ENVIRONMENTAL CONSCIOUSNESS OF BEACH TOURISTS

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Abstract
Purpose – The main goal of the present investigation is to estimate the level of tourists' environmental consciousness (EC), which forms their intention to behave environmentally friendly (EF) during vacation time.
Design – Variables of environmental awareness, environmental perception, environmental attitude, and perceived behavioural control were employed to analyze the level of tourists EC.
Methodology – A tourists' questionnaire was carried out in four mature beach destinations in the province of Cadiz during the high summer season of 2018. A systematic random selection of respondents was conducted along the pathway parallel to each beach covering both the dry and intertidal areas. In addition, Paper and Pencil Interviewing (PAPI) was completed with the tourists.
Approach – Latent class analysis (LCA) model was implemented the R statistical computing program to evaluate tourists' EC.
Findings - Results demonstrated that beach tourists can be divided into three groups with low, medium and high EC. The largest group of tourists has medium EC, followed by low and high ones. Thus, the outcome demonstrates that the majority of beachgoers have insufficient levels of EC and intention to behave in an environmentally friendly manner.
Originality of the research – The research includes exceptional variables to demonstrate the level of tourists' EC and the most probable behaviour of derived groups. Moreover, the statistical analysis provides socio-geographic characteristics of these groups of tourists. Thus, the investigation serves local policymakers as a complementary tool to design an adequate management model of sustainable tourism development.
Keywords environmentally responsible behaviour, environmental consciousness, beachgoers

1. INTRODUCTION

Spain holds a leading position in the tourism industry worldwide, especially in 'sun and sea' product area. The amount of tourists inflow reached 83.7 million in 2019. Elaborated forecasts demonstrate that tourism inflow to Spain will increase to 111 million people by 2027 (World Travel and Tourism Council 2019). Meanwhile, the prosperity of 'sun and sea' tourism strongly depends on the maintaining of environmental conditions (Su and Swanson 2017). However, over time the environmental conditions of travel destinations have been deteriorating to some extent as the result of tourist activities. Thus, tourist behaviour can not only sustain but also degrade natural sites whereby harmful behaviour includes production of hazardous emissions from recreation based activities, destruction of natural habitats, overcrowding of fragile coastal areas, intensive rubbish generation, and excessive water and energy consumption (Han et al. 2018). Thus, to handle the

environmental costs from yearly growing tourist numbers, a management model of beach destinations has to be developed with the main target of reducing unsustainable behaviours of tourists (Weeden 2013; Su and Swanson 2017; Han et al. 2018).

Extensive research in the area of environmental management shows an increasing of focus on study of human behaviour change to champion sustainable development (Okumah et al. 2020). Sustainable development in tourism is "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities" (UNEP and UNWTO 2005). Moreover, in time of environmental challenges such as climate change and resources deterioration, international scientists agree that sustainable development of 'sun and sea' tourism is the only way to protect seaside ecosystems and maintain the coastal tourism industry in the long term. Moreover, López-Sánchez and Pulido-Fernández (2016) stated that environmentally friendly behaviour of tourists plays a key role in reaching sustainable development in mature and overdeveloped beach destinations. From this, the first research question comes: 1) which management tools have to be applied to encourage tourists to behave in an environmentally friendly way in order to reach sustainability?

Environmental behaviour has been termed as environmentally-friendly behaviour (EFB)/environmentally responsible behaviour (ERB)/ pro-environmental behaviour (PEB)/sustainable behaviour (SB) (Lee, Jan and Yang 2013; López-Sánchez and Pulido-Fernández 2016). Lee, Jan and Yang (2013) defined EFB of tourists as "actions which strive to lessen environmental impacts, promote environmental preservation or conservation and do not harm the ecosystem and biosphere of destination during travelling". An example of such actions for tourists include conservation of energy and water resources, recycling, usage of ecological transport and accommodation.

Since, the establishment process of sustainable development is costly in terms of time and money, it is crucial to identify how tourists behave during their vacations at present time (López-Sánchez and Pulido-Fernández 2016). The referred knowledge will allow destination managers to develop a management model taking into account the main derived tourists profiles (Weeden 2013). However, studies of pro-environmental behaviour showed that it is a challenging task because it embraces different social, economic, and psychological determinants. Nevertheless, it is essential to examine factors which inhibit or foster tourists to behave in a sustainable manner. From here the second research question is rooted - which theories and variables should be employed to examine the EFB of tourists?

Since 1980, environmental psychology has developed significantly and offered different theories and determinants, which test and predict EFB. Nonetheless, both theoretical and practical studies lead to variety of models and variables, which in its turn makes it difficult to choose the best theory and variables to analyse PEB. Moreover, there are some gaps in understanding of the role of each variable, which of them are central, or which variables have direct or intermediate impact to behaviour. However, scientists statistically proved efficiency of some theoretical models and their determinants. The referred theories include Theories of Planned Behaviour, Persuasion Theory, and Norm Activation Theory (Okumah et al. 2020). These theories predominantly employ the

following variables: environmental awareness, attitude to the environment, environmental perception, and perceived behavioural control (Cottrell 2003; Ranguel-Buitrago 2018).

Consequently, in the frameworks of the present study we have chosen the most recognized theoretical models of the theory of planned behaviour and persuasion theory to analyse the level of EFB of tourists by such variables as environmental awareness, environmental attitude, environmental perception, and perceived behaviour control (Wang et al. 2019; Okumah et al. 2020). Moreover, preceding studies named the aforementioned determinants such as "environmental consciousness" (EC) (Jiménez Sánchez and Lafuente 2010) or "sustainable intelligence" of tourists (López-Sánchez and Pulido-Fernández 2016). Generally, a person with environmental consciousness is "an individual or pro-environmentalist who engages in a wide range of pro-environmental behaviours as well as holding certain values, beliefs, attitudes, perception, and awareness associated with natural conservation" (Jiménez Sánchez and Lafuente 2010). Thus, the main objective of the present study is to analyze beach tourists' EC in four mature beaches of the province of Cadiz under threat of climate change and significant beach erosion (Del Río et al. 2015).

The present investigation makes theoretical input by using a particular combination of the two aforementioned theories and four variables, which have not been used before. Additionally, this study makes practical input for improvement of environmental management forward sustainable development of coastal tourism, analyzing beach tourists EC and segmenting them into three main groups of tourists with high, medium, and low EC. This knowledge will allow destination policymakers to develop a management model of sustainable development oriented on tourists with obtained levels of EC.

The article is a hypothesis that tourists with medium EC are the largest group among beachgoers followed by high and low ones. Consequently, the majority of tourists, with high probability, behave only partly or entirely not environmentally-friendly during vacations.

The article structure contains six parts, where the first part is an introduction including research questions, objectives, and the study hypothesis. The second part is the theoretical framework of the two applied theories and their manifest variables. The third part contains materials used during the fieldworks, description of study areas, and applied statistical methods. The third part is followed by results, discussion, and conclusions.

2. THEORETICAL FRAMEWORK

Over the last several decades, sustainable tourism development has been studied to find a balance between economic benefits and environmental protection (Handriana and Ambara 2016; Su and Swanson 2017; Han et al. 2018). In the frame of sustainable tourism development, tourist behaviour is one of the main topics, especially tourists' EFB (Weeden 2013; Handriana and Ambara 2016). However, scientists still intensely debate the limitations of theories and determinants to examine SB. Thus, a review of the

most frequently used theories and variables in literature was completed to answer the second research question. The results demonstrated that the theory of planned behaviour (TPB) (Shaw et al. 2011; Ajzen 1991), and persuasion theory (PT) (Petty and Cacioppo 1986) are predominantly used by researches with an intention to understand and explain EFB (Okumah et al. 2020). Consequently, the theories of TPB and PT were used to analyse tourists' EC (Han 2015). Okumah et al. (2020) has proved statistical significance of TPB and PT using MASEM methodology. Moreover, Okumah et al. (2020) provided empirical evidence of correlation among the following pro-environmental determinants: environmental awareness and perceived behaviour control; perceived behaviour control and environmental attitude; environmental awareness and pro-environmental behaviour.

2.1. Theory of Planned Behaviour

In the context of TPB, two determinants of attitude and perceived behaviour control directly affect people's intention to act environmentally-friendly. Environmental attitude (EA) includes personal beliefs, verbal commitment, motivation and intention to behave toward environmental preservation. Meanwhile, perceived behavioural control (PBC) is related to individual self-discipline in behaving in a particular way. PBC generates two types of impact on behaviour. The first type is the motivation of behavioural intentions. The second type is the prediction of behaviour (Ajzen 1991).

Thus, the determinants of EA and PBC demonstrate strong intention forward PEB. However, this model fails in determination of cognitive and affective aspects of human behaviour (Jackson 2005). Moreover, positive intention cannot guarantee environmentally friendly behaviour, it also depends on other factors (Kollmuss and Agyeman 2002). The complexity of the referred factors make it difficult to foretell behaviour reliant only on intentions. Nevertheless, behavioural intention formed by EA and PBC play crucial rule in examination of pro-environmental behaviour (Bamberg and Möser 2007).

2.2. Persuasion Theory

Persuasion Theory is based on the linear progression model, it is the easiest model in behavioural studies. Supporters of this model discuss that behaviour change is accomplished by provision of absent information to the targeted group of people. In the frames of environmentally friendly behaviour this theory supposes that people behave irresponsibly due to lack of environmental awareness (Kollmuss and Agyeman 2002).

Another supposition of the theory that attitude and behaviour can be changed by receiving and assimilating of required information. Based on the listed suggestions provision of the decent information increases EA, which changes attitude and behaviour. However, the theory has been criticized that providing of information can change behaviour (Jackson 2005; Kollmuss and Agyeman 2002). Behavioural changes are complex process, which depends on many social, economic and cultural factors. As a result, the only informative provision will struggle to make change in behaviour and attitude. The linear changing via information-attitude-behaviour pathways turns out reasonable. However, individuals can study information without assimilation, and behaviour can be changed without attitude's impact (Petty and Cacioppo 1986). Besides,

the aforementioned critiques, Bamberg and Möser (2007) using meta-analytic structural equation modelling (MASEM) proved that EA indeed alter attitude to responsible behaviour (via intention to behave in certain way).

2.3. Environmental perception

Since, the scientists are still in debates about theoretical frameworks, exact variables, and definition of responsible behaviour, we have included an additional variable named environmental perception to overcome a limitation of standard investigations in the field (Dolnicar, Crouch and Long 2010). Environmental perception (EP) is an emotional variable, it is widely defined as a feeling or awareness about the environment as comprehended by the senses (Su and Swanson 2017).

Environmental psychologists consider behaviour to be regulated by feelings and emotions. Thus, as a rule, well protected and clean natural sites foster positive emotions and stimulate tourists behave EF, and vice versa (Su and Swanson 2017). Accordingly, if tourists perceive the surrounding environment as well protected it will psychologically stimulate them to behave EF. Meanwhile, a deteriorated environment can cause of negative emotions and provoke people to behave destructively in relationship to the environment (Wang et al. 2019). Moreover, Rajapaksa, Islam and Managi (2018) using a structural equation model (SEM) proved statistical significance between environmental perception and PEB. Consequently, environmental perception is an important determinant in study of pro-environmental behaviour, however, very little has been done to study this parameter. To cover the gap in existing investigations, we have included this determinant into the investigation to describe the emotional perception of the environment.

Consequently, the aforementioned theories and four variables were employed for the present study to identify the level of tourists' EC in the mature beaches under pressure of climate change and erosion (3.2.2 Data description).

2.4. Theoretical background of latent class analysis

Latent class analysis (LCA) is a frequently used statistic methodology in scientific literature to identify significant groups from categorical variables. In the last decade, tourism scholars recognized LCA as a powerful technique for segmenting markets, which overwhelmed classic approaches of cluster analysis (Koutra and Diaz 2013; Richards and van der Ark 2013). Therefore, LCA was chosen to analyze tourists' EC. This method is capable of obtaining one variable, which represents tourists EC and distinguishes it among different tourist profiles (Linzer and Lewis 2011). This analysis is frequently employed when the obtained data takes the form of a series of categorical answers like public opinion, consumer behaviour, and decision making. Scholars are often interested in exploring sources of confounding among observed variables, to determine and characterize clusters of analogous cases, and to approximately allocate observations through many variables of interest. LCA is a valuable technique in reaching the aforementioned goals.

The latent class model searches to stratify the cross-classification table of observed (or, "*manifest*") variables Y1, Y2, ..Yk by an unobserved ("*latent*") categorical variable X, with levels 1, 2,..., C. that excludes all confounding among observed variables (3.2.2 Data description).

Classic *LCA* model assesses two sets of parameters:

- Item-reply possibilities $P(Y_k=y_k / X=x)$: is the probability to observe a reply, y_k, to each manifest variable, Y_k, conditional on membership in latent class, x.
- Class membership possibility or latent class prevalence, $P(X=x)$, are the proportions of observations in each latent class suggesting that each individual be categorized into the best-fitting class.

When parameters of the model are determined, LCA can foretell the class of each individual with a reply pattern ***y***, as the class that maximizes the conditional probability P(X=x /**Y = y**), it can be derived from *LCA* model parameters applying *Bayes's* role (Linzer and Lewis 2011).

$$P(X = x|\mathbf{y}) = \frac{P(X = x)P(\mathbf{y}|\mathrm{X} = \mathrm{x})}{P(\mathbf{y})} \quad (1)$$

Thus, observations with analogous patterns of replies on the manifest variables tend to cluster within the same latent classes. This characteristic makes *LCA* a useful method to find joint characteristics or behaviour patterns in the tourist population of the present study.

3. MATERIALS AND METHODS

3.1. Study area

Cadiz province is located in the southernmost part of Spain (Figure 1). The main economic drivers in the province are tourism, agriculture, fishing, and construction.

Figure 1: **The map and photos of the studied beaches: 1) Fuentebravia, 2) Levante, 3) La Victoria, and 4) La Barrosa beaches**

Source: authors' elaboration.

Since the 1960's the development of 'sun and sea' tourism activities has become the main trigger of the tremendous changes in the economy, lifestyle and coast's morphology in Cadiz province. Tourist numbers have multiplied tenfold in the province in the last 69 years, from 480,000 in 1966 to 4,742,991 in 2018 (World Travel and Tourism Council 2019).

Concurrently with the growing tourism inbound, it was estimated that 50% of the littoral was employed for urban construction, ports and tourists' land use. However, the process of littoral urbanization was not coordinated properly and characterized as chaotic. This led to over-development with low-quality standards of environmentally friendly development. The referred facts, mass tourism became one of the main reasons of present environmental issues, with coastal erosion and climate change impact among the strongest threats (Del Río et al. 2015).

Consequently, the Cadiz coast is an appropriate mature 'sun and sea' destination to complete present research, which needs to adopt a management model of sustainable development-oriented to tourists. The survey was completed in the four beaches of Cadiz province, which are mature touristic centres, highly populated areas, and susceptible to erosion processes. Pursuant to the above-mentioned criteria Fuentebravia (semi-urban), Levante (isolated natural park), La Victoria (urban), and La Barrosa (urban) beaches were chosen to complete the questionnaire during the peak summer season (June - September) 2018 (Figure 1).

3.2. Methodology

3.2.1. Questionnaire design

The questionnaire was based on 26 questions. It includes 4 sections titled: "tourists' profile", "questions of sustainability", "questions of beach erosion", "questions about climate impact".

3.2.2. Data description

The present study aims to evaluate beach tourists' EC by six variables grouped into the following four blocks:

I. *Environmental awareness*: (1) sustainable development (SD) concept, (2) beach erosion;
II. *Environmental perception*: (3) protection of natural sites;
III. *Environmental attitude*: (4) importance of EFB, (5) willingness to pay higher price to spend vacations in ecological tourist destinations (WTP);
IV. *Perceived behavioural control:* (6) evaluation of ERB.

The six variables were selected from the questionnaire used during the survey with tourists in the studied beaches. Based on antecedent studies, these variables were conditionally divided into four groups, which are related and partially characterize tourists' environmental awareness, environmental perception, environmental attitude, and perceived behavioural control (Alves et al. 2015; López-Sánchez and Pulido-Fernández 2016; Guerreiro, Pinto and Mendes 2016; Su and Swanson 2017; Lee and Kim 2018). Tourists' *environmental awareness* was opened by asking beach tourists about their familiarity with SD concept (López-Sánchez and Pulido-Fernández 2016; Guerreiro, Pinto and Mendes 2016). The SD concept is a very capacious and includes comprehensive knowledge about environmental problems and the main principles of sustainable development (UNEP and UNWTO 2005).

In addition, tourists' environmental awareness was disclosed by the question of their familiarity with beach erosion. Serious erosive processes are observed in the four beaches of study (Del Río et al. 2015). Since the beach erosion issue is visible and the most common problem, the tourists' environmental awareness was measured by this variable (Alves et al. 2015).

Tourists' *environmental perception* was revealed by asking them to agree or disagree if the environmental sites are well protected beside developed touristic infrastructure. Travelers' behaviour is indirectly affected by the formulation of their individual perception of environmental quality (Ranguel-Buitrago 2018; Su and Swanson 2017). As a rule, scarcely protected or contaminated environments create negative perceptions of visitors and are prone to not beave ERB.

Tourists' *environmental attitude* was opened through their agreement or disagreement about the importance to behave EF during vacations and willingness to participate in natural preservation by paying a higher price for ecological touristic destinations (Alves et al. 2015; Guerreiro, Pinto and Mendes 2016).

Perceived behavioural control was opened by tourists' evaluation of their own behaviour during vacation time. PBC consists of personal beliefs and individuals' self-discipline to behave in a certain way (Ajzen 1991; Lee and Kim 2018; Shan, Yee, and Ji 2020). Moreover, Cottrell (2003) proved that oral commitment and environmental knowledge have a correlation with ERB. Thus, there is a high probability that tourists who estimate their behaviour as environmentally-friendly actually do complete ERB.

Additionally, the main socio-geographic variables of tourists such as gender, age, level of education, occupation status, nationality, name of beach, and daily average expenditures were considered (Table 3). The referred variables were applied to explore the relationship of dependency with the variables, which define tourists EC.

3.2.3. Data collection

Fieldworks were accomplished by the corresponding author in the four studied beaches during the high summer season (June-September) 2018. A paper-based survey with beach tourists was chosen as the most favorable method to obtain the required data (Moser and Kalton 2017). A cross-sectional survey was applied to provide a snapshot of the beach tourists' origin, background, perception, and knowledge. The field work was completed in the morning, day and evening times circulating among different parts of the studied beaches to cover all types of beachgoers. In total, 620 tourists participated in the survey.

3.2.4. Sample size

Precision of results measures how accurately the collected samples characterize the entire population. The precision for the obtained data was calculated by formula (1) (Montesinos López et al. 2009).

$$n = \frac{z_{\alpha}^2 \times p \times (1-p)}{d^2} \quad (1)$$

Where:

- n is sample size (620 tourists)
- p = 0.5 is expected proportion of population
- Z_{α}^2 = 1.65 is statistical constant associated with a confidence interval of 95%
- d is precision

Based on the above values, the precision of 4% (d=0.04) was obtained for the present sample set.

4. RESULTS

4.1. The latent model to analyze of tourists EC

To analyze the obtained data by *LCA* models, the package *LCA* implemented in the *R* statistical computing program was used **(**Linzer and Lewis 2011).

Primarily, 6 candidate models were selected with 1 to 6 latent classes respectively. *BIC,* and *AIC* were evaluated for each model (Table 1).

Table 1: **Summary of model results used for model selection**

Model number	AIC	BIC
1-class	4418.3	4467.0
2-class	4199.0	4387.2
3-class	**4179.0**	**4338.1**
4-class	4183.1	4387.2
5-class	4187.7	4449.1
6-class	4196.8	4511.3

Generally, to choose a model, which fits the best to the data has to have the lowest values of BIC and AIC. Table 1 demonstrates that the lowest values of *BIC* (4338.1) has *3-class* model indicating three different patterns of tourists' responses. In addition, using the AIC (4179.0) indicator, *3-class* model was selected as an ideal one. Consequently, *3-class* model with three tourists profiles was chosen as the most suitable to interpret the calculated data.

4.2. The derived tourists profiles

The derived results showed three different profiles of tourists with low, medium and high EC (Table 2). The scores close to 1 on each question demonstrate that this option was chosen by the majority of tourists of each group and vice versa. In addition, the socio-geographic profiles of these three tourists profiles are represented in table 3.

Table 2: **The 3-class model of the six manifest variables characterizing the level of tourists EC**

Size of the group	Low EC 236 (38%)	Medium EC 291 (47%)	High EC 93 (15%)
I. Environmental awareness *Y_1 – SD concept*			
Absent of the knowledge	**0.76**	0.10	0.01
General knowledge of the concept	0.13	0.09	0.01
Complete knowledge of the concept	0.11	**0.81**	**0.98**
Y_2 – Beach erosion			
Absent of the knowledge	**0.83**	**0.96**	**0.94**
Well informed	0.17	0.04	0.06
II. Environmental perception *Y_3 – Protection of natural sites*			
Totally disagree	**0.98**	0.23	0.00
Agree until certain point	0.01	**0.42**	0.01
Totally agree	0.01	0.35	**0.99**
III. Environmental attitude *Y_4 – Importance of EFB*			
Totally disagree	**0.80**	0.35	0.07
Agree until certain point	0.11	**0.36**	0.17
Totally agree	0.09	0.29	**0.76**

Size of the group	**Low EC 236 (38%)**	**Medium EC 291 (47%)**	**High EC 93 (15%)**
Y_5 – WTP			
No additional payments	**0.78**	0.33	0.01
Depending on money amount	0.12	**0.37**	0.01
Agree to pay more	0.10	0.30	**0.98**
IV. Perceived behavioural control *Y_6 – Evaluation of EFB*			
Not environmentally friendly	**0.96**	0.33	0.06
Partly environmentally friendly	0.02	**0.37**	0.14
Environmentally friendly	0.02	0.30	**0.80**

Table 2 demonstrates that the largest group is tourists with medium EC of 291 persons, followed by low EC of 236, and high EC of 93. Here, we can conclude that the majority of beach goers have insufficient levels of EC to behave environmentally responsible during vacations.

4.2.1. Tourists with high EC

This group was made up of tourists with the highest level of EC according to their response ratings. This group was named "High EC" and represents 15% of the total participants in the survey. The third column of table 3 shows the highest frequency of responses associated with advantageous environmental knowledge, perception, attitude and perceived behavioural control of manifest variables. This means that tourists with high EC have the most complete awareness about the SD concept, they totally agree that it is very important to behave environmentally friendly during vacations, they are willing to pay higher prices to spend vacations in ecologically developed destinations. This type of tourist evaluates their behaviour as environmentally friendly during their vacations, because they save water and energy resources, recycle and complete relevant actions to protect local natural sites.

Socio geographic characteristics of tourists with high EC are located in the third column of table 3. The majority of this group are Spanish women, aged predominantly between 25-30, with university degrees, employed and with average daily expenditures of between 50 and 400 euros per day. This group of tourists contains the highest percentage of foreign tourists in comparison to another groups.

Table 3: **The 3-class model of seven socio-geographic variables employed to characterize the tourists EC**

Name variables	**Low EC 236 (38%)**	**Medium EC 291 (47%)**	**High EC 93 (15%)**
Sex	Men (40%)	Men (40%)	Men (40%)
	Women (60%)	Women (60%)	Women (60%)
Age	16-24 (25.9%)	16-24 (20%)	16-24 (20%)
	25-34 (18.5%)	25-34 (20%)	25-34 (30%)
	35-44 (18.5%)	35-44 (20%)	35-44 (10%)
	45-54 (22.2%)	45-54 (20%)	45-54 (20%)
	55-64 (9.2%)	55-64 (10%)	55-64 (20%)
	65+ (5.7%)	65+ (10%)	65+ (0%)
Level of education	No studies (2%)	No studies (1.4%)	No studies (16%)
	Primary school (9.3%)	Primary school (4.6%)	Primary school (16%)
	High school (22.2%)	High school (17.2%)	High school (20%)
	Prof. educ. (42.5%)	Prof. educ. (32.2%)	Prof. educ. (16%)
	University (24%)	University (44.6%)	University (32%)
Occupation status	Self-employed (20%)	Self-employed (20%)	Self-employed (12%)
	Employed (40%)	Employed (50%)	Employed (60%)
	Unemployed (10%)	Unemployed (10%)	Unemployed (4%)
	Pensioner (10%)	Pensioner (10%)	Pensioner (4%)
	Student (20%)	Student (10%)	Student (20%)
Nationality	Spanish (70%)	Spanish (80%)	Spanish (60%)
	Foreign (30%)	Foreign (20%)	Foreign (40%)
Beach	La Victoria (40%)	La Victoria (30%)	La Victoria (30%)
	Levante (20%)	Levante (20%)	Levante (30%)
	Fuentebravia (10%)	Fuentebravia (20%)	Fuentebravia (10%)
	La Barrosa (30%)	La Barrosa (30%)	La Barrosa (30%)
Daily expenditure	<50 € (40%)	<50 € (37.7%)	<50 € (40%)
	50-100 € (40%)	50-100 € (45%)	50-100 € (20%)
	101-200 € (14%)	101-200 € (13.7%)	101-200 € (0%)
	201-300 € (3.7%)	201-300 € (2.6%)	201-300 € (0%)
	>400 € (2.3%)	>400 € (1%)	>400 € (40%)

4.2.2. Tourists with medium EC

This group was named "Medium EC". It is the largest class because it represents 47% of the total number of participants. This group is characterized by the predominance of the medium level of responses to the options of manifest variables. However, there is a notable fact to mention that such tourists believe that they have complete knowledge about the SD concept (p=0.81). However, the answers to further questions show that they have insufficient levels of environmental awareness, perception, attitude, and PBC.

Socio geographic profiles of these tourists are not significantly different from the tourists with high EC. This group is predominantly Spanish nationals with university degrees. Their average daily expenditures are between 50 - 100 euros per day.

4.2.3. Tourists with low EC

This group makes up 38% of the total samples number. These tourists are distinguished by having high percentages of responses at the lowest level of EC to all manifest variables. Consequently, this group was named "Low EC" because these tourists neither know, nor are concerned about sustainable development, ecological problems, and EFB.

Socio geographic features of such tourists demonstrate that they are mainly employed, Spanish women aged 16-24 years old. The samples of this group were collected predominately in La Victoria beach. These tourists spend on average less than 50 euro or more than 100 euro per day.

4.3. Graphical representation of the 3 class model

Figure 2: **Graphical illustration of 3-class model of the six manifest variables: EvEBF - evaluation of EFB, NatProt- protection of natural sites, EFB - importance of EFB, Erosion – beach erosion, WTP, SD concept.**

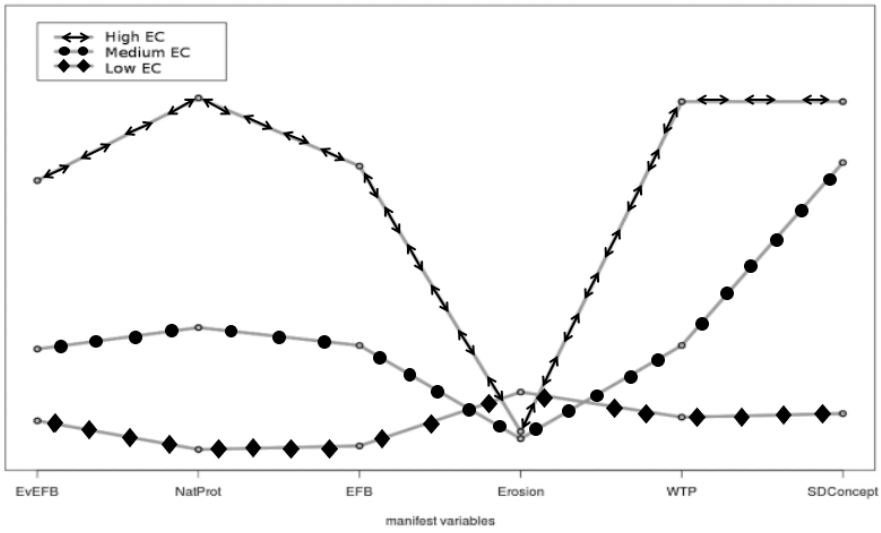

Figure 2 illustrates the three obtained tourists profiles in the studied areas. They are graphically stratified according to the level of their awareness, perception, attitude, and behaviour related to the environment. Consequently, the group with high EC (green color) has the highest position in the graphic, followed by a group of medium EC (blue color) and low ones (red color). The graphic demonstrates that the majority of tourists have complete knowledge of the SD concept, but do not put it into practice. Additionally, the incline of beach erosion demonstrates common unawareness of this phenomena by all designated tourists groups.

5. DISCUSSION

The contemporary situation of overdeveloped beach destinations under threat of climate change and erosion clearly demand reorganization towards sustainability. However, redevelopment of popular seaside resorts is a time-consuming process with substantial financial and management work required. Tourists' behaviour has a large impact in being the main customers of 'sun and sea' tourism. Despite the importance of tourists' engaging in EFB in reaching sustainability targets, they are infrequently studied by scientists. Scholars of tourism predominantly examine other coastal stakeholders such as seaside hotels and restaurants, transport companies, and retail organizations (Sarmiento and Hanandeh 2018; Iamkovaia et al. 2019).

The investigations of tourist participation in sustainable development are mainly devoted to the examination of their willingness to pay for environmental conservation (Alves et al. 2015), theoretical studies to examine factors, which predict and test EFB (Cottrell 2003; Wang et al. 2019; Okumah et al. 2020), and determinants which impact tourists to choose green restaurants and ecological hotels (Wang et al. 2013; Horng et al. 2016). Obviously, there is absence of empirical studies, which explore current EFB to elaborate particular environmental policy on inducing behavioural changes. Practical studies are extremely important to protect seaside environmental conservation, mitigate the impact of climate change, and maintain coastal tourism of high ecological quality.

The present study provides novel input into the field by presenting empirical investigation by way of a relatively innovative approach in testing the EC of beachgoers. The method employs a multidimensional model which embraces environmental awareness, perception, attitude, and perceived behaviour control ("environmental consciousness"). Moreover, this research conveys a clear message - aside from the complexity of studying tourists' behaviour, it is possible to distinguish different groups of people, where each group evaluates, perceives and behaves differently in relation to the environment and sustainable development. Consequently, examination of "environmental consciousness" in tourists is needed to identify gaps in their environmental knowledge, attitude, perception and perceived behaviour control to stimulate them to behave EF for the betterment of sustainable coastal tourism.

The results of the present research demonstrate that 85% of tourists can be classified into the groups of low or medium level EC. Similar results were obtained by López-Sánchez and Pulido-Fernández (2016), where they analysed "sustainable intelligence" of tourists in the 'Costa del Sol' of the province of Malaga. The derived results of the aforementioned research determined that 75% of the polled tourists lie in the groups of reflective tourists and unconcerned tourists. It is important to mention that the province of Cadiz is predominately frequented by national tourists while the province of Malaga sees mainly international tourists. We might conclude that national tourists have a slightly lower level of intention in regards to EFB. Consequently, the results of both investigations demonstrate that unfortunately the majority of tourists do not have sufficient EC or "sustainable intelligence" to behave EF during vacations.

The results of the investigation demonstrated that there are gaps in environmental awareness, perception, attitude, and perceived behavioural control of tourists in the studied beaches. To answer the second research question - the most successful management green practices are described to prompt tourists behave EF and to cover identified gaps of their EC. Environmental awareness and attitudes of tourists can be strengthened via pro-environmental activities like excursions to natural protected parks showing animals, plants, herbs, and trees. Such excursions increase the ecological knowledge of tourists and encourage them to behave more EF (Guerreiro, Pinto and Mendes 2016; Handriana and Ambara 2016). Moreover, tourist awareness can be expanded by informative posters and videos in planes, buses, hotels, restaurants, beaches, where the importance of efficient usage of water, energetic resources, recycling, and environmentally friendly behaviour are explained (Wang et al. 2013; Horng et al. 2016).

Environmental perception about beach destinations can be enhanced by improving the eco-friendly reputation of coastal resorts, which is formed via the adaption of green practices by all tourism stakeholders (Su et al. 2020. Additionally, the progress of adoption of environmentally friendly practices should be published in freely accessible mass media sources such as webpages, newspapers, and magazines.

Improvement of tourists' perceived behavioural control can be realized by requesting them to leave beaches clean, the introduction penalties when they do not, providing rubbish baskets around beaches, and stimulating local producers to use less plastic packaging (Schultz et al. 2013; Chen 2015). For instance, verbally requesting tourists to not leave garbage reduced beach litter by 35% (Cingolani et al. 2016).

Thus, the accomplishment of the aforementioned methods and practices permit the discovery and adapting innovative techniques that will allow destination managers to reach sustainability and involve all the stakeholders of tourism to participate in the process of sustainable development and encouraging EFB.

6. CONCLUSION

This research makes theoretical input to the field of EFB of tourists by combining two theories those of planned behaviour (TPB), persuasion theory (PT), and determinant of environmental perception, which complement each other. TPB includes two determinants of EA and PBC, which characterise strong intention promoting EFB. However, TPB was criticised by the absence of analysis into the cognitive and affective aspects of human behaviour (Jackson 2005). Thus, to make the current research scientifically sound and innovative, persuasion theory and determination of environmental perception were incorporated to cover gaps in application only TPB. Where PT responds to the cognitive ability of tourists because it describes tourists' environmental awareness, environmental perception is related to the affective factors of PEB. Thus, the research strived to classify tourists' EC by studying their intention, cognitive, and emotional factors encouraging them to behave EF. Meanwhile, the majority of scholars apply only the theory of planned behaviour in empirical studies to examine EFB (Lee and Kim 2018; Shan, Yee and Ji 2020).

Unfortunately, the obtained results showed that the majority (85%) of beachgoers do not have a sufficient level of EC to behave EF during vacations. This outcome confirms the article hypothesis, in that indeed, the majority of studied tourists have a medium level of EC, which is followed by the low and high groups. These results should push policymakers to consider how to improve environmental management by encouraging tourists to behave EF during their vacations. Consequently, practical input of the research describes the three obtained profiles, which can be practically applied by local policymakers as supplementary materials to develop a management model for sustainable development taking into account the derived three tourist profiles and their socio-geographic characteristics. The main focus has to be on the young generation without an university degrees, who demonstrated the absence of environmental awareness and interest for EFB. Moreover, it is important to accomplish green management practices described in the discussion paragraph to encourage tourists to behave EF.

The limitation of the research is the relatively small scale of investigation. Such study on a larger scale, for example provincial, regional or national, would provide policymakers a clearer picture of tourists' EC and will allow them to develop an appropriate management model for sustainable development.

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