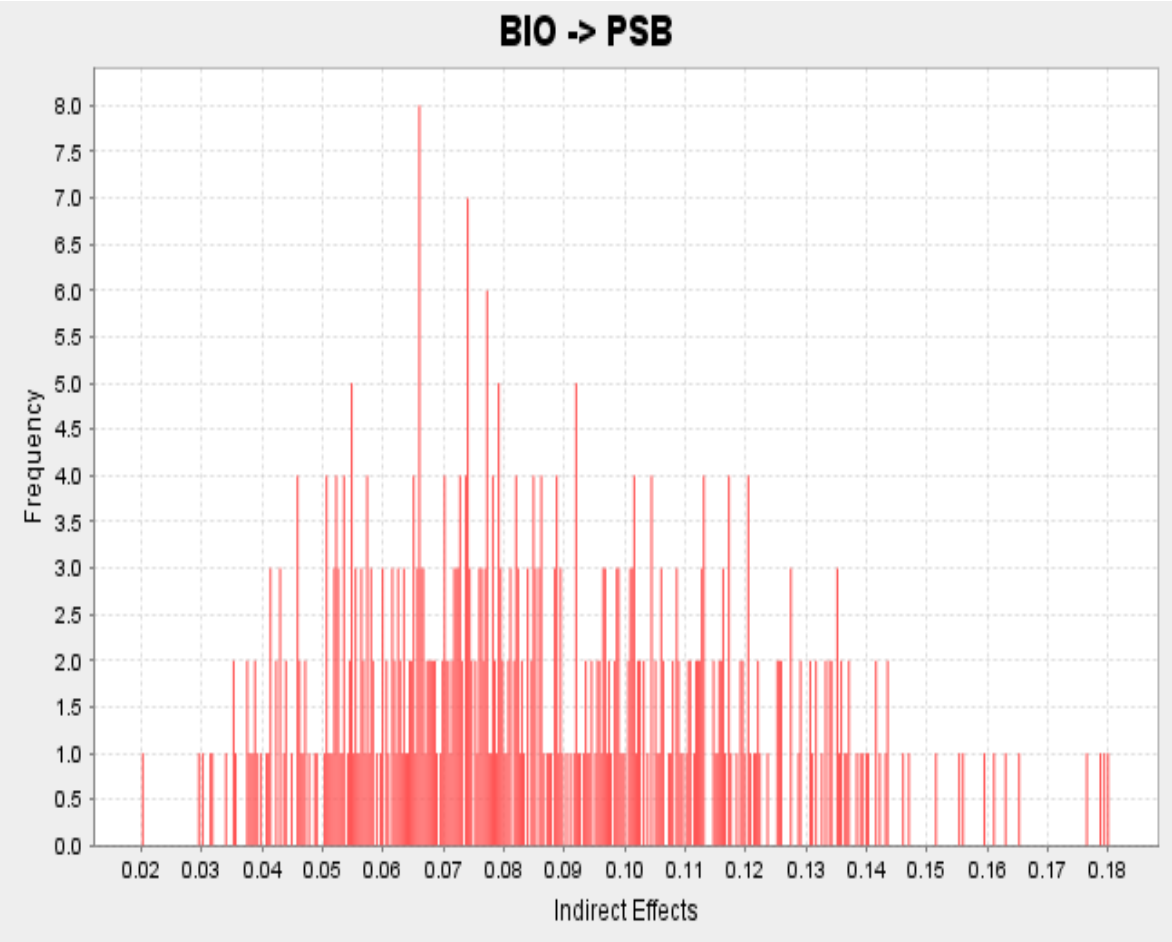


Figure 12. the total effects of Biospheric Values on Pro-social Behavior

Source: Authors' output from Smart PLS 3.2.9

This histogram provides a visual representation of the distribution and variability in the total effects of biospheric values on pro-social behavior. The total effects range from around 0.02 to 0.18, indicating a relatively wide distribution of the strength of the relationship. There are multiple distinct peaks or modes in the distribution, implying the relationship between biospheric values and pro-social behavior may not be uniform across the sample.

5.7.6 Coefficient of determination

Table 10. Coefficient of determination

Coefficient of determination (R square)		
	R Square	**R Square Adjusted**
Ascription of Responsibility	0.521	0.518
Awareness of Consequences	0.702	0.698
Pro- Environmental Behavior	0.594	0.592
Pro-Economic Behavior	0.241	0.236
Personal Norms	0.427	0.423
Pro-Social Behavior	0.236	0.231

The R-square values represent the proportion of variance in the dependent variables that is explained by the independent variables in the model. The R-square values range from 0.236 to 0.702, indicating varying degrees of explanatory power for the different constructs:

- AWA (Awareness of Consequences) has the highest R square value (0.702), which means that the predictors in the model can account for about 70.2% of the variance in AAWA. he adjusted R square (0.698) accounts for the number of predictors, suggesting a robust fit.
- PEB (Personal Environmental Behavior) also demonstrates substantial explanatory power with an R square of 0.594, indicating that about 59.4% of the variance in PEB is explained by the independent variables. The adjusted R square (0.592) further confirms the model's goodness of fit.
- ASC (Ascription of Responsibility) and PER (Personal Norms) have moderate R square values of 0.521 and 0.427, respectively, suggesting that they explain a significant portion of the variance in their respective dependent variables.
- PEcB (Personal Economic Behavior) and PSB (Pro-Sustainable Behavior) show relatively lower R square values, indicating that they are less explained by the predictors in the model.

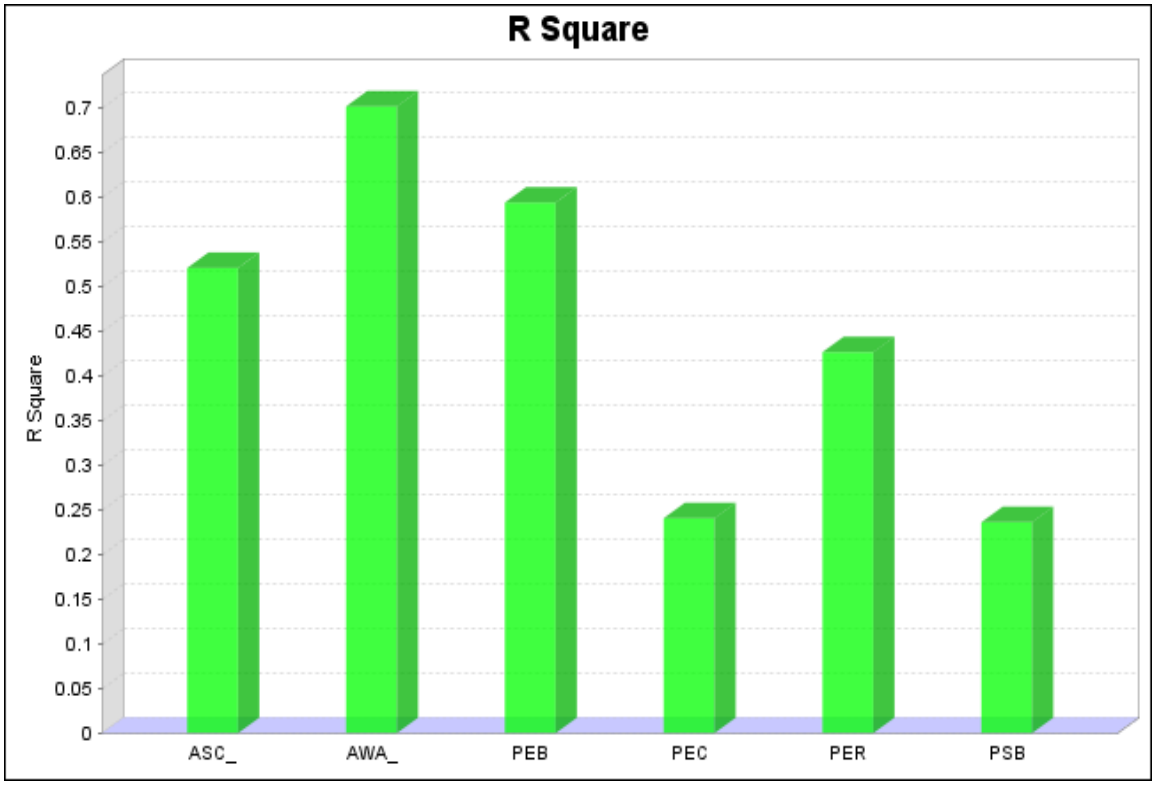


Figure13. R Square values

Source: Authors' output from Smart PLS 3.2.9

The construct with the highest R-square value is Awareness of Consequences (AWA) at 0.702. This means that This suggests that the independent variables in the model (e.g., ALT, BIO) are able to explain a substantial portion (70.2%) of the variance in (AWA).

Constructs like (Ascription of Responsibility (ASC), Pro-environmental Behavior (PEB), and Personal Norms (PER) have R-square values in the moderate range, between 0.4 and 0.6. This indicates that the model can explain a reasonable proportion of the variance in these constructs, but there are likely other external factors not found in the model that also contribute to their variability.

The constructs Pro-environmental Consumption Behavior (PEcB) and Pro-social Behavior (PSB) have the lowest R-square values, at 0.241 and 0.236, respectively, this suggests that the independent variables in the model have a relatively weaker ability to explain the variance in these constructs, and there may be additional factors not accounted for in the model that play a more significant role.

5.7.7 Structural model

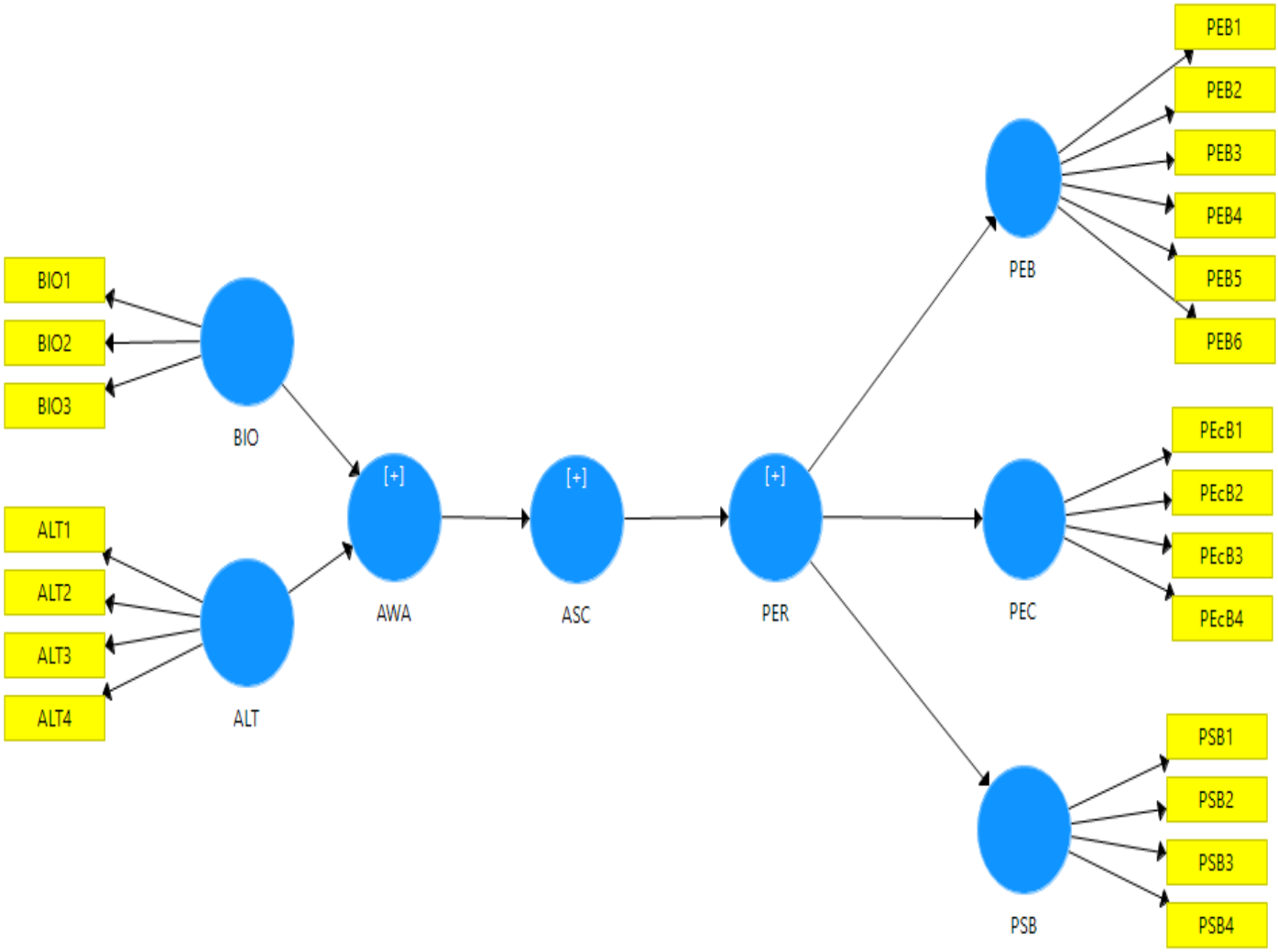


Figure 14. Structural Equation Model constructed by the Author using Smart PLS 3.2.9

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This structural equation model allows for the investigation of the direct and indirect effects of value orientations (Biospheric and Altruistic) on various pro-environmental and pro-social behaviors, mediated through constructs like Awareness of Consequences, Ascription of Responsibility, and Personal Norms. The observed variables help measure the latent constructs in the model. The model is interpreted as follows:

- The model consists of two main value orientations: Biospheric Values (BIO) and Altruistic Values (ALT), represented by observed variables BIO1, BIO2, BIO3, and ALT1, ALT2, ALT3, ALT4, respectively.

- These value orientations influence Awareness of Consequences (AWA), which in turn affects Ascription of Responsibility (ASC).
- Ascription of Responsibility (ASC) has a direct effect on Personal Norms (PER).
- Personal Norms (PER) influence three main outcome variables: Pro-Environmental Behavior (PEB) , Pro-Social Behavior (PSB) and Pro-Economic Behavior (PEcB)
- Pro-Environmental Behavior (PEB) is measured by several observed variables: PEB1, PEB2, PEB3, PEB4, PEB5, and PEB6.
- Pro-Social Behavior (PSB) is measured by observed variables PSB1, PSB2, PSB3, and PSB4.
- Pro-Economic Environmentalism (PEC) is measured by observed variables PEcB1, PEcB2, PEcB3, and PEcB4.
- The paths between the latent variable are labeled with numerical values, representing the path coefficients of the relationships.

5.7.8 Summary Of Outcomes

The empirical results from the structural equation modeling analysis provided important insights into the relationships between value orientations, environmental awareness, ascription of responsibility, personal norms, and various pro-environmental and pro-social behaviors. Key findings are as follows:

- Biospheric values (BIO) and altruistic values (ALT) were found to have significant positive effects on awareness of environmental consequences (AWA).
- Awareness of consequences (AWA) had a strong positive influence on ascription of responsibility (ASC) for environmental issues.
- Ascription of responsibility (ASC) was a key predictor of personal norms (PER) related to environmental protection.
- Personal norms (PER) demonstrated significant positive relationships with pro-environmental behavior (PEB), pro-social behavior (PSB), and pro-economic environmentalism (PEcB).
- Biospheric values (BIO) and altruistic values (ALT) exhibited indirect positive effects on pro-environmental behavior (PEB), pro-social behavior (PSB), and pro-economic environmentalism (PEcB), mediated through awareness of consequences (AWA), ascription of responsibility (ASC), and personal norms (PER).

6 DISCUSSION AND CONCLUSION

The man purpose of this study was to investigate the relationships between a variety of psychological and behavioral constructs that influence sustainable behavior actions that are beneficial to the environment and supportive to society. The proposed conceptual model, which was based on previously established theories, investigated the direct and indirect effects that exist between various constructs, including altruistic values, biospheric values, awareness of consequences, ascription of responsibility and personal norms

The results of this research offer a number of significant insights: in terms of direct relationships, it was discovered that altruistic values (ALT) have a significant positive influence on awareness of consequences (AWA). This finding lends credence to the idea that individuals who have stronger altruistic orientations are more likely to be aware of the effects that their actions have on society and the environment.

Biospheric values (BIO) also had a positive influence on awareness of consequences (AWA), which suggests that people who place a high value on the biosphere and the natural environment are more likely to be aware of the potential consequences that could result from their actions.

Individuals who are more aware of the consequences of their actions are more likely to take responsibility for addressing environmental and social issues, as indicated by the fact that awareness of consequences (AWA) was found to have a positive association with ascription of responsibility (ASC).

It was discovered that ascription of responsibility (ASC) has a significant positive effect on personal norms (PER), which lends credence to the notion that individuals who have a sense of responsibility for addressing societal and environmental issues are more likely to develop a personal obligation to engage in behaviors that are beneficial to society and the environment.

Personal norms (PER) were found to have a positive correlation with pro-environmental behavior (PEB), pro-environmental consumption behavior (PEcB), and pro-social behavior (PSB), highlighting the significant role that personal norms play in motivating actions that are both sustainable and altruistic.

The application of VBN theory goes beyond academic knowledge dissemination and understanding travelers' behavior. It also emphasizes the role of social norms in shaping behavior. In Egypt's tourism sector, this can be translated to cultivating a culture of sustainability among tourism stakeholders. In this context, the findings of Eid et. al (2020) make it clear that awareness of consequences, egoistic value orientation, altruistic value orientation, and biospheric value orientation are all significant precursors to developing of a sense of obligation to visit green hotels in Egypt.

In Russia an increased level of environmental concern has been linked to a high level of endorsement of biospheric values , which has resulted in a stronger personal norm towards accepting policies that reduce the amount of time people spend driving their cars (Ayca et al., 2019). In a similar manner, in Turkey, attitudes toward complying with a plastic carry bag fee ordinance have been influenced by values and perceptions regarding the importance of the issue, which has consequently had an effect on behavior and the level of life satisfaction (Enis, Yakut, 2021). These findings underscore the broader applicability of the Value-Belief-Norm (VBN) theory in understanding and predicting pro-environmental behaviors across diverse cultural and contextual settings.

Technological advancements can also play a crucial role in promoting sustainable tourism in Egypt. Social media platforms can be leveraged to share success stories and best practices (Kozak & Kozak, 2018), fostering a sense of community among tourists committed to sustainable travel in Egypt. This was the situation in the United Kingdom, where there was a high level of pro-environmental behaviors among Gen Z) travelers because social media engagement and online communities were involved (Salinero et al., 2022)(Mariani et al., 2016). However, we should keep in consideration the generation gap between Millennial's and Gen Z in terms of interaction with social media platforms.

By harnessing the power of VBN theory, Egypt's tourism industry can transition towards a more sustainable future. This not only safeguards the environment and cultural heritage for future generations but also ensures a more enriching and responsible travel experience for tourists.

6.1 Theoretical contributions

There are significant theoretical contributions that can be found in this master's thesis. Contributing to the expanding body of knowledge are the recognized constructs as well as the proposed research strategy for the investigation of specific relationships and correlations. In addition to value-belief norm-theory (VBN), other established theories such as Norm Activation Model (NAM) and Theory of Planned Behavior (TPB) investigated pro-environmental behavior (PEB) among travelers. On the other hand, pro-sustainable behavior (PSB) is not very common (Ribeiro et al., 2023); hence, the contribution of this thesis is the investigation of the linkages between the constructs of value-belief-norm (VBN) theory and the full dimensions of sustainable behavior. Moreover, investigating sustainable tourism behavior in a recognized global tourist destination like Egypt was an ideal context to do research and this can be easily replicated in other touristic destinations worldwide.

6.2 Practical implications

This research will provide managers with helpful insights, which will be of great benefit to the tourism and hospitality business domain, which will also benefit them from a more practical point of view.

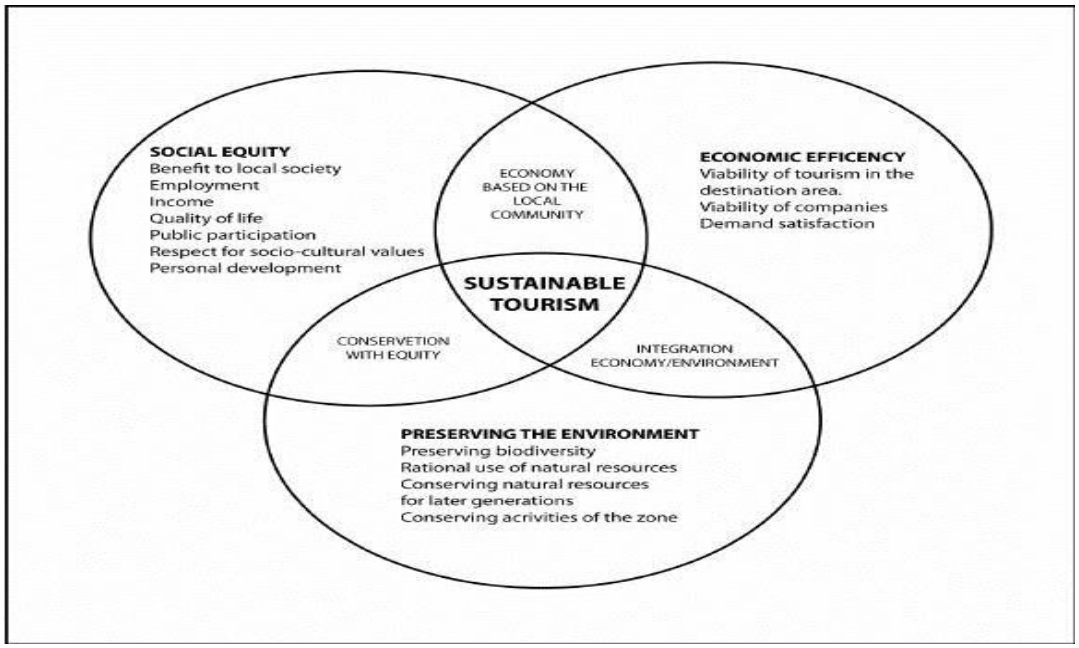

Figure 15:Factors for More Sustainable Tourism

Source: UNEP,2005, p.11-12

6.2.1 Implications for business

Firstly, the positive relationships between altruistic values (ALT), biospheric values (BIO), and awareness of consequences (AWA) suggest that interventions aimed at enhancing individuals' environmental and social consciousness can be beneficial. Educational programs, media campaigns, and community-based initiatives that increase public awareness about the consequences of individual actions on the environment and society can help cultivate a stronger sense of environmental and social responsibility.
This is highly recommended in our case since the majority of millennials in the tourism market are highly educated (as shown in the figure below)

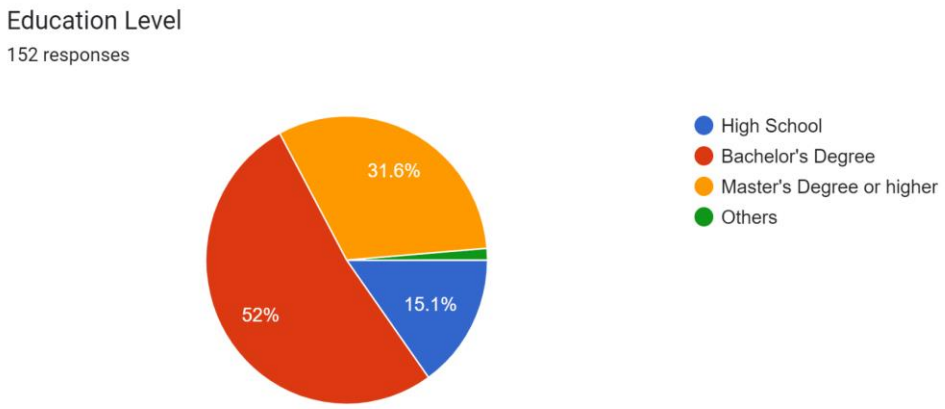

Figure 16. Educational level distribution of Millennials in Egypt
/Source: own survey results

Businesses can ceate opportunities for Millennials to engage directly with sustainable tourism practices through hands-on experiences. Offer eco-volunteering programs, sustainable tourism internships, and cultural exchange initiatives that allow Millennials to actively contribute to and learn about sustainable tourism efforts.

Secondly, the study found that awareness of consequences (AWA) positively influenced ascription of responsibility (ASC), indicating the importance of helping individuals recognize their personal role and obligation in addressing environmental and social issues.

Interventions that encourage individuals to reflect on their ability to contribute to solutions, as well as the consequences of inaction, can foster a greater sense of personal responsibility. For example, tourism companies and travel providers should be encouraged to adopt CSR initiatives that resonate with Millennial values. Emphasize initiatives focused on environmental conservation, community development, and ethical business practices to align with the preferences of socially responsible Millennials.

Thirdly, the findings on the indirect effects of values, awareness, and responsibility on pro-environmental behavior (PEB), pro-environmental consumption behavior (PEcB), and pro-social behavior (PSB) can inform the design of more effective behavior change campaigns. Tailoring interventions to address the specific psychological and cognitive pathways that lead to different types of pro-environmental and pro-social actions can enhance the results of such campaigns and attract environmentally aware customers (Choi et al., 2015). It is possible that marketing managers and administrators of tourist destinations will gain benefits as a result of a deeper understanding of their customers behavior. With this updated information, they will be able to develop marketing strategies that are specifically tailored to the two distinct age groups (Millennials and Gen Z), which will ultimately lead to increased effectiveness and outcomes from their campaigns (Mariani et al., 2016). Another study recommended.

Providing information that is both understandable and easily accessible about sustainable destinations because having knowledge regarding the sustainability of destinations leads to the adoption of pro-sustainable behaviors such as the reduction of waste and the conservation of resources (Gomes and Lopes, 2023). Travel companies can integrate sustainability criteria into existing travel planning tools and websites commonly used by Millennials. This can help them make informed decisions when selecting accommodations, transportation, and activities, thereby promoting sustainable choices during trip planning.

In addition, the findings of this study will make it simpler to develop innovations that are specifically tailored to promote sustainable behavior in tourist destinations. Because of this, they will have a better understanding of the differences in how travelers in different age groups perceive sustainable behavior.

6.2.2 Implications for society

The findings of this study underscore the critical role that society can play in fostering sustainable tourism practices, particularly by empowering and engaging Millennials, who constitute a significant portion of the respondents. As a demographic cohort known for their environmental consciousness and desire for authentic experiences, Millennials can be powerful advocates for sustainable tourism initiatives.

Society should empower Millennials to advocate for policies and initiatives that promote sustainable tourism at local, national, and international levels. By actively involving Millennials in stakeholder discussions and decision-making processes, their perspectives can be effectively represented in the development of sustainable tourism strategies and policies. This participatory approach not only harnesses the enthusiasm and creativity of young individuals but also ensures that their unique needs and preferences are taken into account.

Moreover, by implementing inclusive resource management practices, communities can benefit from improved social opportunities, equal opportunities for locals, and positive developments in the region (Sharma, 2020). Sustainable tourism has the potential to contribute to the overall well-being of local communities by providing economic opportunities, preserving cultural heritage, and promoting environmental stewardship.

To maintain momentum and continually enhance the effectiveness of sustainable tourism initiatives, monitoring and evaluation mechanisms should be established. Collecting data on Millennial travel behavior, attitudes towards sustainability, and preferences for sustainable tourism offerings can provide valuable insights. This data

can inform future initiatives, allowing for targeted interventions and tailored approaches that resonate with the values and aspirations of Millennials.

Education and awareness campaigns play a crucial role in shaping societal norms and behaviors. By promoting the significance of sustainable tourism practices and highlighting the positive impacts they can have on local communities, natural environments, and cultural heritage, society can cultivate a sense of shared responsibility and inspire collective action towards more responsible tourism practices.

Collaboration among various stakeholders, including governments, tourism organizations, educational institutions, and community groups, is essential to creating a comprehensive and cohesive approach to sustainable tourism. By fostering partnerships and leveraging collective resources, society can amplify the reach and impact of sustainable tourism initiatives, ensuring that they resonate with diverse audiences and contribute to the long-term sustainability of destinations.

Through the empowerment of Millennials, the promotion of inclusive resource management, the establishment of monitoring and evaluation mechanisms, the implementation of education and awareness campaigns, and the promotion of cross-sector collaboration, society has the potential to play a pivotal role in the advancement of the sustainable tourism agenda. For the benefit of future generations, this collaborative effort not only helps to preserve the natural and cultural heritage, but it also makes a contribution to the overall well-being and prosperity of the communities that are located in the area.

6.2.3 Implications for policy makers

Policymakers and environmental organizations can leverage the insights from this study to develop comprehensive and targeted strategies for promoting sustainable and altruistic behaviors. By addressing multiple factors such as values, awareness, responsibility, and personal norms, policymakers can create initiatives that encourage widespread adoption of pro-environmental and pro-social behaviors among the general population. Integrated policies and programs that combine educational campaigns with incentives for sustainable practices or regulations that align with personal values and social norms are likely to have a greater impact on behavior.

In addition, policymakers can introduce incentives and support mechanisms to encourage businesses to prioritize sustainability in their operations. This could include offering tax breaks, grants, and subsidies for eco-friendly initiatives, as well as implementing recognition and certification programs to highlight businesses that demonstrate leadership in sustainability. By providing tangible benefits and recognition for sustainable practices, policymakers can incentivize businesses to invest in sustainability and incorporate it into their core operations.

Empowering Millennials as catalysts of change within the tourism industry and society at large is also crucial. Policymakers should provide opportunities for Millennials to advocate for sustainability, influence corporate practices, and lead by example in adopting and promoting sustainable travel behaviors. Supporting youth-led initiatives, providing platforms for engagement, and incorporating Millennials' perspectives into policy development processes are key steps in empowering Millennials to drive positive change.

Furthermore, fostering collaboration and partnership between government agencies, industry stakeholders, non-profit organizations, and local communities is essential for effective implementation of sustainable tourism initiatives. By working together, these stakeholders can leverage their respective strengths and resources to address complex sustainability challenges and achieve collective impact. Policymakers should facilitate collaboration and partnership through policy frameworks, funding mechanisms, and capacity-building initiatives.

Monitoring and evaluation are also critical aspects of sustainable tourism policy. Policymakers should establish mechanisms to assess the effectiveness of policies and programs, track key performance indicators, and evaluate progress towards sustainability goals. By monitoring and evaluating the impact of interventions, policymakers can identify areas for improvement, refine strategies, and ensure accountability.

Addressing barriers and challenges that hinder the adoption of sustainable tourism practices is another important role for policymakers. This may include overcoming regulatory barriers, addressing financial constraints, and addressing cultural or behavioral barriers to change. By proactively addressing these challenges, policymakers can create an enabling environment for sustainable tourism development and facilitate the transition towards a more sustainable and resilient tourism sector.

Supporting research and innovation in sustainable tourism is essential for driving continuous improvement and fostering a culture of innovation within the industry. Policymakers should invest in research projects, foster collaboration between academia and industry, and promote knowledge sharing and exchange. By generating evidence-based insights, developing best practices, and driving innovation, policymakers can support the long-term sustainability of the tourism sector and contribute to positive social, environmental, and economic outcomes..

6.3 Limitations and future research recommendations

The results of this study may be affected by a number of limiting factors. First and foremost, the sample size that was obtained for the research is a limitation. By means of the administration of an online questionnaire, which is supposed to be a relatively easy task, the objective was to collect information from travelers in Egypt. Because some individuals and organizations were unwilling to take part in the research project as they don't have any background about sustainable behavior. This is reflected in a low response rate, with only 152 responses being collected.

The lack of time that is available to investigate the issue and collect data is another limitation that must be taken into consideration. It is possible that the relationships discovered from the data that is available will be affected by the small sample size that was caused by limited access and a lack of time that was available. It is also possible that the sample that was acquired does not accurately represent all Egyptian Millennial travelers and their respective behavior, which may influence the generalization of the results.

Thirdly, this study examined the pro-sustainable behavior of Millennial travelers. The value and applicability of these constructs is limited and yet to be explored. Moreover, there are critical challenges for most Egyptian tourist destinations as the country faces substantial foreign debt and economic issue which decreases the number of local travelers.

Another factor to consider, is that Egyptian Millennial travelers are considered to be price sensitive and not willing to pay extra for green hotels as reported in a previous study (El Demerdash, 2019). Eventually from an economic point of view, it will be extremely challenging to implement our recommendations in such uncertain situations.

To address the limitations identified in this study and further advance understanding in this area, several recommendations for future research are proposed. Firstly, future studies should aim to increase the sample size and diversity of participants to enhance the representativeness and generalizability of the findings. This could involve employing a

variety of sampling methods and targeting a broader range of demographic groups beyond Millennials.

Secondly, future research could explore the factors influencing sustainable behavior in the context of Egyptian tourism destinations in greater depth. This could involve conducting qualitative interviews or focus groups to gain insights into the attitudes, perceptions, and motivations of travelers towards sustainable tourism practices. Additionally, longitudinal studies could be conducted to track changes in behavior over time and assess the long-term impact of sustainability initiatives.

The implementation of sustainable tourism practices in Egypt could also be the subject of future research that investigates the economic feasibility and practical implications of such practices. To accomplish this, it may be necessary to conduct cost-benefit analyses in order to assess the monetary repercussions that would result from the implementation of sustainable practices for tourism businesses and destinations. In addition, research could be conducted to investigate whether or not Egyptian tourists, including Millennials, are willing to pay a higher price for environmentally responsible tourism experiences and to determine methods that can be used to overcome obstacles to their implementation.

Table 12: Risk management plan for application of VBN theory in Sustainable Tourism

Risk Description	Description	Impact	Probability	Mitigation Strategies
Financial Risk: High Upfront Costs	Significant initial investment required for implementing sustainable technologies, infrastructure, and practices in the Egyptian tourism sector, particularly concerning Millennials. This	High	Medium	Explore securing government incentives or subsidies specific to sustainable tourism initiatives in Egypt, establish public-private partnerships to share costs and risks, and consider long-term cost savings associated with sustainable

	includes costs associated with upgrading facilities, adopting eco-friendly practices, and implementing green technologies.			practices, such as reduced energy and resource consumption tailored to the preferences of Millennials.
Limited Demand of tourists	Potential lack of awareness or interest among Millennials regarding sustainable tourism offerings in Egypt, resulting in low demand and occupancy rates.	High	Medium	Implement targeted marketing and educational campaigns aimed at Millennials in Egypt to raise awareness about the benefits of sustainable tourism, leverage digital platforms and social media channels popular among Millennials for outreach, and offer unique and engaging experiences
Operational Risk	Challenges in maintaining sustainable practices and meeting the expectations of Millennials consistently in Egyptian tourism establishments. These challenges can lead to operational inefficiencies, dissatisfaction among Millennials, and	Medium	High	Provide comprehensive staff training on sustainable practices tailored to the preferences of Millennials, establish clear protocols and guidelines for sustainability that resonate with this demographic, continuously monitor and evaluate operations for compliance, and solicit feedback from Millennials

	reputational damage for sustainable tourism initiatives in Egypt.			to improve service delivery and sustainability efforts.
Regulatory Risks	Shifts in Egyptian government policies, regulations, or incentives that could impact the financial viability and operational model of sustainable tourism projects targeting Millennials. Changes in regulations may affect funding, operations, and compliance requirements, posing challenges for sustainable tourism initiatives in Egypt.	High	Medium	Stay informed on regulatory developments specific to sustainable tourism in Egypt, engage with policymakers to advocate for supportive policies aligned with Millennial preferences, maintain flexibility in business operations to adapt to changing regulations, and seek legal counsel to ensure compliance with existing and emerging regulations affecting sustainable tourism.
Environmental Risk: Climate Change Impacts	Increased exposure and vulnerability of Egyptian tourism destinations to the effects of climate change, such as natural disasters, sea-level rise,	High	High	Implement climate adaptation measures tailored to the preferences of Millennials, such as infrastructure upgrades and disaster preparedness plans, diversify tourism

	extreme weather events, and water scarcity. These impacts can disrupt tourism activities and damage infrastructure,			offerings to reduce reliance on climate-sensitive activities, and support global efforts to mitigate climate change through emissions reduction and sustainability initiatives that resonate with Millennials.
Community Resistance	Potential opposition or resistance from local communities in Egypt regarding the impact of sustainable tourism projects on their livelihoods, cultural heritage, or environment. Community opposition can lead to delays, reputational damage, and project failure if not addressed effectively, particularly concerning initiatives targeting Millennials.	High	Medium	Engage with local stakeholders in Egypt early and transparently, address community concerns through open dialogue and collaboration, ensure equitable distribution of benefits and opportunities for local communities, and incorporate community feedback into project planning and decision-making processes that consider the preferences of Millennials.
Technological Obsolescence	Rapid advancements in sustainable technologies may lead to the obsolescence of existing technologies and practices adopted in sustainable tourism	Medium	Medium	Stay abreast of technological developments and trends specific to sustainable tourism in Egypt, plan for regular upgrades and updates to existing

	projects in Egypt. This can result in decreased efficiency, increased operating costs, and reduced competitiveness over time, particularly concerning initiatives targeting Millennials.			technologies and systems, invest in research and development to innovate and improve sustainability solutions, and foster partnerships with technology providers to access cutting-edge solutions tailored to the preferences of Millennials.
Financing Challenges	Difficulty in securing long-term financing or investment for sustainable tourism projects in Egypt targeting Millennials due to perceived risks, lack of understanding, and competition for funding from other sectors. Financing challenges can delay or hinder project implementation and sustainability efforts in Egypt.	High	Medium	Explore alternative financing options tailored to the preferences of Millennials in Egypt, such as green bonds or impact investment funds, demonstrate the financial viability and social impact of sustainable tourism projects targeting Millennials, and maintain strong financial management practices to build investor confidence and trust.

Technological Risk	Rapid advancements in sustainable technologies, rendering the project's initial investments outdated or less efficient over time	Medium	Medium	Continuously monitor technological developments, plan for regular upgrades, and allocate resources for innovation.

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LIST OF ABBREVIATIONS

AVE - Average Variance Extracted

ASC - Ascription of Responsibility

AWA - Awareness of Consequences

ALT - Altruistic Values

BIO - Biospheric Values

HTMT - Heterotrait-Monotrait Ratio

NAM - Norm Activation Model

PEB - Pro-environmental Behavior

PEcB - Pro-Economic Behavior

PER - Personal Norms

PSB - Pro-social Behavior

SEM - Structural Equation Modeling

TPD - Theory of Planned Behavior

VBN - Value-Belief-Norm

VIF - Variance Inflation Factor

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APPENDICES

Appendix I: Questionnaire Content

You are invited to participate in a research study about millennials
and pro-sustainable tourism behaviors: a perspective of Value-Belief-Norm (VBN)
Theory. The research is part of my master's degree research in the department of economics in Tomas Bata University in Zlin.The project aims to gain a deeper understanding of the factors that
influence millennials' pro-sustainable tourism behaviors. We assure, all your responses will be kept confidential and
will only be used for research purposes. Your participation is voluntary, and
you may choose to withdraw at any time.
Thank you for taking the time to contribute to our study.

Biosphere Value:
(1 Strongly Disagree,2 Disagree,3 Neutral,4 Agree,5 Strongly Agree)
1. In my opinion, it is necessary to protect the environment of a tourist destination to conserve the natural resources for sustainability.
2. In my opinion, it is necessary to prevent a tourist destination from pollution and maintain harmony for sustainability.
3. In my opinion, it is necessary to respect the earth at a tourist destination to create harmony and unity with nature for sustainability

Altruistic Value:
1. In my opinion, it is necessary to strive for equal opportunity for all, regardless of background or circumstance.
2. In my opinion, it is necessary to work towards a world free of war and conflict, where peaceful solutions are always sought.
3. In my opinion, it is necessary to actively fight against injustice and advocate for social justice, ensuring everyone receives fair treatment and care.
4. In my opinion, it is necessary to be helpful and contribute to the well-being of others in our community and the world.
(1 Strongly Disagree,2 Disagree,3 Neutral,4 Agree,5 Strongly Agree)

Awareness of Consequences:

(1 Strongly Disagree,2 Disagree,3 Neutral,4 Agree,5 Strongly Agree)

1. In my opinion, global warming is a problem for society.
2. In my opinion, energy savings are an important way to help reduce global warming.
3. In my opinion, the exhaustion of fossil fuels is a problem that needs to be addressed.
4. In my opinion, relying less on all energy sources, not just fossil fuels, would be beneficial for the environment.
5. In my opinion, using less energy can contribute to improving environmental quality.

Ascription of Responsibility:

1. It is my responsibility to minimize my impact on the environment as a tourist
2. I take some responsibility for the environmental problems potentially caused by tourism activities
3. I feel jointly responsible for tourism impacts on the environment

(1 Strongly Disagree,2 Disagree,3 Neutral,4 Agree,5 Strongly Agree)

Personal Norm:

1. I would be a better person if I stay in a green hotel and use environmentally friendly products and services.
2. People like me should do everything they can to save the environment.
3. I feel obliged to bear the environment and nature in mind in my travel behaviors.
4. I feel morally obliged to use green hotels, regardless of what others do.responsible for tourism impacts on the environment
5. I feel personally obliged to save as much energy as possible.

(1 Strongly Disagree,2 Disagree,3 Neutral,4 Agree,5 Strongly Agree)

Pro-Environmental Behavior:

1. I perform green practices to protect the environment on my trips
2. I usually report to the destination administration of any environmental pollution I see when on my trips
3. I act responsibly to protect the destination’s environment on my trips
4. I do not disrupt the fauna and flora on
5. I consume natural resources responsibly on
6. I try to persuade others to adopt environmentally responsible behavior on my trips

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4. I do not disrupt the fauna and flora on
5. I consume natural resources responsibly on
6. I try to persuade others to adopt environmentally responsible behavior on my trips

(1 Strongly Disagree,2 Disagree,3 Neutral,4 Agree,5 Strongly Agree)

Pro-Economic Behavior:

1. On my trips, I stay at locally owned tourist accommodations
2. On my trips, I taste the local food
3. On my trips, I purchase local souvenirs
4. On my trips, I support the local economy
1. On my trips, I stay at locally owned tourist accommodations
2. On my trips, I taste the local food
3. On my trips, I purchase local souvenirs
4. On my trips, I support the local economy

(1 Strongly Disagree,2 Disagree,3 Neutral,4 Agree,5 Strongly Agree)

Pro-Social Behavior:

1. I usually help the local communities in their development on my trips
2. I usually help the underprivileged on my trips.
3. I usually invest my time in social projects on
4. I usually interact with the local community on my trips
1. I usually help the local communities in their development on my trips
2. I usually help the underprivileged on my trips.
3. I usually invest my time in social projects on
4. I usually interact with the local community on my trips

(1 Strongly Disagree,2 Disagree,3 Neutral,4 Agree,5 Strongly Agree)

Kindly specify your gender:

Male

Female

Age:

18-25 Years

26-33 Years

34-40 Years

Education Level:

High School

Bachelor's Degree

Master's Degree or higher

Others

Occupational Status:

Employee

Self-employed

Unemployed

Student

Other

Marital Status:

Single

Married

In a Relationship

Divorced