

# Understanding British and Danish Sailing Tourism Markets: An Analysis Based on Kano's Evaluation Matrix

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## Abstract

Sailing tourism is deemed to be a significant tourism activity and economic contributor. Without an adequate assessment of the impact of marina attributes on tourist satisfaction, sailing destinations may not be able to map out successful marketing strategies and effectively increase destination attractiveness. Therefore, this research examined the marina attributes that impact the satisfaction of British and Danish sailing tourists, by adopting independent-samples *t*-tests, Kano's Evaluation Matrix (KEM) analysis, and the calculation of customer satisfaction coefficients. This research found differences between the British and Danish sailing tourists' perceptions of marina attributes. The British sailing tourists place greater importance to safe sailing experience, while the Danish appeared to place more emphasis on the service amenities and recreational opportunities. The findings of this research are of benefit to the sailing industry and destination communities as it gives an insight into the factors that are necessary to provide higher levels of tourist satisfaction and consequent improvements to socioeconomic benefits from sailing tourism.

## Keywords

Sailing tourism; sailing tourist; marina; Kano's evaluation matrix; customer satisfaction coefficient

## 1. Introduction

Europe is a paradise for sailing tourism – it has 68,000 kilometers of coastline, 4,500 marinas with 1.75 million berths, and a total boat park of 6.3 million vessels (European Environment

Agency, 2020; Vlašić et al., 2019). As a part of the European Union's Blue Growth strategy, the sailing tourism sector is expected to contribute significantly to the economy and create more jobs (European Parliament, 2019). Sailing tourists are considered high-value visitors who have above-average spending and are considered important to the European economy. Thirty-six million citizens of the European Union regularly participate in boating activities, keeping about six million vessels in European waters (Ivanić et al., 2018). It is one of the fast-growing sectors of tourism and has experienced continued growth during the past three decades (European Parliament, 2019; Papageorgiou, 2016). During the COVID-19 pandemic, the booking requests for private yacht vacations have witnessed a double-digit increase, and a yacht charter is deemed a safer alternative for holiday seekers (Froelich, 2020). Considerable investments have been made in developing sailing tourism to meet the increasing demand for more comfort at marinas and onboard sailboats, which now come with more amenities and sophisticated navigation equipment (Sevinç & Güzel, 2018). The European Parliament suggested that more projects or programs should be focused on sailing tourism, which requires different solutions and management models compared to mass tourism (European Parliament, 2019). An increasing number of studies have investigated the topic of sailing tourism, but most of them shed light on sustainability, safety, security, and smart communication aspects, and tourist satisfaction with sailing tourism has been afforded insufficient attention (González et al., 2018; Lapko et al., 2019; Silveira et al., 2018; Trstenjak et al., 2020). Without an adequate assessment of the impact of marina attributes on tourist satisfaction, sailing destinations may not be able to map out successful marketing and development strategies and effectively increase destination attractiveness. Therefore, this research examined how marina attributes influence sailing tourist satisfaction and provided insights into the differing importance of these attributes.

Among European countries, British and Danish sailing tourists are two critical markets. As an island nation with a long and rich maritime history, the UK has a very active and vibrant water-based recreation sector. The sailing tourism sector in the UK has an overall impact of £6.5 billion on its economy, 65% growth since 2013, and supports 158,000 jobs (British Marine, 2019; Centre for Economic and Business Research, 2019; Sailing Today, 2019). In 2016, 3.5 million people (6.7% of the population) participated in a boating related leisure activity, and there has been an increase in the number of younger people participating in boating-based leisure activities on a regular basis (Hodgetts, 2017). The number of Danish sailing tourists has also been rising dramatically. The popularity of sailing in Denmark is reflected in the number of sailing clubs that amounted to 256 in 2019 and the growing membership of the Danish Sailing Union, which increased from 52,199 in 2018 to 53,009 in 2019, of which 24% is made up of women (The Danish Sailing Union, 2020).

Although the British and Danish markets are critical for European sailing tourism, no known research has adequately investigated these two markets. It remains unknown what marina attributes are more important for their sailing experiences, and if British and Danish sailing tourists have significantly different expectations for these attributes. Therefore, this research conducted independent-sample *t*-tests, adopted Kano's Evaluation Matrix (KEM), and calculated customer satisfaction coefficients to better understand these two important markets. Using KEM to compare two groups of tourists is an innovative approach of this research. Researchers and practitioners have adopted KEM to investigate customer preferences for product attributes, but its application in tourism research is still limited. Additionally, previous KEM studies only examined one group of customers instead of comparing different groups. This research applied KEM analysis to understand how British and Danish sailing tourists value various marina attributes, and to provide an alternative evaluation system to Likert scales for measuring tourist satisfaction.

The goal of this research was to analyze the attributes that create satisfying and dissatisfying experiences for the British and Danish at marina destinations. This paper thus seeks to investigate the importance attached to marina attributes by the British and Danish sailing tourists and the extent to which marina attributes contribute increasing and decreasing sailing tourists' satisfaction.

## **2. Literature review**

### ***2.1. Sailing tourism***

A multi-faceted sector, sailing tourism is the activity surrounding leisure and sail craft that are normally berthed on moorings and in marine-related locations (Scottish Enterprise, 2010). It is a form of special interest tourism, involving the use of sailboats for sports or recreation (Işik & Cerİt, 2008; Sari et al., 2016). A sailboat or sail craft is a vessel built with a sailing form that can be used for both sport, recreation and adventure and is designed to provide the right navigation and maneuvers through the use of the weight of the craft (Sariisik et al., 2011). Sailing is an activity that is engaged in as a holiday to either sailor to learn how to sail as well as for the sake of fun and enjoyment in sailboats (Caribbean Tourism Organization, 2016).

There is extant research related to sailing tourism that focuses on its sustainability aspects (Łapko et al., 2019; Trstenjak et al., 2020); challenges faced in its development (Silveira et al., 2018); safety and security (Kasum et al., 2018); smart communication (Benevolo & Spinelli, 2018); and contribution to local economies (Ivanić et al., 2018). There have also been studies that evaluated the constraints on nautical tourism (Jovanovic et al., 2013) and dimensions of yachting tourism experiences (Mikulić et al., 2015; Pipere et al., 2020). However, very few studies have examined sailing tourist satisfaction, and the impacts of marina attributes on sailing tourism experience (González et al., 2018; Lam-González et al.,

2019a, 2019b, 2020). González et al. (2018) examined the relationship between the weather and the number of nautical activities by using the ordinal logistic regression model. Weather satisfaction significantly influences sailing tourists' overall satisfaction. Similar to González et al.'s (2018) research, Lam-González et al. (2019a) found a significantly positive relationship between climatic experience and tourists' satisfaction. In another research, Lam-González (2019b) investigated tourist satisfaction with visiting Cape Verde and concluded that previous satisfactory travel experience leads to higher satisfaction levels with the sailing destination of Cape Verde. Lam-González et al. (2020) also proposed that the quality of sailing tourism and the diversity of cultural offers increase tourist satisfaction.

Sailing tourism is location-specific and occurs in remote, rural, and economically marginal areas (Scottish Enterprise, 2010), especially where it is centered around inland water bodies and thus can be a key component of regional economic development initiatives. The voyage itself is an essential part of the sailing experience, and the amenities ashore at marinas along with the sailing destination resources add to the overall sailing holiday experience (European Boating Association, 2013). Mikulić et al.'s (2015) research claims to be the first study exploring drivers of sailing tourism experience. Based on principal components and impact-asymmetry analyses, they proposed five experience dimensions that influence tourist satisfaction, including basic destination attributes, marina supporting services, onshore destination experience, charter product, and core marina services. A marina plays an important role in sailing tourism experience. It is a natural or artificial harbor for privately owned pleasure boats, which can be located on the coast, or adjacent to, or within, a river, estuary, natural harbor, lake, canal, or a gravel pit (Valuation Office Agency, 2017). The marina attributes developed by Mikulić et al. (2015) were used in this research to investigate how they influence sailing tourist satisfaction. Additionally, some other attributes, such as weather (Booth et al., 2011; Rodger et al., 2015) and crowding (Booth et al. 2011),

are also relevant to sailing experience and satisfaction levels. Many outdoor activities can be affected by weather conditions (Bentz et al. 2015; Booth et al. 2011), and crowded destinations negatively affect tourism experiences (Booth et al. 2011). Therefore, this research evaluated 14 marina attributes derived from the literature (Table 3). It is argued that these attributes can be instrumental in influencing tourist experience, with their presence or absence and quality standards determining the level of tourist satisfaction (Agyeiwaah et al., 2016).

## **2.2. *Kano's Three-Factor Theory (KTFT)***

KTFT is an enhancement of the Two-Factor Theory from the 1970s (Füller & Matzler, 2008; Matzler & Sauerwein, 2002). It is used to identify primary attributes that need improvements to increase satisfaction levels and considers the asymmetric relationship between attribute performance and overall satisfaction (Albayrak & Caber, 2013). Although KTFT has been used in many studies in marketing (Albayrak & Caber 2013; Alegre & Garau 2011; Chang et al., 2012; Füller & Matzler, 2008; Matzler et al., 2006; Palumbo, 2015), there has been relatively limited research in tourism that employing this theory to analyze attribute performance and tourist satisfaction. KTFT has been adopted to investigate a restaurant chain in Taiwan (Chen, 2014) and Taiwanese hot spring tourism (Deng, 2007). However, Mikulić and Prebežac (2016) argued that using the Kano model to conduct case-based studies decreases the generalizability of research results. They also discussed the problems of integrating the Kano model with importance-performance analysis (IPA) in tourism studies. Therefore, it is suggested that KTFT should not be limited to case studies in combination with IPA.

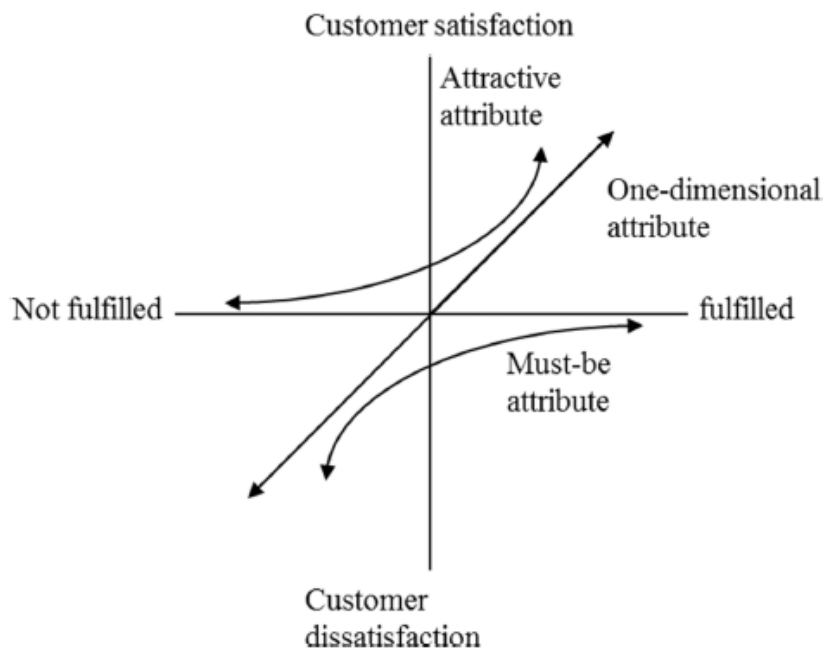
KTFT posits that tourist satisfaction is not based just on meeting the basic performance needs with tourist products (Chen & Ko, 2016; Lee, 2015). It is critical to also establish

which attributes lead to increased satisfaction, which attributes simply meet a fundamental requirement minimizing dissatisfaction and lastly which attributes add to both satisfaction and dissatisfaction (Matzler & Sauerwein, 2002). KTFT helps identify and appreciate the attributes that have the greatest influence on increasing tourist satisfaction and minimizing dissatisfaction (Matzler & Hinterhuber, 1998).

An evaluation system called Kano's Evaluation Matrix (KEM) (Table 1) was developed applying the three-factor theory to evaluate the level of customer satisfaction or dissatisfaction resulting from the presence or absence of goods and services (Palumbo, 2015). Thus, the main attributes that influence customer satisfaction were classified into the three primary factors of must-be, one-dimensional, and attractive attributes (Alegre & Garau, 2011; Chang et al., 2012; Palumbo, 2015):

- *Must-be attributes*: These basic attributes determine minimum requirements performing basic functions (Albayrak & Caber 2013; Alegre & Garau, 2011; Berman, 2005). Their absence can lead to dissatisfaction, but their presence does not result in more satisfaction (Lee, 2015; Matzler et al., 2006). The fulfilment of these will not lead to positive word-of-mouth, but not fulfilling them will result in dissatisfaction and negative word-of-mouth and may deter other tourists from purchasing the tourist product (Lee, 2015; Matzler et al., 2006).
- *One-dimensional attributes*: These are performance attributes, and their influence on satisfaction is proportional to the level of performance, which means the higher the level of performance delivered, the higher the satisfaction levels (Albayrak & Caber, 2013; Füller & Matzler 2008). These are symmetric and linear attributes, while their absence leads to dissatisfaction (Palumbo, 2015). Fulfilment of these attributes will create neither positive nor negative feelings (Lee, 2015; Matzler et al., 2006).

- *Attractive attributes*: These are excitement attributes and are not expected by consumers (Albayrak & Caber, 2013; Lee, 2015). Their absence will not lead to tourist dissatisfaction, but their presence will result in increased satisfaction (Alegre & Garau, 2011; Lee, 2015). The availability of these attributes delights tourists, which leads to tourists communicating positive word-of-mouth and long-term competitive advantage (Berman, 2005; Lee, 2015; Matzler et al., 2006).



**Fig. 1.** Kano's model of customer satisfaction. (Source: Lin et al., 2017)

Kano proposed three other factors, which are indifferent, questionable, and reverse. Customers are not bothered about indifferent attributes, while customer's attitudes are unclear regarding questionable attributes. Reverse attributes are the ones that are not desired by consumers, and their presence causes dissatisfaction, while their absence leads to satisfaction (Chang et al., 2012; Palumbo, 2015).



**Table 1.** Kano's Evaluation Matrix (KEM) (Palumbo, 2015; Pizam et al., 2016)

		<b>Dysfunctional question:</b> How do you feel if the requirement X is not present?				
		I like it that way	It must-be that way	I am neutral	I can live with it that way	I dislike it that way
<b>Functional question:</b> How do you feel if the requirement X is present?	I like it that way	Q	A	A	A	O
	It must-be that way	R	I	I	I	M
	I am neutral	R	I	I	I	M
	I can live with it that way	R	I	I	I	M
	I dislike it that way	R	R	R	R	Q

Note: A = attractive attributes, O = one-dimensional attributes, M = must-be attributes, I = indifferent attributes, R = reverse attributes, Q = questionable attributes (adapted from Kano et al., 1984)

The following two formulas based on KEM were proposed by Matzler and Hinterhuber (1998) to calculate the coefficients for increasing customer satisfaction (C1) and the coefficients for decreasing customer dissatisfaction (C2):

$$\frac{(A + O)}{(A + O + M + I)} \quad (C1)$$

$$\frac{(O + M)}{(A + O + M + I)} (-1) \quad (C2)$$

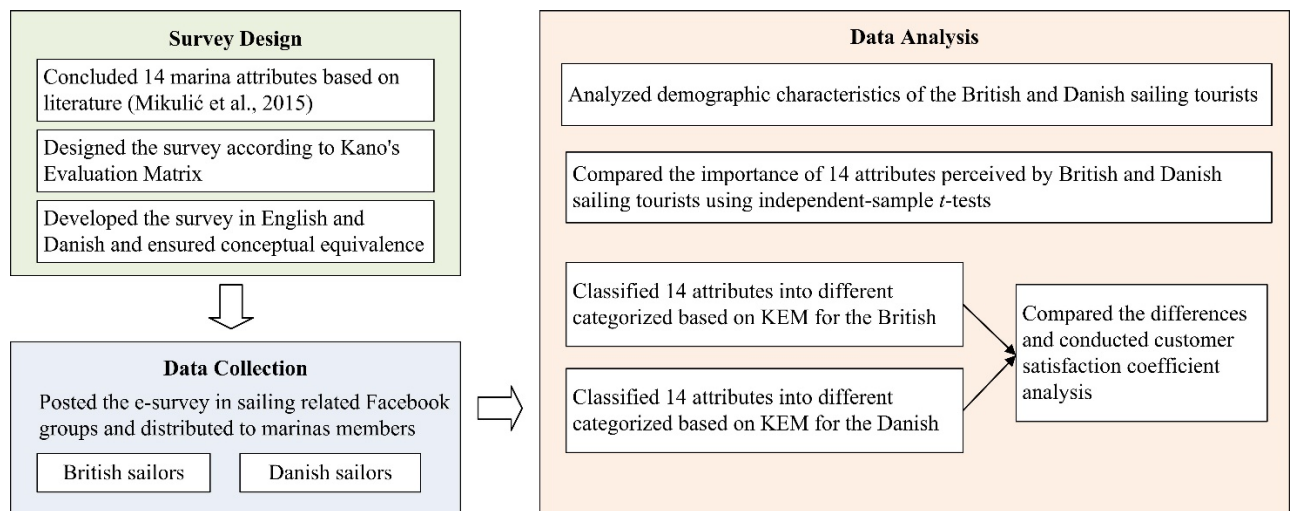
The advantage of the KTFT is that it helps not only to understand the attributes and requirements that are essential for tourist satisfaction, but also to identify the ones that exert the greatest influence on satisfaction (Matzler & Hinterhuber, 1998). Further, the classification of attributes and requirements using the KTFT can be an effective method for management decisions on product development and improvements that are informed by the understanding of how product attributes relate to customer needs (Berman, 2005; Matzler & Hinterhuber, 1998). It can thus be a powerful tool for creating products and services that are profitable and a source of competitive advantage.

### 3. Methodology

A survey questionnaire was developed based on KEM to understand how British and Danish sailing tourists perceive marina attributes. This research focus is not only because British and Danish sailing tourists are two important sailing tourism markets, but also the UK and Denmark have a large number of marinas. The UK has a coastline of approximately 17,381 km that offers a variety of sailing experiences owing to the diversity of the coastal terrain (European Commission, 2019). It is home to over 550 marinas that are located at the coast and inland (Valuation Office Agency, 2017). According to British Marine, there are 266 inland and 297 coastal marinas in the UK that come in different shapes and sizes, offering a diversity of amenities and catering to different markets and budgets (British Marine, 2017). Denmark has 350 marinas that lie in close proximity to each other and range from large and more impersonal, to small, cozy and idyllic, offering something for all sailors in Danish waters (Havneguide, 2020). Sailing tourism in Denmark has increased in popularity, and the country is estimated to have more than 57,000 sailing vessels (Havneguide, 2020; Lykke, 2010).

The questionnaire included three parts: First, participants were asked about their demographic information, such as age, gender, educational level, nationality (i.e., Britain or Denmark), educational level, and years of sailing experience. Second, 14 attributes of marina destinations derived from the literature were presented (Mikulić et al., 2015). Participants indicated their perceived importance attached to them and answered two questions (functional/dysfunctional) for each attribute (Appendix). For example, respondents were asked, *If the marina grounds are clean how does it make you feel?* (functional) and *If the marina grounds are NOT clean how does it make you feel?* (dysfunctional). The response options included *I like it that way*, *It must-be that way*, *I am neutral*, *I can live with it that way*, and *I dislike it that way* (Go & Kim, 2018; Palumbo, 2015). The survey form was

designed in both English and Danish as the target samples for this study were British and Danish sailing tourists. The questionnaire was developed in English first and then translated into Danish by a bilingual (Danish-English) member of the team. Back translation was adopted to ensure conceptual equivalence.



**Fig. 2.** Research framework

This data were collected through an e-survey, which allowed the researchers to access a wide range of participants (Blumberg et al., 2014). Surveys were distributed through Facebook groups and emails to access a wide range of potential participants. Questionnaires were posted in sailing related Facebook groups. For the British participants, the keywords "marina", "sailing", "sailors", "yacht", "yachting", "cruising", "boat", and "sailboat" were used to search Facebook groups, while for the Danish participants, the keywords "sejle", "lystbåd", "havn", "sejlads", "sejlbåd", "sejlkлуб", "bådelaug", and "båd" were inserted. A total of 71 British and 35 Danish Facebook groups were found to circulate the surveys. As the UK and Denmark have a large number of marinas, questionnaires were also emailed to 163 members of British marinas and 153 members of Danish marinas. These contacts were found from the website *A Directory of UK Marinas* and *Danish Harbour Pilots*. After the data cleaning process, 377 responses were deemed valid data cases. The qualification of

participants was verified based on the years of sailing experience and demographic information provided in the survey responses.

Independent-sample *t*-tests were conducted to detect differences in the perceptions of British and Danish sailing tourists of marina attributes. This research used cross-tabulations to analyze each functional-dysfunctional question pair according to KEM. Additionally, customer satisfaction coefficients were calculated to quantify the extent to which a marina attribute increases satisfaction if fulfilled and decreases dissatisfaction if unfulfilled.

## 4. Results

### 4.1. Demographic profile

The demographic characteristics of the British and Danish participants are shown in Table 2. About 77% of British and 65% of Danish sailing tourists were males. More males involving in sailing tourism aligns with the sailing tourist profile in the literature (Weed & Bull, 2009). The largest group of participants was between 45 and 64 years old: 53.1% of British and 52.2% of Danish sailing tourists. More than half of the participants had 20 or more years of sailing experience, showing a high level of attachment to this pursuit.

**Table 2.** Demographic information

Variables		British sailing tourists (%) N = 268	Danish sailing tourists (%) N = 107
Gender	Male	77.6	65.3
	Female	22.4	34.7
Age	18-24	8.3	7.5
	25-34	10.1	7.9
	35-44	9.2	19.0
	45-64	53.1	52.2
	65+	19.3	13.4
	Education level	High school	19.2
	College	13.8	15.7
	Vocational training or diploma	24.8	28
	Bachelor's degree	23.9	26.7
	Master's degree or above	18.3	20.6
	Less than a year	5.5	5.2

Years of sailing experience	1 to 4 years	14.7	11.2
	5 to 9 years	7.3	10.4
	10 to 14 years	7.3	11.9
	15 to 19 years	3.7	11.2
	20 years or more	61.5	50

#### 4.2. *Importance of marina attributes*

To better understand how British and Danish perceived the 14 marina attributes, independent-sample *t*-tests were used to compare their ranking responses (Table 3). First, the normality of the data was analyzed. A Shapiro-Wilk's test ( $p > 0.05$ ) (Razali & Wah, 2011; Shapiro & Wilk, 1965) and a visual inspection of their histograms, normal Q-Q plots and box plots showed that the importance scores were approximately normally distributed for both the British and Danish.

There were some similar perceptions between the British and Danish sailing tourists. They all attached the most importance to clean sanitary facilities, which satisfy basic needs. The facilities, including toilets, showers, and washing facilities, enable sailing tourists to have a comfortable rest after a sailing trip. The two groups considered weather to be a crucial marina attribute. They enjoy sailing on good weather days but may face danger when thunderstorms or tornadoes occur. Access to hot and cold water guarantees that sailing tourists can get resupplied if they need to, so both the British and Danish attached more importance to this attribute. They evaluated the attitudes of marina employees, as well as berth width and functionality as important attributes because excellent service plays a critical role in creating pleasant sailing experiences, and good berths allow sailors to moor their sail boats safely and easily.

Interestingly, both the British and Danish attached less importance to the recreational aspects of marinas, such as grocery shopping opportunities, restaurants within marina grounds, level of crowding, shopping and restaurant opportunities, tourist information center,

and culture and entertainment opportunities. These attributes were evaluated with an average of less than 3.5. Since having supplements and getting a good rest are the primary purposes for staying at a marina, the recreational aspects are less demanded.

Some significant differences between these two groups of sailing tourists were found. Compared to the British (*Mean* = 3.82, *Standard Deviation* = 0.85), the Danish attached significantly less importance to personal safety ( $M = 3.06$ ,  $SD = 1.08$ ),  $t(273) = -5.51$ ,  $p < 0.001$ . However, the Danish paid significantly more attention to water and electrical connections:  $M_{\text{Danish}} = 3.94$ ,  $SD_{\text{Danish}} = 0.89$ ;  $M_{\text{British}} = 3.70$ ,  $SD_{\text{British}} = 0.87$ ,  $t(289) = 2.07$ ,  $p < 0.05$ . Clean marina grounds were also a more important marina attribute for Danish compared to British sailing tourists:  $M_{\text{Danish}} = 3.91$ ,  $SD_{\text{Danish}} = 0.78$ ;  $M_{\text{British}} = 3.59$ ,  $SD_{\text{British}} = 0.81$ ,  $t(279) = 3.11$ ,  $p < 0.001$ .

**Table 3.** Importance of attributes perceived by British and Danish sailing tourists

Marina attributes	Perceived importance				p values
	British		Danish		
	Mean	SD	Mean	SD	
Clean sanitary facilities	4.15	0.74	4.18	0.86	0.76
Weather	3.86	0.87	3.79	0.91	0.55
Access to hot and cold water	3.82	0.81	3.63	0.98	0.12
Personal safety	3.82	0.85	3.06	1.08	0.00***
Service attitudes of marina employees	3.80	0.74	3.93	0.79	0.14
Berth width and functionality	3.75	0.72	3.72	0.92	0.80
Water and electrical connections	3.70	0.87	3.94	0.89	0.04*
Clean marina grounds	3.59	0.81	3.91	0.78	0.00***
Grocery shopping opportunities	3.26	0.81	3.13	0.86	0.25
Restaurants within marina grounds	2.98	0.80	2.97	0.89	0.93
Level of crowding	2.90	0.61	3.05	0.73	0.22
Shopping and restaurant opportunities	2.89	0.82	3.05	0.96	0.23
Tourist information center	2.86	0.83	3.06	0.92	0.09
Culture and entertainment opportunities	2.83	0.82	2.74	0.86	0.44

Note: \* significance level at 0.05, \*\*\* significance level at 0.001.

### **4.3. Categorization of marina attributes based on KEM**

According to the cross-tabulations and KEM (Table 1), the percentages of A, O, M, I, R, and Q for each attribute were calculated, and the highest percentage stands for which category the attribute belongs to (Table 4). The 14 attributes were classified into attractive (A), one-dimensional (O), must-be (M), and indifferent (I), and no attributes were reverse (R) or questionable (Q).

For service attitudes of marina employees, O accounted for 54.55% among the six categories, so this attribute for the British was one-dimensional; the highest percentage for the Danish was M (62.35%), suggesting that the service attitudes were a must-be attribute. Accessibility to hot and cold water was also a one-dimensional marina attribute for the British but a must-be for the Danish. The different categories revealed that the British and Danish sailing tourists had distinctive demands for these two marina attributes. For the British, their satisfaction levels had a linear relationship with service attitudes, as well as accessibility to hot and cold water. Positive attitudes (e.g., willingness to serve and courteous mannerisms) and good accessibility to hot and cold-water lead to higher satisfaction, while bad attitudes and poor accessibility result in dissatisfaction. For the Danish, good service attitudes and water accessibility did not significantly increase their satisfaction levels, but their absence caused significant dissatisfaction.

Grocery shopping facilities within marinas had different impacts on the satisfaction levels of the British and Danish. The British considered grocery shopping facilities an indifferent attribute, which did not increase satisfaction nor decrease dissatisfaction, while the variety of shopping facilities increased the Danish's satisfaction, and the lack of shopping opportunities did not lead to dissatisfaction.

The British and Danish also had significantly different perceptions of personal safety and weather. The British more emphasized personal safety as it was a must-be attribute for them, suggesting that if they do not feel safe at marinas, they are disappointed. The Danish were not dissatisfied with marinas just because there were safety concerns, but if marinas provided safe environments, such as with good lighting, fencing around marina grounds, and limited access for unauthorised persons, they were more satisfied. The British treated weather as an attractive attribute, while the Danish thought it was indifferent. The differing attitudes of the British and Danish indicated that the latter was less concerned about safety.

The KEM categorization demonstrated the common perceptions of British and Danish sailing tourists. Nine out of the 14 marina attributes were classified into the same category. Berth width and functionality, water and electricity connections for boats, and clean marina grounds were all must-be attributes, indicating that they are the basic functions or services of marinas. Good performance of these attributes does not result in satisfaction, but their absence causes dissatisfaction. As a one-dimensional attribute, the sanitary facility had a linear relationship with British and Danish sailing tourist satisfaction levels. The marina attributes related to recreation belonged to the category of attractive. The absence of these attributes does not lead to dissatisfaction, but excellent performance can increase satisfaction.

The categorization was consistent with the findings of the importance of marina attributes. The attributes classified into the one-dimensional and must-be categories were the ones attached with higher importance (Table 3). Since people attached more importance to them, they will feel disappointed and dissatisfied if the performance of these attributes does not meet expectations. The least important attributes were plotted in the attractive category suggesting that people do not fully expect their presence, but if a marina offers these facilities or services, sailing tourists will be more satisfied with their trips.



**Table 4.** Categorization of marina attributes by KEM (unit: %)

No.	Marina attributes	Sailing tourists	A	O	M	I	R	Q	Category
1	Service attitudes of marina employees	British	5.05	54.55	34.34	6.06	0.00	0.00	One-dimensional
		Danish	3.14	30.59	62.35	3.92	0.00	0.00	Must-be
2	Berth width and functionality	British	14.61	25.84	49.44	8.99	0.00	1.12	Must-be
		Danish	10.08	21.43	51.68	13.87	1.26	1.68	Must-be
3	Clean sanitary facility	British	2.30	57.47	36.78	2.30	0.00	1.15	One-dimensional
		Danish	2.64	49.35	44.49	0.88	0.00	2.64	One-dimensional
4	Accessibility to hot and cold water	British	9.52	40.48	39.29	9.52	0.00	1.19	One-dimensional
		Danish	18.10	26.90	43.50	9.30	0.50	1.70	Must-be
5	Water and electricity connections for the boat	British	12.05	32.53	43.37	12.05	0.00	0.00	Must-be
		Danish	8.17	37.50	39.91	12.98	1.44	0.00	Must-be
6	Tourism information center	British	59.26	3.70	9.88	27.16	0.00	0.00	Attractive
		Danish	39.41	6.90	25.12	27.09	0.49	0.99	Attractive
7	Restaurants within the marina grounds	British	51.25	8.75	16.25	23.75	0.00	0.00	Attractive
		Danish	44.05	2.48	22.77	29.70	0.50	0.50	Attractive
8	Clean marina grounds	British	1.25	22.50	57.50	12.50	6.25	0.00	Must-be
		Danish	3.98	23.88	61.69	7.96	0.00	2.49	Must-be
9	Grocery shopping facilities within the marina	British	31.95	16.67	19.33	32.05	0.00	0.00	Indifferent
		Danish	43.50	4.50	33.00	15.50	3.00	0.50	Attractive
10	Personal safety	British	16.89	33.76	36.36	11.69	0.00	1.30	Must-be
		Danish	39.90	12.12	23.73	8.59	13.64	2.02	Attractive
11	Cultural and entertainment activities	British	65.33	6.67	9.33	18.67	0.00	0.00	Attractive
		Danish	58.16	2.04	10.71	20.92	7.65	0.52	Attractive
12	Shopping and restaurants in surrounding areas	British	56.76	2.70	13.51	25.68	1.35	0.00	Attractive
		Danish	38.78	2.55	26.02	27.55	3.57	1.53	Attractive
13	Weather	British	35.14	39.19	4.05	21.62	0.00	0.00	Attractive
		Danish	8.67	8.16	33.67	48.48	1.02	0.00	Indifferent
14	Level of crowding	British	69.44	1.39	6.94	18.06	4.17	0.00	Attractive

Note: A = attractive attributes, O = one-dimensional attributes, M = must-be attributes, I = indifferent attributes, R = reverse attributes, Q = questionable attributes

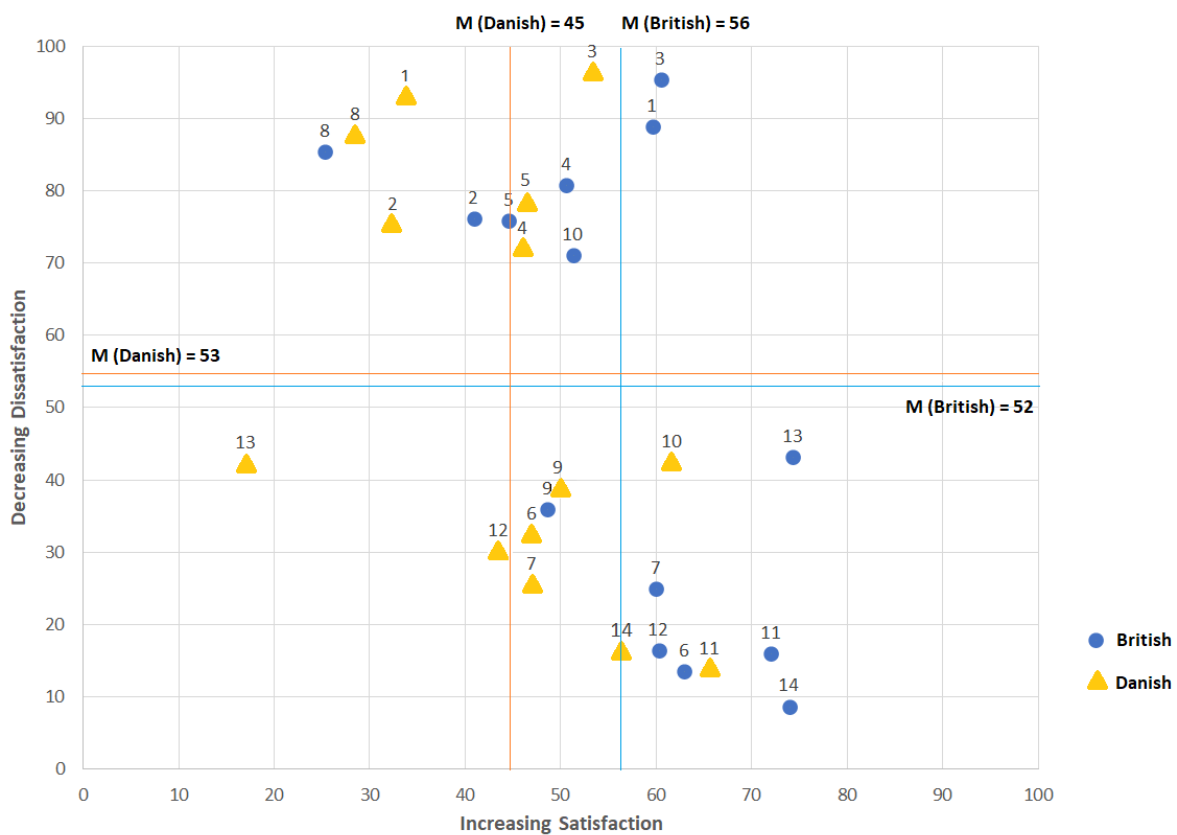
#### 4.4. Customer satisfaction coefficients

Based on Matzler and Hinterhuber's (1998) formulas, the customer satisfaction coefficients were calculated to quantify how the marina attributes differently impacted British and Danish sailing tourist satisfaction levels. The data were magnified 100 times, and the absolute values were adopted. The numbers indicated how the presence of each attribute increased the degree of satisfaction and decreased the degree of dissatisfaction. The data means ( $x_{\text{British}} = 56$ ,  $y_{\text{British}} = 52$ ;  $x_{\text{Danish}} = 45$ ,  $y_{\text{Danish}} = 53$ ) were used to plot the numbers in the four quadrants (Chang et al., 2012).

Figure 3 shows the results and demonstrates how strongly a marina attribute increases satisfaction if fulfilled and decreases dissatisfaction if unfulfilled. For example, less crowding ( $x = 74$ ,  $y = 9$ ) and more cultural and entertainment activities ( $x = 72$ ,  $y = 16$ ) dramatically increased British sailor satisfaction, while these attributes had less influence on reducing dissatisfaction. Clean marina grounds ( $x = 25$ ,  $y = 85$ ) significantly decreased British sailor dissatisfaction, but did not necessarily lead to their satisfaction.

The customer satisfaction coefficient analysis also indicated the significant differences between British and Danish sailing tourists. Compared with the Danish ( $x_{\text{Danish}} = 34$ ), the British ( $x_{\text{British}} = 60$ ) felt more satisfied if marina employees had friendly smiles and provided excellent service. Although good weather decreased the two groups' dissatisfaction to a similar extent ( $y_{\text{British}} = 43$ ,  $y_{\text{Danish}} = 42$ ), it more effectively increased the satisfaction levels of the British compared to the Danish ( $x_{\text{British}} = 74$ ,  $x_{\text{Danish}} = 17$ ).

Furthermore, the statistics revealed the attributes that most effectively increased satisfaction and decreased dissatisfaction for each category. For the British Danish, less crowding ( $x_{\text{British}} = 74$ ,  $x_{\text{Danish}} = 56$ ) and cultural and entertainment activities ( $x_{\text{British}} = 72$ ,  $x_{\text{Danish}} = 66$ ) led to higher degrees of increase in satisfaction. Clean sanitary facility ( $y_{\text{British}} = 95$ ,  $y_{\text{Danish}} = 96$ ), service attitudes of marina employees ( $y_{\text{British}} = 89$ ,  $y_{\text{Danish}} = 93$ ), and clean marina grounds ( $y_{\text{British}} = 85$ ,  $y_{\text{Danish}} = 88$ ) more readily decrease dissatisfaction.



**Fig. 3.** Display of customer satisfaction coefficient analysis

Note: 1-14 stands for the marina attributes listed in Table 4.

## 5. Conclusions and implications

### 5.1. Conclusions

This research investigated the marina attributes that impact the satisfaction of British and Danish sailing tourists by comparing perceived attribute importance, conducting KEM analysis, and calculating customer satisfaction coefficients. Based on the KEM analysis, 14

marina attributes were classified into one-dimensional, must-be, attractive, and indifferent categories. The KEM analysis can supplement importance analysis by giving insights into the two essential components of satisfaction levels – increasing satisfaction and decreasing dissatisfaction. Additionally, customer satisfaction coefficients quantify how the presence of each attribute increases the degree of satisfaction and decreases the degree of dissatisfaction.

The top five crucial marina attributes for the British included clean sanitary facilities, weather, access to hot and cold water, personal safety, and service attitudes of marina employees. The Danish had slightly different perceptions: Clean sanitary facilities, water and electrical connections, service attitudes of marina employees, clean marina grounds, and weather were the most important marina attributes to them. The findings indicated that these two groups all valued clean sanitary facilities, service attitudes of marina employees, and weather. In terms of significant differences, the British were more concerned about their personal safety. The Danish focused more on the hygiene of the marina, including both sanitary facilities and marina grounds.

The KEM analysis also showed some common assessments in the two groups: Clean sanitary facilities was the most effective attribute affecting sailing tourist satisfaction. As a one-dimensional attribute, the cleanness of sanitary facilities had a linear relationship to people's satisfaction levels, concurrently increasing satisfaction and decreasing dissatisfaction. Berth width and functionality, water and electricity connections for boats, and clean marina grounds were must-be attributes. If the performance of these attributes does not meet sailing tourist expectations, they are disappointed and dissatisfied. The attributes related to recreation were attractive, indicating that their absence did not result in dissatisfaction, but their presence increased satisfaction.

The British and Danish had significantly different perceptions of five marina attributes, including service attitudes of marina employees, accessibility to hot and cold water, grocery shopping facilities within marinas, personal safety, and weather, indicating varying demands and expectations. The British placed greater emphasis on safe sailing experience, while the Danish expected marinas to offer shopping opportunities and more service amenities.

## **5.2. Theoretical implications**

From the theoretical perspective, this research contributes to understanding the emerging phenomenon of sailing tourism as well as the two important market segments. Previous studies mainly discussed the sustainability and safety aspects of sailing tourism (Łapko et al., 2019; Kasum et al., 2018), and very few investigated the satisfaction of sailing tourists. The inadequate research on this topic may pose obstacles to its future development. This research bridged the previous literature gap by determining the impacts of marina attributes on sailing tourist satisfaction. Special focus was paid to British and Danish sailing tourists who play a crucial role in European sailing tourism (Centre for Economic and Business Research, 2019; The Danish Sailing Union, 2020). The findings reveal commonalities and significant differences in these two markets of sailing tourists.

Second, this investigation extends the application of KEM to compare the differences between markets. Scholars tend to use *t*-tests, ANOVA, and chi-square analysis to compare group differences. For example, Hui et al. (2007) adopted paired *t*-test to analyze the satisfaction of tourists who came from four geographical regions (i.e., Europe, Asia, Oceania and North America). Albayrak et al. (2019) identified four sub-segments of scuba diving holidaymakers and compared them using ANOVA tests. Srihadi et al. (2016) used Chi-square statistics to compare four groups of foreign visitors to Jakarta. However, there are some

limitations associated with these methods. For *t*-tests and ANOVA, the comparisons are based on people's evaluation of products or services using a Likert scale. Likert scales was criticized by some researchers because different cultures display varying response styles (Dolnicar et al., 2011). Significant differences may result from their response styles instead of reflecting true discrepancies in their attitudes or perceptions. Chi-square analysis is highly sensitive to sample size. Although the findings show statistically significant differences, these differences are often not substantively significant. Therefore, there is scope for introducing other and newer methods for comparing group differences. One of these opportunities is to apply KEM. Survey questions based on KEM create scenarios and can better demonstrate people's attitudes towards features of products or services. KEM analysis provides an alternative evaluation system (Figure 3) to Likert scales for understanding people's differing perceptions.

Third, the methodology of this research lays a foundation for future studies that wish to adopt this approach. It is particularly useful for developing new products or services. KEM is a powerful tool for creating profitable products or services and has been widely used in consumer behaviour and marketing studies. For example, it has been integrated with SERVQUAL into quality function deployment to provide excellent services (Tan & Pawitra, 2001). Furthermore, it has been adopted to develop new services, like a mobile app for tourists visiting Italian cities (Palumbo, 2015). It also has the potential for examining the development of products or services after COVID-19. Different features (e.g., touchless service, self-service, and government certified service) could be presented to understand which would play the most important roles in satisfying potential customers.

### ***5.3. Practical implications***

The findings of KEM analysis and the customer satisfaction coefficients have implications for future strategic management decisions for stakeholders of marina destinations (e.g., local planning authorities, marina destination organizations, and others charged with coastal development and protection). The categorization of the 14 marina attributes offers insights into how to strengthen the pull factor of marinas by optimizing their attributes. The findings will benefit the sailing industry and local economies. First, marina destinations should provide clean sanitary facilities because cleanliness effectively increases sailing tourist satisfaction and decreases dissatisfaction. Second, the three-common must-be attributes, including berth width and functionality, water and electricity connections for boats, and clean marina grounds are "bottom-lines," which meet sailing tourist expectations. Marina destinations should use attractive attributes to gain competitive advantage, including tourism information centers, restaurants within marina grounds, grocery shopping facilities within marinas, personal safety, cultural and entertainment activities, shopping and restaurants in surrounding areas, and less crowding.

The differences between British and Danish sailing tourists reflect different demands and expectations. The British are more concerned about safety while on sailing trips, so marina destinations should provide good lighting, fencing around marina grounds, and limited access for unauthorized people. The Danish are more interested in different recreational opportunities. Therefore, to attract Danish sailing tourists, destinations should offer more cultural and entertainment activities, as well as shopping and restaurants in surrounding areas. Additionally, marinas should offer clean environments (i.e., clean sanitary facilities and clean marina grounds) as the Danish are more concerned about hygiene.

The findings of the study also have significant implications for government tourism policymakers as it identifies marina attributes that are essential (must-be and bottom-lines) to

satisfy sailing tourists. With marina's functioning within the regulatory framework established by governments, these could help governments in formulating regulations that require marinas' to provide those attributes identified by the study as significant for customer satisfaction. These can also be incorporated into the membership requirements of sailing and marina association in Europe.

## **6. Limitations and future research needs**

The research focused on two main markets, the British and Danish. The satisfaction of sailing tourists from other countries needs to be investigated to have a more holistic view of the sailing tourism market. Additionally, the sailing tourists in this research were the ones who owned sailboats and went on vacations using those boats at marinas. There are other types of sailors, such as sailors during a competition and residents who own marina berths. As the different types could impact sailor expectations and needs, future studies should conduct KEM analysis and understand how the marina attributes impact these sailors' satisfaction.

Another limitation of this research is volunteer sampling, which potentially causes some bias because participants may over-represent individuals with similar characteristics (Saunders et al., 2016). People decided whether they wanted to participate in this research, so and it tended to attract those with a genuine interest and greater involvement in sailing. To overcome this limitation, the researchers attempted to approach various relevant groups by posting survey questionnaires in Facebook groups and emailing to marina members.

It is also suggested that future studies should conduct focus groups or in-depth interviews, along with the KEM survey, to produce a more comprehensive understanding of sailing tourist expectations, desired experiences, and satisfaction. A mixed-method study will enable



researchers to not only quantify participant attitudes but also to obtain explanatory answers to explore which priority destination attributes should be enhanced.

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