## Beach Visitors' Satisfaction and Loyalty during the COVID-19 Pandemic: A Protection Motivation Theory Approach

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This paper aims to investigate beach visitors' satisfaction and loyalty during the COVID-19 pandemic using the Protection Motivation Theory (PMT) framework. Through interviews with beach visitors on three separate, distinct beach locations in Croatia, Primorsko-Goranska County, we identify the antecedents of beach visitor satisfaction and consequent behavioural intentions representing loyalty. A novel, combined satisfaction/importance method to investigate satisfaction with heterogenous beach types is assessed and empirically validated. Using PLS-SEM structural equation modelling we identified that natural beach characteristics carry the largest impact on overall beach satisfaction and the consequent visitors' behavioural intentions of recommendation and revisit. Furthermore, we find that beach occupancy has no significant impact on overall satisfaction. Lastly, we demonstrate that fear and risk of COVID-19 moderate the relationship between visitors' satisfaction with beach facilities and their overall experience satisfaction with the beach. Satisfaction with the overall experience at the beach significantly affects the intentions of recommendation and revisit. This study investigates beach visitors' satisfaction and loyalty under the COVID-19 pandemic conditions. We employed the PMT to obtain a deeper understanding of beach visitors' preferences during the pandemic. Our results provide recommendations for management and future research.

*Keywords:* beach visitors, satisfaction, loyalty, COVID-19, protection motivation theory

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## Introduction

The COVID-19 pandemic has dramatically and negatively impacted the world tourism and leisure sectors (Duro et al., 2021; Yang et al., 2021). Unlike the previous health crises SARS or MERS, COVID-19 is highly infectious and has higher rates of susceptibility (Liu et al., 2020). The economic impacts of beach tourism have led many countries to reopen borders for tourists as soon as the number of infection cases decreased (Zielinski & Botero, 2020). The study of tourists' beach experiences has gained importance in the pandemic, as it was one of the first tourism experiences to become available post-lockdown in 2020, and to a lesser extent in 2021. Alegre and Cladera (2006) demonstrate that in the case of the Balearic Islands, satisfaction with sunshine and beaches has the strongest impact on overall satisfaction with the destination. Beach tourists demand high-quality environments and high-quality experiences (Botero et al., 2013). In recent studies, researchers have begun to focus on tourists' perception of beach quality (García-Morales et al., 2018; González & Holtmann-Ahumada, 2017) and beach tourists' future behaviour intentions (Dodds & Holmes, 2019; Yu et al., 2021).

At the same time, a growing focus on pandemicrelated risks in tourism research can be observed (Bhati et al., 2021; Rather, 2021). As an affective component of a tourist's perceived risk, fear has been identified as important concerning future travel behaviour (Luo & Lam, 2020). Protection motivation theory (PMT), developed by Rogers (1975), offers a theoretical framework under which components of fear appeal are cognitively weighted in a mediating process forming protection motivation, which in turn, directly affects attitude change, or intent to adopt a recommended response.

The conceptual model in this research expands upon the model proposed in Dodds and Holmes (2019) and is based on the satisfaction with attribute performance levels of the following constructs: satisfaction with natural beach characteristics, satisfaction with beach facilities, satisfaction with perceived beach crowding, their respective effects on the satisfaction with the overall experience of beach visitors, and loyalty measured as behavioural intentions of recommendation and revisit. The COVID-19 pandemic conditions are integrated into the model as hypothesised moderation effects of perceived pandemic-related health risks of beach visitors utilising the PMT approach. In this regard we build a model of satisfaction, attitude and behaviour of beach visitors while controlling for the COVID-19-related conditions, to better understand beach visitor preferences and beach

management priorities under global pandemic conditions.

The research questions that are proposed in this paper are, thus, how fear and risk of COVID-19 interplays with satisfaction of beach visitors, and how beach visitors' satisfaction with the overall experience at the beach during the COVID-19 pandemic affects their future behavioural intentions of recommendation and revisit.

The aim of this paper is to extend PMT to the COVID-19 pandemic conditions to explore how it has affected beach tourists' satisfaction and future behavioural intentions. Furthermore, this study investigates the role of COVID-19 perceived fear and risk as a moderator in influencing visitors' satisfaction with natural beach characteristics, beach facilities and beach crowding.

To investigate these research questions, a quantitative research was conducted on three distinct beaches of Primorsko-Goranska County in Croatia. Sampled beach locations along the littoral coastline are shown in Figure 1.

#### **Theoretical Background**

#### **Protection Motivation Theory**

Rogers (1975) postulates that three crucial components of fear appeal - the magnitude of noxiousness, probability of occurrence, and efficacy of a protective response - predict health-protective behaviour, i.e. protection motivation. The magnitude of noxiousness initiates the appraisal of severity, the probability that the event will occur appraises vulnerability and the efficacy of protective response initiates appraisal of response efficacy. A threat appraisal process is conducted, which influences the protection motivation. Furthermore, Rogers (1975) adds that fear is an affective state protecting against possible hazards and a motivational state directing an individual away from something, but also an intervention variable, subjected to stimuli and response, that motivates an organism to avoid a noxious event.

Protection motivation theory (PMT) has recently been used by tourism scholars to investigate travel health risks (Bhati et al., 2021; Wang et al., 2019), tourists' climate change adaptation intention (Wang

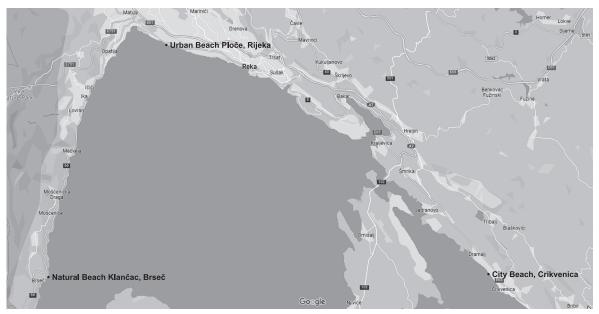


Figure 1 Sampled Beach Sites, Croatia

et al., 2019) and virus outbreaks prevention on cruise ships (Fisher et al., 2018), among others. Recently, Rather (2021) revealed that social media during COVID-19 significantly affects customer brand engagement which in turn has an effect on revisit intention during COVID-19, with the risk of travelling during COVID-19 and fear of COVID-19 acting as moderators on the relationships.

The focus on the pandemic-related fear of travelling during tourists' stay, and its impact on the beach tourism experience, offers a further development of the PMT in the field of tourism during the COVID-19 pandemic. This research extends the PMT to investigate how it influences beach visitors' satisfaction with beach attributes, overall experience satisfaction, and their intentions of recommendation and revisit. According to Rather (2021), only a few studies contend with health-related risks of travellers during the pandemic.

The conceptual model in this research is adapted based on the model proposed by Dodds and Holmes (2019) and is shown in Figure 2. Since overall satisfaction with a hospitality service or experience is dependent on all individual attributes that make up the service or experience (Chi & Qu, 2008), we propose in

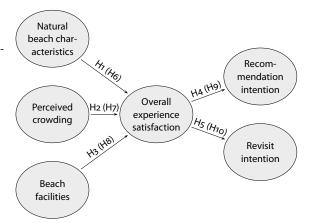


Figure 2 Conceptual Framework

our mode that natural beach characteristics, beach facilities and visitor perceptions of beach crowding affect overall beach experience. Since the influence of satisfaction on post-purchase behaviour is well established in the literature (Olsen, 2002; Prebensen et al., 2010), we insert in the model recommendation and revisit intention as dependant on overall experience satisfaction. Following Rather (2021) and J. Wang et al. (2019), we consider the threat and coping appraisal components of PMT (perceived risk and fear) to affect beach visitors' overall experience satisfaction and loyalty.

#### Satisfaction

Customer satisfaction with products or services is considered one of the most important determinants of successful business operations. Anderson and Mittal (2000) consider customer satisfaction a key link in the satisfaction-profit chain, and argue that improvement of product or service attribute performance levels leads to an increase in customer satisfaction, which consecutively leads to higher customer retention and increased profitability.

While the importance of the satisfaction concept is considered to be generally acknowledged in the literature, the approaches to its definition and measurement have been diverse (Morgan et al., 1996). The reason for this may lie in the fact that various theoretical frameworks have been used by scholars as bases for conducting quantitative research, interpreting the results, and explaining the satisfaction or dissatisfaction process in customers.

A significant part of earlier research into customer satisfaction is dominated by the expectancy disconfirmation theory of consumer satisfaction. Oliver (1980) thus defines consumer satisfaction as a function of expectations and expectancy disconfirmation and argues it can influence attitude change and purchase intention. The expectancy disconfirmation theory has been one of the earliest and most widely used theoretical frameworks in customer satisfaction measurement (Cadotte et al., 1987; Day, 1977; Oliver, 1976; Oliver, 1980). At the same time, some authors (Churchill & Surprenant, 1982; Tse & Wilton, 1988) find that direct attribute performance level measurement, as opposed to the measurement of difference in expected and perceived performance, can arguably, in some cases, be a more robust predictor of customer satisfaction. Both these approaches to satisfaction measurement presume there is a linear relationship between performance and disconfirmation on one side, and customer satisfaction on the other.

More recent literature on consumer satisfaction (Anderson & Mittal, 2000; Alegre & Garau, 2011; Mikulić & Prebežac, 2008; Matzler et al., 2004) suggests classification of product or service attributes, pertaining to the fact that besides linear, asymmetrical relationships may exist between importance, performance and satisfaction. The three-factor model of satisfaction (Alegre & Garau, 2011) enables differentiation between factors that delight visitors and factors that are perceived as basic service factors. Matzler and Sauerwein (2002) group attribute performance indicators into three factors as dependent on the nature of their relationship with satisfaction, and propose that (1) Basic factors act as minimal requirements that affect dissatisfaction when performing low, but do not affect satisfaction when performing high or exceeding expectation, (2) Performance factors affect both satisfaction and dissatisfaction, and (3) Excitement factors affect satisfaction if fulfilled but do not affect dissatisfaction if they are not.

Cadotte et al. (1987) add that satisfaction is an emotional response to the result of the confirmation/disconfirmation process of product performance evaluations. Placing the emotional response within the confirmation/disconfirmation paradigm, Oliver et al. (1997) propose that emotions coexist with satisfaction judgment and correlate with satisfaction (Mano & Oliver, 1993). Spreng et al. (1996) identify that subjective satisfaction judgments of service attribute performance influence overall satisfaction, which is in turn, an emotional reaction to a product or service.

In the context of customer satisfaction in tourism, previous research has shown that satisfaction with tourism destinations (Court & Lupton, 1997; Kozak & Rimmington, 2000) and satisfaction with tourism experiences (Chen & Chen, 2010; Prayag et al., 2017) contribute to tourism destination loyalty. Chi and Qu (2008) investigate how destination image and satisfaction with attributes of a tourism destination affect overall satisfaction and loyalty; their findings indicate that destination image affects overall satisfaction. Furthermore, destination attribute satisfaction affects overall satisfaction and overall satisfaction affects destination loyalty. Considering satisfaction with the sun and sea tourism destinations, Alegre and Garau (2011) reveal that the most important among the performance factors are in fact beaches, while considering familiarity with a destination as an excitement factor, linked to the affective and emotional dimensions of satisfaction.

#### Loyalty

Early loyalty research has been concerned with the concept of brand loyalty, with three approaches to measurement: behavioural measures, attitudinal measures and composite measures, as the combination of behavioural and attitudinal measures (Jacoby & Chestnut, 1978). Behavioural measures of loyalty (Oppermann, 2000) are based on actual purchasing behaviour or reported purchasing behaviour. Attitudinal measures of loyalty include consumer preferences, intentions and affection for a brand (Petrick, 2005). Oppermann (2000) argues that a composite measure of loyalty, taken as a combination of behavioural and attitudinal measures, may be a more comprehensive measure, but not as practical, due to the question of weighing of the behavioural and attitudinal components in the composite approach to measurement. Since repeated purchasing behaviour may be out of convenience or because of other factors not related to brand loyalty (Jacoby & Chestnut, 1978), measurement of behavioural loyalty as actual repurchase behaviour has not taken significant root in modern literature (Olsen, 2002), and researchers have instead relied predominantly on attitudinal measures, which, in more recent literature, are commonly referred to as loyalty behaviours (Pinkus et al., 2016) or (future) behavioural intentions (Žabkar et al., 2010). This approach to measurement is based on the popular (Ajzen, 1991) theory of planned behaviour, which states that behavioural intentions are a reliable predictor of future behaviour. Two typical behaviours of consumer loyalty in tourism are the willingness to recommend (positive word of mouth) and intention of revisit (intention of return), and may be regarded as two subdimensions of loyalty (Bosque & San Martín, 2008). These are commonly conceptually combined in modern tourism loyalty research (Chi & Qu, 2008). However, some destinations require considerable effort and expense to visit (Pinkus et al., 2016), and this fact may influence their future intentions. For example, in their investigation of tourists to the Galapagos islands of Ecuador, Rivera and Croes (2010) found that tourists will gladly recommend the destination, but will not consider revisiting. Other reasons for wanting to recommend a destination, but not consider revisit may include general novelty seeking in tourism (Kim & Chen, 2019; Lončarić et al., 2018). For these reasons willingness to recommend and intention of revisit should be modelled as separate constructs but may conceptually be used together to describe loyalty in tourism.

Building on the attitudinal, i.e. behavioural intention, approach to loyalty, Oliver (1999) explains that consumers become loyal in a cognitive sense first, then in an affective sense, following a conative manner and finally a behavioural manner. Cognitive loyalty is based on available information about the brand, beliefs, and prior experience. Affective loyalty is a positive attitude toward the brand developed on a basis of a continuous number of previous purchases and is not as easily dislodged from the consumer mind by marketing of other alternative brands. Conative loyalty is influenced by the affective stage and implies a serious commitment of repurchase. In the final stage of action loyalty, the repurchase commitment is accompanied by the desire to do so, no matter the obstacles encountered.

Edvardsson et al. (2000) expand this framework and differentiate between bought and earned loyalty, as well as between loyalty to product companies and loyalty to service companies. Bought loyalty is earned through indirect payments to customers in the sense of loyalty programmes and member discounts. Earned loyalty, on the other hand, results in an affective attachment of the customer to the company or brand, which is not as easily removed by marketing of competitors. The authors furthermore demonstrate empirically that satisfaction impacts profitability significantly in the service loyalty model, while in the product loyalty model, the effect is also significant, but smaller. The impact of loyalty on profitability for services was found to be positive, while for the products it was found to be negative. The findings of their study suggest that for services, revenue growth comes primarily indirectly through satisfaction and word-of-mouth recommendation, while, on the other hand, product companies rely more on paid loyalty strategies, which have a negative effect on profitability.

Loyal visitors are important to destination managers as it is less expensive to retain visitors than seek new ones (Thomas, 2001); they are more likely to spread positive word of mouth with no extra cost (Shoemaker & Lewis, 1999), while typically attributing service errors to uncontrollable factors (Weiner, 2000). The concept of loyalty in tourism includes, but is not exclusive to: tourism destination loyalty (Niininen & Riley, 2003; Yoon & Uysal, 2005; Meleddu et al., 2015), hotel brand loyalty (So et al., 2013; Nam et al., 2011), loyalty to digital tourism platforms such as Airbnb (Lalicic & Weismayer, 2018) and, more recently, loyalty to nature-based tourism destination settings (Pinkus et al., 2016; Mirzaalian & Halpenny, 2021).

#### Perceived COVID-19 Fear

Fear is an emotion that is activated when a dangerous situation is perceived as a risk to personal safety, or safety of others (Garcia, 2017). The COVID-19 pandemic has significantly influenced individual perceptions of fear and risk (Hassan & Soliman, 2021). In accordance with PMT (Dillard et al., 2012) individual perception of risk from an event may motivate protective behaviour related to that event. Ahorsu et al. (2022) suggest that perceived fear of COVID-19 may even amplify the damage of the disease, and with high levels of fear, individuals may not be rational in making their decisions.

Studies thus far have identified a significant influence of the COVID-19 pandemic on tourists' perceived risk (Lu et al., 2022; Rahman et al., 2021), travel intention (Turnšek et al., 2020) and behaviour (Bae & Chang, 2021).

Some authors model fear of COVID-19 as a moderator between previously established relationships from the literature (Hassan & Soliman, 2021; Rather, 2021). Hassan and Soliman (2021) find that fear arousal concerning COVID-19 moderates the relationships between destination reputation and revisit intention. Furthermore, Turnšek et al. (2020) add that in the case of women, age affects the level of perceived threat, while people with higher education perceive higher risk. T. H. Lee and Jan (2023) find that travellers' personality traits are also connected to different levels of risk perceptions concerning COVID-19. Lu et al. (2022) suggest that perceived risk of COVID-19 is linked to temporal dynamics of the pandemic, geographical distance from outbreak areas, and differences in regional tourism development.

## Conceptual Framework and Hypothesis Development

Satisfaction with Beach Natural Characteristics and Overall Experience Satisfaction

According to Pizam et al. (1978), tourist satisfaction is the result of interaction between a tourist's experience with the destination and their expectations about the destination. Expectations have widely been explored (Roca & Villares, 2008; Lozoya et al., 2014) in the study of beach visitors. A significant number of studies (Roca et al., 2008; Roca et al., 2009; Marin et al., 2009) measure visitor satisfaction with beach natural and environmental characteristics. The findings indicate that visitors highly value both the natural and environmental beach characteristics. Dodds and Holmes (2019) find that both satisfaction with natural characteristics and facilities are correlated with overall satisfaction. Based on these arguments the first hypothesis is proposed as:

H1 Satisfaction with natural beach characteristics has a significant impact on overall experience satisfaction.

Tourism and marketing literature has established that attribute-based performance evaluations of products/service quality affect overall satisfaction (Alegre & Cladera, 2006; Cronin & Taylor, 1992; Grappi & Montanari, 2011; Giese & Cote, 2000). Baloglu et al. (2004) argue that empirical work concerning the effect of experience attributes of products/services on overall satisfaction leads to a better understanding of the relative contribution of these attributes to the overall experience and/or behavioural intention.

## Beach Crowding and Overall Experience Satisfaction

Beaches are vulnerable socio-ecological systems and are under increased pressure of high tourist visitation during the summer season. According to Da Silva (2002), the straightforward notion of less crowding equals more quality, or better tourist experience, is not always applicable, particularly in the context of beach experiences. Studies of beach crowding often use the concept of available space in m<sup>2</sup>/visitor to estimate crowding, i.e. determine the beach carrying capacity thresholds. Roca et al. (2008) investigated the effect of sand area availability in m<sup>2</sup>/visitor in their study of the Spanish Catalan coast and found that there is no statistically significant relationship between sand area availability and visitor satisfaction. Furthermore, the results showed that minimum mean values observed were often lower than recommended thresholds in the literature, which, depending on the author, amount to 4 - 6 m<sup>2</sup> per visitor available for the most congested urban beach type (Roca et al., 2008). Cabezas-Rabadán et al. (2019) find that beach visitor density is very subjective in connection to the evaluation of crowding. Indeed, previous research (Da Silva, 2002; Kane et al., 2021) identified that beach visitors congregate in the area less than 30-50 meters away from the sea and often group together (Guyonnard & Vacher, 2016). However, since data on beach crowding preferences during a global pandemic is scarce and limited to the USA (Kane et al., 2021), we formulate the second hypothesis as:

## H2 There is a statistically significant relationship between perceived crowding on the beach and the overall experience satisfaction at the beach.

We measure perceived crowding as perceptions of satisfaction with the space available at the beach, crowding and noise, following the social carrying capacity paradigm. Shelby and Heberlein (1984, p. 433) define social carrying capacity as the 'level of use beyond which experience parameters exceed acceptable levels.' High crowding may lead to reduced available space on the beach and produce presence of unpleasant noise.

## Beach Facilities and Overall Experience Satisfaction Research conducted thus far offers mixed results on the connection between visitors' satisfaction with the beach and their satisfaction with beach facilities. Beach visitors were found to prioritise beach facilities at urban beach locations (Lozoya et al., 2014). However,

Peña-Alonso et al. (2018) find that visitors place importance on the quality of beach facilities in both natural and semi-urban environments. Frampton (2010) argues that, following the holistic beach management approach, facilities and amenities must be included in beach evaluation, as they meet the needs of those who use the beach. Evaluation of beach facilities are also part of the BARE (Bathing Area and Registration Evaluation system) scheme developed by Micallef and Williams (2004). Dodds and Holmes (2019) found that beach facilities have a positive impact on overall experience satisfaction. We thus formulate the third hypothesis as:

## H<sub>3</sub> Beach facilities have a positive effect on overall experience satisfaction.

Beach facilities and amenities are identified as important in the literature (Botero et al., 2013) and a minimum service offer is expected by beach visitors (Lozoya et al., 2014). However, a 'diminishing return' function is hypothesised by some researchers. For instance, Marin et al. (2009) argue that when the anthropic pressure is too high, the result can be a 'banalisation' of the natural marine environment. Furthermore, Roca and Villares (2008) argue that overexploitation of the beach area results in reduction of available beach surface and influences perceived crowding.

# Loyalty: Intention to Recommend and Intention of Revisit

Oliver defines loyalty as 'a deeply held commitment to rebuy or re-patronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behaviour' (Oliver, 1999, p. 34). Borrowing an environmental psychology perspective of place attachment (Scannell & Gifford, 2010), we derive that Oliver's product/service-oriented definition is applicable to the concept of a tourists' loyalty to a beach, i.e. a specific place.

According to Yoon and Uysal (2005), repeat purchases or recommendations to others are the most usual indicators of consumer loyalty in marketing literature. Previous research studies of loyalty in tourism have established that high level of satisfaction leads to intention of recommendation (Oppermann, 2000; Prebensen et al., 2010) and intention of revisit (Hai et al., 2020). According to Alegre and Cladera (2006), repeat visitors are likely to return to the destination, but the main determinant of repeat visitation is high satisfaction.

The satisfied tourist has a tendency to express a favourable opinion about the destination and is likely to recommend the destination to others or revisit (Verma & Rajendran, 2017). According to Zeithaml et al. (1996), when customers express preference for a company over available alternatives in the form of competition, increase the volume of purchase, or are willing to pay a price premium, they are behaviourally bonding with the company. Word of mouth recommendations are highly regarded information among tourists (Prebensen et al., 2010), and are also typically perceived as highly reliable (Chi & Qu, 2008). Logically, we formulate hypothesis 4 as:

H4 Overall experience satisfaction positively affects the intention to recommend the beach.

Regarding beach visitors, Dodds and Holmes (2019) find that overall experience satisfaction at the beach is positively correlated with intention of revisit. However, Assaker and Hallak (2012) find that some tourist segments, even when satisfied with the destination, may not revisit, and at the same time, some segments that are not satisfied might revisit. Consequently, we examine the following hypothesis.

**H5** Overall experience satisfaction positively affects the intention to revisit the beach.

By understanding the relationship between provided services and their connection to visitor satisfaction and loyalty, destination managers are better informed on how to influence the creation of satisfaction and loyalty among destination visitors (Petrick, 2005).

Moderating Role of covid-19 Perceived Fear and Risk Previous studies have established the relation between health protective behaviour and travel behaviour (Bhati et al., 2021; Park & Almanza, 2020). Rather (2021) revealed that perception of fear and risk of COVID-19 moderates relationships between social media, consumer brand engagement, co-creation, and revisit intention. In exploring the links between destination reputation and revisit intention, and between perceived trust and revisit intention during the COVID-19 pandemic, Hassan and Soliman (2021) also found a moderating role of fear arousal. This study models the perceived risk and fear of COVID-19 as a moderator in a conceptual model of attribute satisfaction, overall experience satisfaction and loyalty of beach visitors following the framework of Oliver (1993).

In context of beaches, Botero et al. (2013) have established that water and sand quality are top preferences of beach visitors in urban and rural areas. Hong et al. (2020) demonstrate that tourists placed great importance on natural and green areas in B&B tourism during the COVID-19 pandemic. Visitor perceptions of the beach and sea environment as unclean or unhygienic during a pandemic, according to the PMT, may trigger health protective behaviour which in turn may moderate the relationship between satisfaction with natural beach characteristics and overall experience satisfaction. We therefore propose to examine the following hypothesis:

H6 Perceived COVID-19 fear and risk moderate the relationship between satisfaction with natural beach characteristics and overall experience satisfaction.

Previous research (Cumberbatch & Moses, 2011) has established that perceptions of 'too many people' and lack of personal space are the main factors that cause beach visitors to perceive the beach as crowded. According to De Ruyck et al. (1997), beach visitors' group size affects space taken on the beach inversely; the larger the group size, the less beach space was used by the group. COVID-19 protocols include safe distance from others as an avoidance strategy, and fear of COVID-19 may moderate the relationship between perceived crowding and overall experience satisfaction. We therefore examine the following hypothesis:

H7 Perceived COVID-19 fear and risk moderate the relationship between perceived crowding on the beach and overall experience satisfaction.

Ivanova et al. (2021) find that hygiene, disinfection,

and a reliable health system in a destination are leading factors in deciding to travel. At the same time, clean drinking water, good sanitary conditions and hygiene of the environment, restaurants and accommodation is expected by tourists (Liu et al., 2014; Bhati et al., 2021). Logically, we propose to examine the following hypothesis:

H8 Perceived COVID-19 fear and risk moderate the relationship of satisfaction with beach facilities and overall experience satisfaction.

Since personal behaviour varies by the individual's perceived risk level (Kim & Chen, 2019), we propose to examine the possible moderation of COVID-19 fear on the relationship between overall experience satisfaction and intention to recommend. We thus propose the following hypothesis:

**H9** Perceived COVID-19 fear and risk moderate the relationship between overall experience satisfaction and intention to recommend.

As consumers have a higher preference to avoid risk than maximize utility, perceived risk is an important factor in an effort to explain purchase behaviour (Yu et al., 2021) and is part of the PMT model. Perceived risk experienced during travel and recreational activities may moderate the relationship between overall experience satisfaction and intention to revisit. Consequently, we propose to examine the following scientific hypothesis:

H10 Perceived COVID-19 fear and risk moderate the relationship between overall experience satisfaction and intention to revisit.

#### **Research Design**

The data for the purpose of hypothesis testing was obtained by quantitative research (N = 377). A structured questionnaire was used as a survey instrument. The three beaches represent a natural (n = 121), municipal (n = 152), and urban beach (n = 104).

#### **Operationalisation of the Constructs**

The original set of 23 items measuring beach natural characteristics, crowding and facilities on the beach was reduced to 17, as 6 items from the beach facilities construct were deleted based on the statistical significance of the formative construct outer loadings criteria (Hair et al., 2017).

Satisfaction measures of performance for seven items measuring satisfaction with natural beach characteristics were adopted from previous research (Roca et al., 2009). These include: NC1 – Beach sediment texture, NC2 – Available shade on the beach, NC3 – Texture of beach sediment when entering the sea, NC4 – Cleanliness of the sea, NC5 – Opportunities to observe maritime species, NCE1 – Litter/plastic on the beach, and NC\_SCN – Beach scenery and local landscape. Following the socio-ecological systems (Refulio-Coronado et al., 2021) paradigm of coastal and marine environments, natural beach characteristics are modelled together with perceptions of water and sand cleanliness in a single construct.

Beach crowding items were adapted from previous research (Roca et al., 2008; Lozoya et al., 2014). Namely, items OCC1 - Available space on the beachand <math>OCC - 3 Crowding on the beach. We insert also item OCC2 - Noise on the beach, as Cumberbatch and Moses (2011) find that presence of unpleasant noise on the beach, associated with the various activities of beach visitors, may contribute to perceptions of a crowded beach.

Regarding beach visitor satisfaction with beach facilities, items were adapted form Roca et al. (2009) and Lozoya et al. (2014). These include measures of general beach facilities (BF1 – *Changing room availability*, BF2 – *Available parking space*, ...), sanitary facilities (BSAN1 – *Litter bin availability*, BSAN2 – *Shower availability*, ...), recreation facilities BF4 – *Areas for sport, recreation, and children's play on the beach* and BF5 – *Accessibility to the beach and sea for persons with disabilities*.

Overall experience satisfaction at the beach is based on the scale proposed in Oliver (1997) and adapted for this research, containing affective (1 – *I really enjoyed this beach*), cognitive (2 – *I made a wise choice to visit this beach*) and fulfilment (3 – *This beach is exactly what I needed*) components of satisfaction. This original scale was expanded by del Bosque and San Martín (2008) by a single overall satisfaction measure which was also included and adapted for this research (4 - I am satisfied with the overall experience at this)Table 1 Descriptive Statistics beach).

Loyalty is measured in constructs of intention to recommend the beach and intention of revisit. These two constructs measuring loyalty represent attitudinal loyalty in the form of behavioural intention. The Intention to revisit construct includes two items adapted from del Bosque and San Martín (2008) (1 – I will try to visit this beach again and 2 - I think I will visit this beach) and one item adapted from Dodds and Holmes (2019) (3 - I will probably visit this beach again). Intention to recommend items were included using the three items adapted from Prayag et al. (2017) based on Grappi and Montanari (2011) and Lee et al. (2008).

We measure perceived risk and fear of COVID-19 as a single reflective construct with 2 items which demonstrate high face validity: 1 - I feel safe on this beach and 2 – I do not fear getting COVID-19 on this beach. The 2 items of the Perceived risk and fear of COVID-19 construct were generated for the purpose of this research by a focus group including university professors. As the results in Table 2 demonstrate, the construct exhibits satisfactory levels of reliability and convergent validity.

Appendix A presents the full list of items. Items were measured on a 5-point Likert-type scale.

Since the natural beach contained almost no facilities from the original set of items, we proxied satisfaction with importance on the natural beach. We find justification in this approach as, according to Teas (1993), a perceived ability of a product to deliver satisfaction can be conceptualised as a conformation with a consumer's ideal product features.

#### Data Collection

The research was conducted on three distinct beaches of Primorsko-Goranska County in Croatia: City beach in the municipality of Crikvenica, Ploče beach in the city of Rijeka and Klančac beach in the municipality of Brseč. The investigation took place during the months of July, August and September of 2021. Beach visitors were approached on each beach location with a formal introduction, explanation of study goals and assurance of anonymity. The research was conducted only on working days of the week, between the hours

Variables	Categories	(1)	(2)
Gender	Male	40.6	153
_	Female	59.4	224
Age (years)	15-24	21.0	79
	25-34	16.7	63
	35-44	20.7	78
	45-54	25.7	97
	55-64	10.9	41
	Above 65	5.0	19
Education	Elementary school	1.1	4
	Highschool	54.6	206
	University degree	43.5	164
	рһд	0.8	3
Visitor type	Domestic tourist	20.7	78
	Foreign tourist	60.2	227
	Local resident	17.2	65
	Season resident	1.9	7

Notes Column headings are as follows: (1) proportion (%), (2) frequency.

of 09.00 am - 12.00 am and 03.00 pm - 06.00 pm to avoid high sun exposure of the investigators. A pilot study was carried out in order to ensure all questions were clear to the respondents, establish the feasibility of the research protocol and test the sampling strategy. Feedback from the pilot study was used in the final versions of the research protocol and questionnaire. The sampling strategy used was a stratified random sample approach. Age and gender proportion stratums on each beach were estimated daily, and the random sample was picked proportionally to and from ratio sizes of stratums identified. Both tourists and the local population are part of the sample, following the sustainable development paradigm.

Descriptive statistics show that 59.4% of the sample are female and 40.6% are male respondents. Furthermore, 21% of respondents were between the age of 15-24, 16.7% were 25-34, 20.7% were 35-44, 25.7% were 45-54, 10.9% were 55-64 and 5% were 65 years and above. The results of the descriptive analysis are presented in Table 1.

#### Common Method Variance (CMV)

CMV is variance that originates from the measurement method rather than the measurement of constructs, and can be a problem commonly known as method bias (Podsakoff et al., 2003). Employing the commonly used Harman's single factor test for assessing CMV, we find that most of the variance is not explained by a single factor. In fact, variance explained by one factor amounted to 22.9% of total variance explained. We conclude that CMV is not an issue in this research.

## **Research Results**

The model was tested using partial least squares structural equation modelling (PLS-SEM) with SmartPLS 3.3.5 software. PLS-SEM has become a standard tool for analysing complex relationships between variables in tourism and many other fields of study (Sarstedt et al., 2020). The PLS-SEM approach is recommended due to the ability of generating high statistical power with smaller sample sizes, working with non-normally distributed data and different scale types, while taking a predictive modelling approach (Hair et al., 2017).

#### **Reflective Measurement Model Assessment**

Since our model includes both formative and reflective constructs, we report the reliability and validity results for the reflective constructs separately in Table 2. All the constructs factor loadings are above the 0.7 threshold value (Hair et al., 2017). Composite reliability values range from 0.95-0.89, while the Cronbach's alpha values are in the range of 0.77-0.93. The lowest value for alpha is 0.77 and it is associated with the perceived fear/risk from COVID-19, which is at an acceptable level for exploratory research (Hair et al., 2017). Cronbach's alpha values of other constructs range from 0.90-0.93 and display excellent levels of reliability. Average variance extracted (AVE) is a measure of convergent validity and the recommended threshold is above 0.5. AVE ranges from values of 0.81-0.88. Thus, the measures of the reflective constructs have high levels of convergent validity. We conclude that the reflective constructs indicators are reliable and convergently valid.

Next, we assess the discriminant validity of the reflective constructs using the Fornell and Larcker

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(a)	C191	0.812	0.896	0.774	4.61	0.73	0.868
	C193						0.933
(b)	SATE1	0.821	0.948	0.927	4.29	0.94	0.882
	SATE2						0.917
	SATE3						0.915
	SATE4						0.912
(c)	RECI1	0.843	0.942	0.907	4.35	0.90	0.922
	RECI2						0.905
	RECI3						0.927
(d)	RI 1	0.886	0.959	0.936	4.49	0.88	0.947
	RI2						0.944
	RI 3						0.933

Table 2 Reliability and Validity of Reflective Model Items

Notes Constructs: (a) perceived fear/risk of COVID-19, (b) overall experience satisfaction, (c) recommendation intention, (d) revisit intention. Column headings are as follows: (1) items, (2) average variance extracted, (3) composite reliability, (4) Cronbach alpha, (5) mean, (6) standard deviation, (7) outer loadings.

(1981) criterion followed by the heterotrait-monotrait (HTMT) criterion as recommended by Hair et al. (2017). The results are represented in Table 3 and Table 4, respectively.

The squared root of each construct's AVE is higher than correlations with other constructs, as shown in Table 3, by which discriminant validity using the Fornell and Larcker criterion is established. We do not calculate AVE for the formative variables as this measure is appropriate only for reflective construct assessment. All HTMT values are below the recommended threshold of 0.9, as shown in Table 4. This result confirms discriminant validity of the reflective constructs using the HTMT criterion.

#### Formative Measurement Model Assessment

In this section we assess the formative constructs indicators for issues of collinearity and test their statistical significance. According to Hair et al. (2017), a VIF indicator value of 5 and higher represents a possible collinearity problem. Table 5 presents the VIF for the formative constructs' indicators. All values are below

	Criterio	n			
	(1)	(2)	(3)	(4)	
(1)	0.901				
(2)	0.243	0.906			
(3)	0.195	0.822	0.918		
(4)	0.239	0.762	0.816	0.941	

Table 3 Discriminant Validity by Fornell and Larcker's

Notes Column/row headings are as follows: (1) COVID-19 fear/risk, (2) overall satisfaction, (3) recommendation intention, (4) revisit intention.

Table 4 Discriminant Validity by HTMT Criterion

	(1)	(2)	(3)
(2)	0.281		
(3)	0.228	0.895	
(4)	0.277	0.816	0.885

Notes Column/row headings are as follows: (1) COVID-19 fear/risk, (2) overall satisfaction, (3) recommendation intention, (4) revisit intention.

the recommended threshold of 5; this indicates that the issue of collinearity is not a problem in the formative indicators. All items are statistically significant at p < 0.01 level except items NC2 and and OCC2, which are significant at p < 0.05 level.

### Structural Model Evaluation

Next, we evaluate the structural model. Using standardised root mean square residual (SRMR) we evaluate the model fit. We also investigate the model's path coefficients, coefficients of determination of endogenous constructs –  $R^2$ , effect size of exogenous on endogenous constructs –  $f^2$ , predictive relevance –  $Q^2$ , and effect size of the predicted effect –  $q^2$ . The SRMR value in this research (SRMR = 0.053) indicates a good fit as it is below the recommended conservative threshold of 0.08 (Hair et al., 2017).  $R^2$  values are as follows: Overall satisfaction –  $R^2 = 0.44$ , recommendation intention  $-R^2 = 0.67$  and revisit intention  $-R^2 = 0.58$ . Following guidelines from the literature, overall satisfaction displays moderate to weak R<sup>2</sup> values, while the recommendation and revisit intention  $R^2$  values may be described as moderate to substantial. All Stone-

Constructs with variables (1)(2)(3)  $BF1 \rightarrow Facilities$ 0.308 0.003 1.33  $BF2 \rightarrow$  Facilities 0.707 0.000 1.16  $BF3 \rightarrow Facilities$ 0.561 0.000 1.47  $BF4 \rightarrow Facilities$ 0.407 0.000 1.20  $BF5 \rightarrow Facilities$ 0.545 0.000 1.28  $BSAN1 \rightarrow Facilities$ 0.742 0.000 1.35  $BSAN2 \rightarrow Facilities$ 0.451 0.000 1.36  $NC1 \rightarrow Natural Characteristics$ 0.776 0.000 1.55  $NC2 \rightarrow Natural Characteristics$ 0.185 0.021 1.07  $NC3 \rightarrow Natural Characteristics$ 0.731 0.000 1.57  $NC4 \rightarrow Natural Characteristics$ 0.648 0.000 1.29  $NC5 \rightarrow Natural Characteristics$ 0.654 0.000 1.29 0.376 0.000  $NCE1 \rightarrow Natural Characteristics$ 1.12  $NC_SCN \rightarrow Natural Character.$ 0.646 0.000 1.38  $occ_3 \rightarrow Crowding$ 0.945 0.000 1.55  $OCC1 \rightarrow Crowding$ 0.800 0.000 1.699  $occ_2 \rightarrow Crowding$ 0.484 0.026 1.458

Table 5 Assessment of Formative Model

Notes Column headings are as follows: (1) outer loadings, (2) *p* values, (3) VIF.

Geisser's Q<sup>2</sup> values for endogenous constructs (overall satisfaction: 0.35, recommendation intention: 0.56 and intention to revisit: 0.50) are positive, which establishes the predictive relevance of the proposed model (Hair et al., 2017).

Furthermore,  $q^2$  values of predictive effect size of exogenous construct's contribution to an endogenous latent variable  $Q^2$  were calculated. In the proposed model the calculation was possible for the influence of satisfaction with natural characteristics on overall satisfaction and the influence of satisfaction with facilities on overall satisfaction. The  $q^2$  resulted in values of 0.23 and 0.03, respectively. Satisfaction with natural characteristics has a moderately strong predictive effect size on overall satisfaction, while satisfaction with facilities has a weak predictive effect size. All constructs in the proposed model are statistically significant at p < 0.01%, except occupancy, which is not statistically significant. The results are displayed in Tables 6 and 7.

Table 6 Structural Model Results

Нур	Hypothesis/paths			$f^2$	Supported
H1	Natural Characteristics $\rightarrow$ Overall Satisfaction	0.515	0.00	0.32	Yes
H2	Crowding $\rightarrow$ Overall Satisfaction	0.022	0.58	0.00	No
нз	Facilities $\rightarrow$ Overall Satisfaction	0.175	0.00	0.03	Yes
Н4	Overall Satisfaction $\rightarrow$ Recommendation Intention	0.822	0.00	2.08	Yes
Н5	Overall Satisfaction $\rightarrow$ Revisit intention	0.762	0.00	1.38	Yes

Notes Overall satisfaction  $R^2 = 0.44$ ,  $Q^2 = 0.35$ ; recommendation intention  $R^2 = 0.67$ ,  $Q^2 = 0.56$ ; revisit intention  $R^2 = 0.58$ ,  $Q^2 = 0.50$ ,  $\beta$  – regression coefficient, p – statistical significance,  $f^2$  – effect size.

Table 7 Predictive Effect Sizes

Paths	(1)	(2)	(3)
Natural Characteristics $\rightarrow$ Overall Satisfaction	0.353	0.204	0.23
Facilities $\rightarrow$ Overall Satisfaction	0.353	0.329	0.03
			1 ( )

*Notes* Column headings are as follows: (1)  $Q^2$  included, (2)  $Q^2$  excluded, (3)  $q^2$ .

#### **Moderation Analysis**

In the final stage, the moderating effect of perceived fear and risk of COVID-19 is assessed in the proposed relationships between satisfaction with natural beach characteristics and overall satisfaction, between satisfaction with beach facilities and overall satisfaction, and between overall satisfaction and intentions of recommendation and revisit. Since the perceived crowding effect on overall satisfaction is not statistically significant, we do not test the moderating effect in this relationship. Thus, Hypotheses H7 is rejected. The product indicator approach was used as the moderator calculation method and the product term generated was standardised following recommendations from the literature (Rasoolimanesh, Wang et al., 2021). The results of the hypothesised moderating relationships are displayed in Table 8. The only statistically significant (p < 0.05%) moderated relationship in the model is between beach facilities and overall satisfaction. The negative beta coefficient in the supported moderation indicates that an increase in the perceived fear/risk of COVID-19 increases the effect of satisfaction with beach facilities on overall satisfaction with the beach. Lower values on the COVID-19 fear/risk scale indicate higher values of perceived fear/risk. The effect size is weak at  $f^2 = 0.02$ . The results are displayed in Table 8.

#### Discussion

As the results of our investigation show, natural beach characteristics have the largest effect on overall visitor satisfaction, even during the COVID-19 pandemic, confirming H1. These results support the findings of previous research (Dodds & Holmes, 2019; Lozoya et al., 2014) which reports that beach visitors highly value natural beach characteristics. However, as demonstrated in Lozoya et al. (2014), there are significant differences in beach visitor preferences between different beach types. The authors find that visitors placed higher importance on natural beach characteristics than facilities, in a natural beach setting, while on the urban beach, a higher proportion of visitors valued facilities over natural characteristics.

As for the relationship between perceived crowding on the beach and overall beach visitor experience satisfaction, our investigation finds no significant connection, thus H<sub>2</sub> is rejected. These results support the findings of previous research. Namely, Roca et al. (2008) demonstrate a limited descriptive influence of higher beach area availability on beach visitor satisfaction; however, they find no significant correlation. Taking both these results into consideration, we suggest the possibility of an asymmetrical relationship between crowding at the beach and beach visitor experience satisfaction. Namely, higher levels of perceived crowding may influence only visitor dissatisfaction, while a lower level of perceived crowding does not lead to higher levels of beach visitor satisfaction. It

Tabl	e 8	Mod	leration	Anal	vsis
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Нур	othesis/tested paths	β	P	Moderation
н6	COVID-19 Moderating Effect Natural characteristics $\rightarrow$ Overall Satisfaction	-0.014	0.81	No
н8	COVID-19 Moderating effect Facilities $\rightarrow$ Overall Satisfaction	-0.107	0.02	Yes
н9	COVID-19 Moderating Effect Overall satisfaction $\rightarrow$ Recommendation Intention	0.004	0.90	No
H10	COVID-19 Moderating Effect Overall satisfaction $\rightarrow$ Revisit Intention	-0.042	0.28	No

seems a certain 'baseline performance' of crowding at the beach is expected by visitors and is an integral part of the overall beach experience, and consequently the sun and sea tourism destination product.

Next, the results indicate that beach facilities have a significant positive effect on overall experience satisfaction at the beach, thus confirming hypothesis H3. These results are in line with previous research (Rodella & Corbau, 2020) which has established that visitors value highly good quality services and facilities, even in natural beach settings (Lozoya et al., 2014). Furthermore, Botero et al. (2013) find that beach facilities are among the top three priorities of visitors at both European and Caribbean beaches. Beach managers should take special interest in visitor preferences and evaluations regarding beach facilities at each beach location, as it is an important feature directly under their control.

Our investigation shows that overall experience satisfaction positively affects the intention to recommend the beach and the intention of revisit, thus confirming hypothesis H4 and hypothesis H5, respectively. These results are in line with previous research, which has established that (Žabkar et al., 2010) tourism destination attributes affect perceived destination quality and consequently tourist satisfaction and behavioural intentions. This hypothesis has also been confirmed as valid in the case of nature-based destinations (Pinkus et al., 2016), and particularly beaches (Dodds & Holmes, 2019).

Research results did not support hypothesis H6, concerning the existence of a moderating effect of COVID-19 fear and risk between the relationship of satisfaction with natural beach characteristics and overall experience satisfaction. This indicates that even in the presence of a health/safety risk during the pandemic, visitors perceive the natural beach environment as relatively safe. This may be explained by the fact that epidemiological studies of COVID-19 (Qian et al., 2021) suggest that there is higher risk of COVID-19 infection indoors than outdoors. Furthermore, Kane et al. (2021) argue that coastal environments offer lower risk of infection than regular outdoor areas, due to the dispersion of respiratory droplets in the regular airflow of the coastline. As perceived crowding does not affect overall experience satisfaction at the beach, the hypothesis H7 concerning a possible moderating effect of COVID-19 fear and risk between perceived crowding and overall experience satisfaction was not tested and is thus rejected.

Beach facilities affect overall satisfaction positively, but as the moderation analysis has shown, when the perceived fear and risk are higher, the influence of beach facilities on overall satisfaction is stronger, confirming hypothesis H8. Since previous research has demonstrated (Yu et al., 2021) that emotion regulation ability is a significant moderator between perceived risk of COVID-19 and stress, the availability of necessary facilities at the beach can aid visitors in their ability to regulate perceived risk, which in turn leads to higher overall experience satisfaction levels. These results support the findings of Hassan and Soliman (2021), which show that fear arousal has a moderation impact on the relationships between visitors' perceived trust and revisit intention, social responsibility and revisit intention, and between destination reputation and revisit intention.

No moderating effect of COVID-19 fear and risk has been found between the paths of overall experience satisfaction and recommendation intention, thus hypothesis H9 is rejected. The reason for this may lie in the fact that 39.8% of the respondents had significant previous experience with the beach and the destination, namely domestic tourists, local and seasonal residents. Rasoolimanesh, Seyfi et al. (2021) find that past experience with a destination is a significant factor contributing to tourists' willingness to support a destination. According to Han and Hyun (2015), previous travel experience tends to create trust and minimises future travel risk perceptions.

Finally, no moderating effect of COVID-19 fear and risk was found between overall experience satisfaction and revisit intention, thus hypothesis H10 is not confirmed. These results are opposite to those of Rather (2021), who finds that perceived COVID-19 fear moderates the relationship between consumer brand engagement and revisit intention. Furthermore, Hassan and Soliman (2021) find that fear arousal negatively moderates the direct positive relationships between destination reputation and return intention and between perceived trust and return intention. The reasons for these differences in results, besides previous destination experience, may lie in the visitor perception of beaches being relatively safer during a pandemic, as opposed to other environments within the tourist destination. Regarding this result, it may also be argued that during pandemic conditions, destination managers should emphasise the tourism destination beach environments in their marketing campaigns and in particular to the marketing segments with previous experiences with the beach and the destination.

Using PMT nested in the satisfaction-loyalty framework we have demonstrated that under the pandemic conditions, perceived threat of COVID-19 increases the value visitors place on facilities in public areas, or in the case of this investigation, at the beach. As the protection motivation of the PMT framework is amplified, because of perceived fear/risk increase, beach visitors place more value on facilities (available parking space, areas for recreation, easier accessibility) and sanitary standards (litter bin and shower availability). These results can be interpreted within the PMT framework, as activation of efficacy response. The availability of these common facilities leads to higher levels of overall satisfaction as the perceived fear/risk of disease increases.

#### Conclusion

This paper investigated the antecedents of beach visitors' satisfaction with beaches during the COVID-19 pandemic in the case of three distinct Croatian beaches of the Primorsko-Goranska County wider littoral area. A significant number of authors (Ariza et al., 2014; Magaš et al., 2018; Milanés Batista et al., 2020; Villares et al., 2006) argue that stakeholder participation is a key element in an integrated approach to beach and coastal zone management. We have employed the PMT approach to model visitors' perceptions of fear and risk of COVID-19 in a conative model of visitor satisfaction and future behavioural intentions. Furthermore, we have tested and demonstrated the validity of the combined satisfaction-importance method for investigating beach visitors' satisfaction with heterogenous beach types (rural, urban, town) in an integral approach. This novel holistic methodology can be used by destination managers in assessing satisfaction with beaches of a tourism destination in a wider geographical sense, while controlling for different preferences of visitors to natural and/or rural beach locations as opposed to visitor preferences of urban and semi-urban beach types.

The empirical findings of this study offer theoretical contributions to the PMT. When, in accordance with the PMT model, the intent to adopt a recommended response is triggered, the availability of basic facilities provides protective response ability, leading to higher overall satisfaction of visitors and favourable future intentions toward the destination. These findings have implications for beach and destination managers about visitor satisfaction and loyalty during a global pandemic.

The main limitation of this paper is the combined satisfaction/importance measurement for the purpose of combined assessment of natural and urban beach types in our investigation. A further limitation of this research is a sample of 3 beaches in only one country. Future research on the topic should include more beaches in a multiple-country investigation.

Further future research recommendations include identification of attributes that carry the largest effect sizes on overall satisfaction and future behavioural intentions in a beach sample under investigation. This can be accomplished using the importance-performance technique. The attributes carrying the largest impacts on satisfaction and loyalty, in the overall sample, should be the ones that managers need to consider and prioritise to foster sustainable and competitive beach tourism destinations, even during the times of a global pandemic. Lastly, future research in tourism during a pandemic, on visitor satisfaction and loyalty, should focus on the tourism destination, accommodation establishments (hotels, B&B), hospitality establishments (restaurants, bars), and entertainment events and model the pandemic influence on the previously established theoretical relationships from the literature.

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#### **Appendix A**

Natural beach characteristics. Please rate your level of satisfaction where 1 – very dissatisfied, 2 – dissatisfied, 3 – neither satisfied, nor dissatisfied, 4 – satisfied, 5 – very satisfied.

- NC1 Beach sediment texture
- NC2 Available shade on the beach
- NC3 Texture of beach sediment when entering the sea
- NC4 Cleanliness of the sea
- NC5 Opportunities to observe maritime species (fish, crabs, shells . . .)
- NCE1 Litter/Plastic on the beach
- NC\_SCN Beach scenery and local landscape

COVID-19 fear/risk. Please rate your level of agreement with the following statements where 1 – strongly disagree, 2 – somewhat disagree, 3 – neither agree, nor disagree, 4 – somewhat agree 5 – strongly agree.

C191 I do not fear getting COVID-19 on this beach C193 I feel safe on this beach

*Perceived crowding.* Please rate your level of satisfaction where 1 – very dissatisfied, 2 – dissatisfied, 3 – neither satisfied, nor dissatisfied, 4 – satisfied, 5 – very satisfied.

PCO1 Available space on the beach

PCO2 Noise on the beach

PCO3 Crowding on the beach

*Beach facilities.* Please rate your level of satisfaction/importance where 1 – very dissatisfied, 2 – dissatisfied, 3 – neither satisfied, nor dissatisfied, 4 – satisfied, 5 – very satisfied.

- BF1 Change room availability
- BF2 Available parking space
- BF3 Lifeguard and/or medical service
- BF4 Areas for sport, recreation, and children play on the beach
- BF5 Accessibility to the beach and sea for persons with disabilities
- BSAN1 Litter bin availability
- BSAN2 Shower availability

*Overall satisfaction and intentions of recommendation/revisit.* Please rate your level of agreement with the following statements where 1 – strongly disagree, 2

- somewhat disagree, 3 neither agree, nor disagree,
- 4 somewhat agree, 5 strongly agree.

- SATE1 I am satisfied with the overall experience at this beach
- SATE2 I made a wise decision to visit this beach
- SATE3 This beach is exactly what I needed
- SATE4 I really enjoy this beach
- RECI1 I will recommend this beach to other people
- REC12 I will tell other people positive things about this beach
- REC13 I will encourage friends and relatives to visit this beach
- R11 I will try to visit this beach again
- RI2 I think I will visit this beach again
- R13 I will probably visit this beach again