

Exploring the roles of hotel wellness attributes in customer satisfaction and dissatisfaction: application of Kano model through mixed methods

Roles of hotel
wellness
attributes

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Abstract

Purpose – This paper aims to explore the underlying structure of wellness in upper-upscale and luxury hotels and the roles wellness attributes play in customer satisfaction and dissatisfaction.

Design/methodology/approach – This study uses a mixed methods approach consisting of content analysis and social media analytics. In Study 1, the authors integrate and review the structure of wellness attributes by conducting a literature review on prior research on wellness and analyzing websites of upper-upscale and luxury hotels. In Study 2, the authors implement text analytics and regression analysis to determine the roles of wellness attributes in customer satisfaction and dissatisfaction by examining the final data gathered from 141,973 reviews of 226 upper-upscale and luxury hotels in NYC.

Findings – This research introduces the underlying structure of wellness in the upper-upscale and luxury hotels. Findings demonstrate a significant relationship between wellness attributes and customer satisfaction/dissatisfaction. This study shows each wellness attribute's specific roles in customer satisfaction and dissatisfaction through the Kano model.

Research limitations/implications – The current study extends the research on wellness by discovering the underlying structure of wellness in the upper-upscale and luxury hotels. Based on the Kano Model, the study reveals specific roles of wellness attributes regarding their dichotomous impact on customer satisfaction and dissatisfaction. The study makes a novel approach to the topic of wellness through a mixed methods approach consisted of content analysis and social media analytics. Analyzing online customer reviews derived from TripAdvisor.com, the study provides an in-depth insight and understanding of customers' perceptions of wellness attributes.

Practical implications – The study guides hotel operators to perform wellness attributes by defining the unique roles of wellness attributes in customer satisfaction and dissatisfaction. Using the findings of the current study, hotel operators can prioritize wellness attributes regarding their core strategies and provide satisfying wellness attributes to customers.

Originality/value – Prior research merely focuses on hotels in wellness destinations or wellness-focused hotels with a lack of research on wellness offered in the general lodging industry. This research fills the gap by discovering the underlying wellness structure embedded in the general lodging industry, specifically in the upper-upscale and luxury hotels.

Keywords Satisfaction, Wellness, Dissatisfaction, Kano model, Mixed methods, Text analysis

Paper type Research paper



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Introduction

Wellness is ranked as one of the top ten Global Human Capital Trends by Deloitte Insights (Agarwal *et al.*, 2018). Customers of today make purchases and consumptions on wellness-related products or services, and, aligned with new consumer trends, major hotel brands initiate wellness marketing strategies and promotions. For example, Hilton offers a personalized in-room fitness service called “Five Feet to Fitness” (Hilton, 2020), and JW Marriott uses the phrase “Be Present in Mind, Nourished in Body, and Revitalized in Spirit” to emphasize their services’ wellness orientation (JW Marriott, 2020). Wellness has become a key trend in the hospitality industry, impacting customers’ overall experience and satisfaction (Hospitalitynet, 2019).

Upper-upscale and luxury hotels provide a broad selection of wellness attributes to satisfy customers’ high expectations. Customers strictly evaluate upper-upscale and luxury hotels’ attributes regarding the premium price they pay (Dolnicar, 2002). Upper-upscale and luxury hotels aim to provide the highest quality service and differentiated services to delight their customers. For instance, some upper-upscale and luxury hotels offer distinctive wellness attributes such as yoga classes, meditation gears, in-room spas, personal fitness training and infinity pools (Smith *et al.*, 2010). Likewise, upper-upscale and luxury hotels attempt to enhance customer satisfaction by using wellness attributes (Chi *et al.*, 2020; Mueller and Kaufmann, 2001).

Customer satisfaction is widely considered a key indicator of business success that contributes to brand loyalty and behavior intentions (Oliver, 1996). Previous studies have examined customer satisfaction antecedents, such as service evaluation (Lee *et al.*, 2019) and perceived value and quality (González-Mansilla *et al.*, 2019; Lai *et al.*, 2018; Nunkoo *et al.*, 2017). Prior research also investigated how to implement effective hotel service attributes that enhance customer satisfaction (Bowen and Shoemaker, 2003; Kim and Perdue, 2013). Studies broadened these findings by implementing a two-factor theory or Kano model to present each hotel service attribute’s disparate impact on customer satisfaction and dissatisfaction while introducing diverse research methods (e.g. critical incident technique, importance-performance analysis, penalty-reward contrast analysis) (Gerdt *et al.*, 2019; Lu and Stepchenkova, 2012; Mikulić and Prebežac, 2011). These continuous efforts reveal the specific roles of hotel service attributes in not only customer satisfaction but also dissatisfaction (Mikulić and Prebežac, 2011). In particular, the Kano model is one of the popular satisfaction theories (Kano *et al.*, 1984) used to interpret diverse relationships between hotel service attributes and customer satisfaction and dissatisfaction, such as linear, reverse-linear, nonlinear and non-significant relationships (Mikulić and Prebežac, 2016).

Recently, online hotel reviews have gained much attention because these customer opinions are publicly available on social media and provide diverse customer information (e.g. demographics, travel purposes and overall star ratings; Chatterjee, 2001). For example, recent studies used online hotel reviews to have a better understanding of customer perceptions toward hotel services (Lee *et al.*, 2017; Lee *et al.*, 2019; Li *et al.*, 2020) and the relationship between guest experience and satisfaction (Xiang *et al.*, 2015). While consumers continue to create and share their service experience and various opinions on social media, surprisingly, this valuable resource has not been used in prior hotel wellness research.

Previous studies on wellness in the hospitality context merely investigated hotels in wellness destinations or wellness-focused hotels (Chen *et al.*, 2013a, 2013b; Huh *et al.*, 2019; Mueller and Kaufmann, 2001; Smith and Puczko, 2014). While hotels in the general lodging industry adopt wellness attributes to allure more customers to their properties, there is a lack of research on wellness in the general lodging industry, specifically in the

upper-upscale and luxury hotel context (Chi *et al.*, 2020; Smith *et al.*, 2010). Therefore, the purpose of the current study is to explore the underlying structure of wellness attributes and examine their impact on customer satisfaction/dissatisfaction in the upper-upscale and luxury hotels. Accordingly, two research questions proposed for the research are as follows:

- RQ1.* What is the underlying structure of wellness attributes perceived by customers of upper-upscale and luxury hotels?
- RQ2.* Does each wellness attribute have a unique role in developing customer satisfaction and dissatisfaction in the upper-upscale and luxury hotels?

In response to these questions, this study derives secondary data from previous literature, hotel websites and social media to explore the structure of wellness and wellness attributes' impact on customer satisfaction and dissatisfaction. We focused on finding the underlying structure of wellness attributes in the upper-upscale and luxury hotels through the content analysis of prior literature and hotel websites. We also conducted social media analytics (i.e. text analytics and regression analysis) to examine the roles of wellness attributes in customer satisfaction and dissatisfaction by analyzing online reviews from TripAdvisor.com.

The current study has a theoretical contribution to revealing the underlying structure of wellness in the upper-upscale and luxury hotel context. Moreover, this study discovers the unique roles of wellness attributes in customer satisfaction and dissatisfaction by applying the Kano model. This study makes an initial approach to the topic with a mixed methods approach, including content analysis and social media analytics. The integration of different analysis complements and explains each study's undiscovered findings caused by a weighted focus on either subjective opinions or representative statistical results (Ivankova *et al.*, 2006; Mordue *et al.*, 2020). From a practical perspective, the findings on the unique roles wellness attributes play in customer satisfaction and dissatisfaction can guide hotel operators to build effective strategies using wellness attributes. The study also reveals the importance of monitoring customers' perceptions of wellness to enhance customers' overall experience in the upper-upscale and luxury hotels.

Research background

Wellness in the hospitality industry

Wellness is an emerging trend that plays a critical role in customers' purchase decisions and service evaluations (Agarwal *et al.*, 2018). Wellness and health are "a state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity" (WHO, 1948, p. 1). This definition exemplifies that customer perception of being healthy shifted from not being ill to be in good condition in various aspects of health. Dunn (1959, p. 448) emphasizes the importance of holistic wellness of one's life and argues, "the individual is a total personality consisting of a continuum of body, mind, and spirit within an ever-changing environment and flow of events". Ardell (1977) suggests a new model proposing four distinctive areas in which a person can achieve wellness: nutritional awareness, stress management, physical fitness and social and environmental sensitivity. Beyond these factors, some researchers suggest additional elements to the definition, such as occupational (Croese *et al.*, 1992; Hettler, 1980; Leafgren, 1990) or psychological wellness (Adams *et al.*, 1997).

In the hospitality industry, hotel operators position their hotels in wellness destinations and offer wellness attributes in their properties (Smith and Puczko, 2014). Previous studies investigate hotels in specific wellness destinations, such as Switzerland and Taiwan, to

categorize wellness attributes and measure their importance (Chen *et al.*, 2013a, 2013b; Mueller and Kaufmann, 2001). Smith and Puczko (2014) introduce examples of hotels at wellness destinations in Asia and Europe that adopt large-scale spas and other wellness facilities as their core services. In a more recent study, Ahn and Back (2019) view wellness value and customer experiences as antecedents of customer satisfaction in the cruise industry. Ahn *et al.* (2019) group resort experiences into sensory, affective, behavioral and intellectual experiences to measure how they impact customers' need satisfaction and wellbeing. In a similar vein, Lee *et al.* (2018) focus on a particular aspect of a hotel, which enhances guests' emotional wellness. Finally, Chi *et al.* (2020) define the notion of wellness hotels and develop a scale to measure the wellness level of wellness-focused hotels. Despite the broad range of studies on wellness, there is still a lack of research discovering the underlying structure of wellness attributes and their impact on customer satisfaction and dissatisfaction in the general lodging industry, specifically in the upper-upscale and luxury hotels.

In this study, wellness refers to "a state of health featuring the harmony of body, mind, and spirit, with self-responsibility, physical fitness/beauty care, healthy nutrition/diet, relaxation/meditation, mental activity/education and environmental sensitivity/social contacts as fundamental elements" (Mueller and Kaufmann, 2001, p. 6). The definition is one of the first definitions of wellness attributes stated in the hospitality and tourism context. According to the definition and wellness attribute categorization (Mueller and Kaufmann, 2001), we synthesize wellness attributes into six categories: physical fitness; beauty care; nutrition and diet; mental activity and education; rest and meditation; and social contacts and environmental sensitivity.

Table 1 demonstrates the six wellness attributes. Physical fitness attributes (e.g. fitness center, exercise, swimming pool, etc.) are activities that improve cardiovascular fitness, flexibility and strength (Leafgren, 1990). Beauty care attributes (e.g. spa, body or facial massage, aroma treatments, etc.) are for healing and beauty treatments (Smith *et al.*, 2010). Nutrition and diet attributes (e.g. nutrition, vegetables, detox, toxin-free food, etc.) offer healthy dietary choices that support nutritional balance (Hettler, 1980). Mental learning and education attributes (e.g. seminar, exhibitions, sessions, etc.) are creative activities and inspiring environments to provide new experiences and knowledge (Hettler, 1980). Rest and meditation attributes (e.g. yoga, sleep, quiet environment, etc.) provide relaxation, mind-control and meditation services to aid customers' stress management (Ardell, 1977). Social contacts and environmental sensitivity (social and environmental) attributes (e.g. nature, scenery, garden, etc.) are positive relationships with the natural environment or with others in the community environment (Hettler, 1980). The six wellness attributes of the wellness model incorporate wellness attributes offered in the general lodging industry.

Upper-upscale and luxury hotels provide a wide range of wellness attributes. Customers of upper-upscale and luxury hotels have high expectations from these hotels regarding the premium prices (Dolnicar, 2002; Wu and Yang, 2018). Dolnicar (2002) states that customers of luxury hotels evaluate services more strictly than customers of other hotel scales. For instance, upper-upscale and luxury hotel customers tend to have higher expectations on the quality of services (e.g. pleasant atmosphere and comfort) than essential services (e.g. cleanliness of the room). To be competitive in the market, these hotels differentiate their services by providing exclusive wellness attributes such as spa, yoga class, personal fitness training and meditation (Smith *et al.*, 2010; Wu and Gao, 2019). Due to the difference in customers' expectations and hotel investment, wellness attributes in the upper-upscale and luxury hotels can differ from the other lodgings (Huh *et al.*, 2019). Chi *et al.* (2020) state that wellness in hotels should be viewed not only as a hotel *per se* but also products and services

Current study	Chen <i>et al.</i> (2013a)	Chen <i>et al.</i> (2013b)	Gustavo (2010)	Heung and Kucukusta (2013)
Physical fitness	Instructions for water aerobics Instructions for fitness exercise Instructions for weight control	Aquatic workout guidance Fitness exercise guidance Weight control guidance	Fitness and gym services	Excellent recreation facilities Qualified health and wellness centers
Beauty care	Herbal bath Massage Rehabilitation Instructions for hot spring therapies Medication consultation Therapy Oil massage Exfoliating services	Hot spring therapy guidance Medication consultation Traditional healing Essence oil massages Exfoliation services Butler care service Complementary therapy Massage Herbal bath Post-surgery recovery care	Massage Body treatment Facial treatment Manicure Pedicure Aesthetic medicine Hairdresser service	High-quality therapeutic services and practitioners Traditional Chinese medicine/treatment
Nutrition, diet	Toxin-free or detox food ingredients Healthy meals Gourmet cuisines prepared with local food	Local ingredients-based cuisines Non-toxic or detoxification food ingredients		Healthy cuisine
Mental activity, education	Stationed seminar and enlightenment with religious or spiritual mentors Mental health counseling Relaxing learning atmosphere Reading clubs Art exhibitions Music performances Do-it-yourself group activities	Relaxed learning atmosphere Book clubs Art exhibitions Musical performances Psychological consultation Enlightenment lectures by resident religious and spiritual mentors Group DIY activities		
Rest, meditation	Relaxing atmosphere Landscape therapy (environment and psychological counseling) Environment for transcendental meditation DVD music player	Landscape therapy (environment and psychological consultation) Meditation environment Atmosphere of relaxed tranquility	Yoga Meditations	Relaxing environment
Social contacts, environmental sensitivity	Well-organized mountain trails Convenient transportation Scenic views Safe			Fresh air Clean water Beautiful landscape Peaceful environment Safe environment Natural wellness resources

Table 1.
Overview of previous
wellness studies

within it. Thus, based on Mueller and Kaufmann's wellness model (2001), the present study explores the underlying structure of wellness attributes offered in upper-upscale and luxury hotels and attempts to assess the following proposition:

- P1.* Physical fitness, beauty care, nutrition and diet, mental learning and education, rest and meditation and social and environmental wellness attributes comprise the significant structure of a wellness model in upper-upscale and luxury hotels.

Customer satisfaction and Kano model

Customer satisfaction is defined as the pleasurable fulfillment level during the consumption of a product or service (Oliver, 1996). Customer satisfaction is a critical success factor that impacts brand loyalty (Back and Parks, 2003; Nunkoo *et al.*, 2017), behavior intentions (Tavitiyaman and Qu, 2013; Worsfold *et al.*, 2016), and even firm profitability (Agag and Eid, 2020; Simons *et al.*, 2018). To find critical factors that influence customer satisfaction, researchers have analyzed the relationship between customer satisfaction and factors such as customer evaluation (Lee *et al.*, 2019), perceived value (González-Mansilla *et al.*, 2019; Wu and Liang, 2009) and service quality (Luo *et al.*, 2019; Nunkoo *et al.*, 2017). Service attributes are also critical antecedents of customer satisfaction (Kim and Perdue, 2013; Saleh and Ryan, 1992). Each service attribute consists of a respective belief and attitude from customers with a different impact on customer satisfaction (Oliver, 1997). Previous research focuses on discovering hotel service attributes with a significant impact on customer satisfaction. Saleh and Ryan (1992) investigate 29 different hotel service attributes and group them into four groups by each hotel service attribute's degree of importance and difference perceived by customers. Kim and Perdue (2013) introduce an experiential aspect of hotel service attributes and list attributes in terms of their cognitive, affective and conative features. Previously implemented research focus on attributes' linear relationship with customer satisfaction (Bowen and Shoemaker, 2003; Callan and Bowman, 2000; Dolnicar and Otter, 2003; Dube and Renaghan, 1999). Some research analyzes hotel service attributes that increase dissatisfaction and generate complaints and unpleasant experiences of a product or service (Harrison and Hailey, 2016; Park *et al.*, 2020; Shuv-Ami and Seggev, 2015). As customer dissatisfaction can eventually lead to product or service rejection, it is critical to examine service attributes' impact on customer dissatisfaction (Anderson, 1973).

Herzberg *et al.* (1959) analyze each service attribute's disparate impact on customer satisfaction and dissatisfaction. Their two-factor theory distinguishes service attributes into the following two groups: motivators and hygiene factors (Herzberg *et al.*, 1959). Motivators significantly impact customer satisfaction though not on dissatisfaction (Herzberg *et al.*, 1959). On the contrary, hygiene factors have a significant relationship with customer dissatisfaction though not on satisfaction (Herzberg *et al.*, 1959). The two-factor theory reveals an asymmetric impact of service attributes on customer satisfaction and dissatisfaction.

Figure 1 demonstrates how the Kano model extends Herzberg's two-factor theory and introduces five groups of service attributes: attractive, one-dimensional, must-be, indifferent, and reverse attributes (Mikulić and Prebežac, 2016). The five groups of service attributes cover the diverse relationship between wellness attributes and customer satisfaction/dissatisfaction. Attractive and must-be attributes have an asymmetric relationship with customer satisfaction and dissatisfaction that align with the two-factor theory (Herzberg *et al.*, 1959; Mikulić and Prebežac, 2016). However, the two-factor theory does not cover one-dimensional, reverse and indifferent attributes. One-dimensional attributes have a significant relationship with customer satisfaction and dissatisfaction with a linear relationship (Mikulić and Prebežac, 2016). Conversely, reverse attributes are opposite from

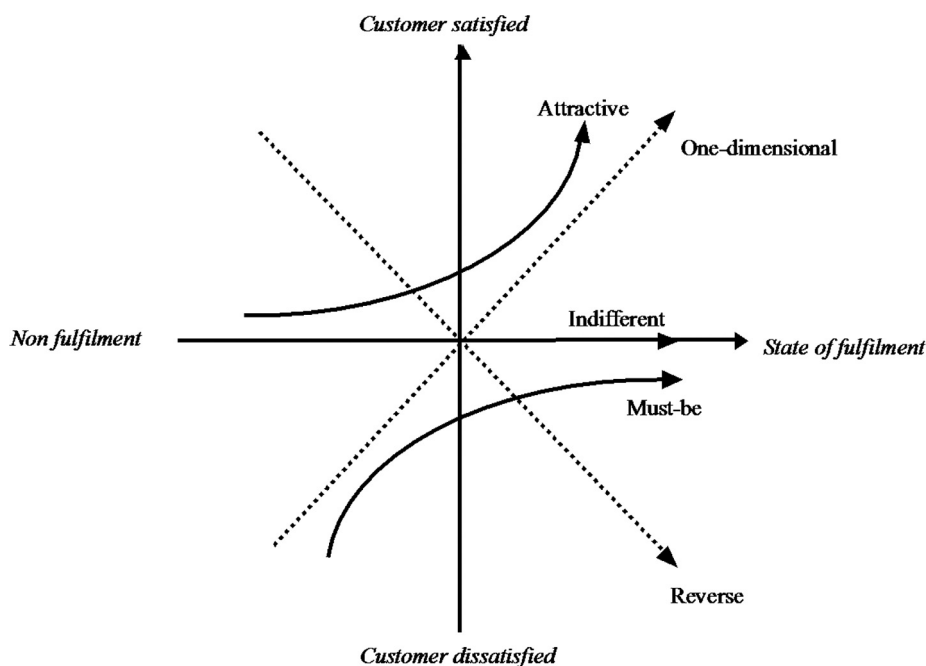


Figure 1.
Kano model

Source: Adapted from Kano *et al.* (1984)

the one-dimensional attributes with a reverse linear relationship (Mikulić and Prebežac, 2016). Finally, indifferent attributes have a non-significant relationship with customer satisfaction and dissatisfaction (Mikulić and Prebežac, 2016). The Kano model synthesizes all the possible relationships between service attributes and customer satisfaction and dissatisfaction, specifying different roles of service attributes.

The Kano model interprets the results derived from different analyses of service attributes (Tontini *et al.*, 2017). Some of the most commonly applied analyses are critical incident technique (CIT; Tontini *et al.*, 2017), importance-performance analysis (IPA; Mikulić and Prebežac, 2011), and penalty-reward contrast analysis (PRCA; Back, 2012). CIT investigates customers' previous experience to discover attributes with a disparate impact on customer satisfaction and dissatisfaction (Cadotte and Turgeon, 1988; Kim *et al.*, 2016; Lu and Stepchenkova, 2012; Tontini *et al.*, 2017). IPA measures each service attribute's relative importance and perceived performance on customer satisfaction using surveys (Aigbedo and Parameswaran, 2004; Mikulić and Prebežac, 2011; Oh, 2001). PRCA uses two sets of dummy variables to measure service attributes' respective impact on customer satisfaction and dissatisfaction (Back, 2012; Ju *et al.*, 2019; Matzler and Renzl, 2007; Mikulić and Prebežac, 2008; Tontini *et al.*, 2017). In recent studies, there have been attempts to use business analytics to investigate service attributes mentioned in user-generated contents (Gerdt *et al.*, 2019; Zhang *et al.*, 2015).

The emergence of online reviews requires applying new methods to the research, such as two-step statistical procedures and social media analytics (Gerdt *et al.*, 2019; Kim *et al.*, 2016; Lu and Stepchenkova, 2012; Zhang *et al.*, 2015). Researchers manually read and code

customers' perceptions mentioned in each online review in the two-step statistical procedure (Gerdts *et al.*, 2019; Kim *et al.*, 2016; Lu and Stepchenkova, 2012). Social media analytics, on the other hand, is used to analyze information (e.g. overall customer satisfaction rating, review text and ratings on each attribute) derived from online review sites (Lee *et al.*, 2017; Xiang *et al.*, 2015; Zhang *et al.*, 2015). Zhang *et al.* (2015) implement the social media analytics method to discover service attributes offered in cruise tourism and measure each service attribute's impact on customer satisfaction and dissatisfaction. The current study follows the validated method used by Zhang *et al.* (2015) and applies the Kano model to examine the roles of wellness attributes. The proposition is as follows:

- P2. Each wellness attribute has a unique role in developing customer satisfaction and dissatisfaction.

Research methodology

The current study used a mixed methods approach shown in Figure 2 to explore the propositions. This approach included a qualitative study of content analysis (Study 1) and a quantitative study of social media analytics (Study 2). Study 1 analyzed wellness attributes of previous literature and hotel websites with content analysis to find the underlying structure of wellness in the lodging industry. Study 2 investigated online hotel reviews in New York City (NYC) collected from TripAdvisor.com to discover the relationship between wellness attributes and customer satisfaction/dissatisfaction. This investigation used the findings of Study 1 to analyze Study 2 and applied the Kano model to interpret the results of the analyses and define the roles of wellness attributes in customer satisfaction and dissatisfaction.

Study 1 – content analysis

The content analysis follows the procedure of selecting sample contents, coding, reducing/condensing data and interpreting the data aligned with the research proposition (Kim *et al.*, 2020; Krippendorff, 2004; MacKay *et al.*, 2017). The current study adopts a content analysis to find a meaningful structure of wellness. First, we analyzed and listed wellness attributes found in previous hospitality research on wellness (Chen *et al.*, 2013a, 2013b; Gustavo, 2010; Heung and Kucukusta, 2013). We selected prior research based on their publication status in top-tier hospitality journals and their inclusion of the various wellness attributes offered in hotels (Gursoy and Sandstrom, 2016; Law *et al.*, 2019). Table 1 illustrates the deductive content analysis (general to specific) used to analyze each attribute and coded it under six wellness attributes. We then went through the coding process regarding the definition and description of each wellness attribute stated in Table 2.

As a next step, we performed a content analysis on websites from upper-upscale and luxury hotels located in NYC. We listed hotel wellness attributes indicated in each website. For instance, we included the general term of the services (i.e. fitness center), enhanced with more specified descriptions (i.e. Technogym, Pilates and treadmill) to integrate diverse wellness attributes offered by upper-upscale and luxury hotels. The study synthesized the listed features into each wellness attribute regarding the definitions stated in Table 2. The study implemented the process of term condensation to incorporate various features of each wellness attribute. As a result, we were able to develop the wellness model shown in Table 2. The model is called the wellness attributes dictionary, which represents the overall structure of wellness attributes in upper-upscale and luxury hotels.

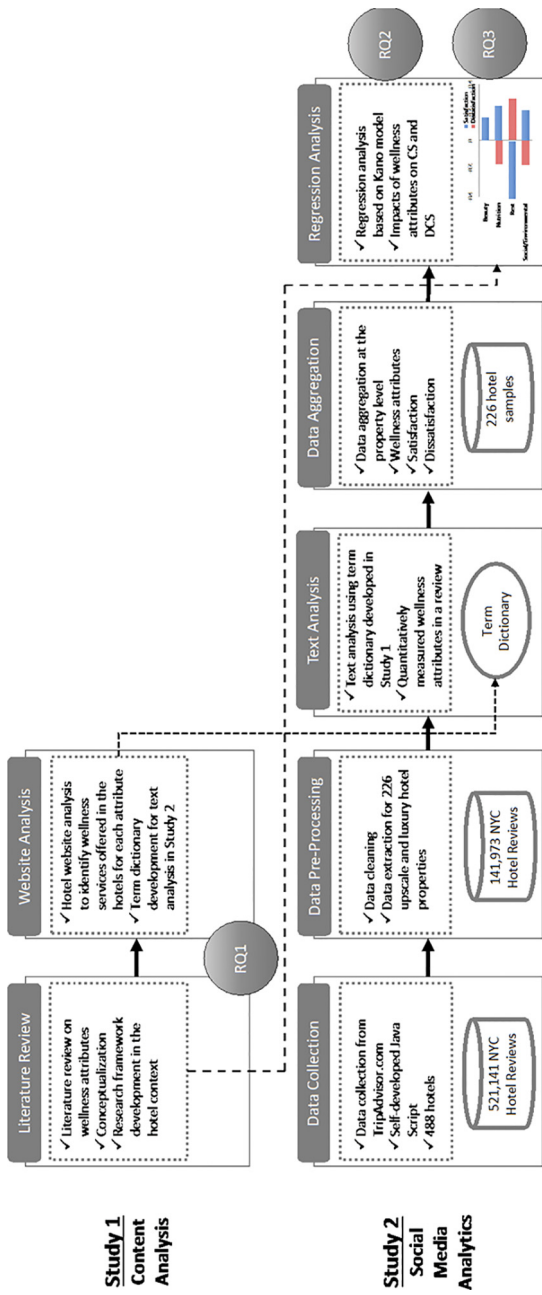


Figure 2.
Overall framework of
research
methodology

Table 2.
Wellness attributes
word dictionary
development

Wellness attributes	Definition	Primary dictionary words
Physical fitness	Activities that support one to improve cardiovascular fitness, flexibility, and strength (Leafgren, 1990)	Fitness, exercise, sport, steam, pool, solarium, whirlpool, aerobics, weight, aquatic, workout, kinesiology, gym, gymnastic, technogym, pilates, fitness, cardiovascular, trainer, treadmill, stretch, strength, press
Beauty care	Services that use products for healing and beauty treatment (Smith <i>et al.</i> , 2010)	Beauty, herbal, massage, rehabilitation, therapy, medication, exfoliating, post-surgery, recovery, therapeutic, aromatherapy, acupuncture, remedies, treatment, facial, manicure, pedicure, hairdresser, spa, rejuvenating, sauna, anti-aging, antiaging, aroma, nail, waxing
Nutrition, diet	Supplements or food that help to make healthy dietary choices that supports one to sustain the balance of health and nutrition (Hettler, 1980)	Nutrition, diet, toxin-free, detox, detoxification, healthy, seasonal, vegetables
Mental activity, education	Creative activities and inspiring environment that can help expand one's experience and knowledge (Hettler, 1980)	Reading club, exhibition, art, seminar, performances, do-it-yourself, mentor, life-coaching, mind control, mind-body, workshop, session
Rest, meditation	Stress management that can be done by relaxation, mind-control, and meditation (Ardell, 1977)	Meditation relaxation, spiritual, yoga, bedding, sleep, quiet
Social contacts, environmental sensitivity	Good condition of relationship with others and the environment (community or natural environment) (Hettler, 1980)	Scenic, view, natural, garden, trail

Study 2 – social media analytics

Study 2 conducted social media analytics, including large-scale text analytics and linear regression analysis on online hotel reviews collected from TripAdvisor.com (Figure 2). The study selected TripAdvisor.com because it is the largest online travel review website in the world, with a monthly average of 490 million unique visitors and provides more than 702 million reviews and opinions, covering 8 million accommodations, airlines, attractions and restaurants (<https://tripadvisor.mediaroom.com/US-about-us>). An online review page shows various hotel information and customer evaluations, including basic property information and amenities, reviewer information, hotel star rating, review helpfulness, customer reviews and managerial responses, traveler type, time and length of stay and a satisfaction rating of the overall experience. For these reasons, academic researchers in marketing, information systems and hospitality and tourism literature extensively use reviews of TripAdvisor.com (Schuckert *et al.*, 2015; Wu *et al.*, 2014; Xiang *et al.*, 2015; Xie *et al.*, 2016). The primary purpose of Study 2 is to explore wellness attributes embedded in customer reviews and examine the relationship between wellness attributes and overall customer satisfaction in upper-upscale and luxury hotel settings.

Recently, online reviews are increasingly acknowledged as a trustworthy data source for researchers (O'Connor, 2008) because it provides customer opinions and diverse customer information (Chatterjee, 2001; Lee *et al.*, 2017). In line with this trend, social media and text

analytics enable researchers to analyze prolific online reviews to find meaningful patterns regarding customer perceptions (Xiang *et al.*, 2015). For example, Lee *et al.* (2019) analyze hotel reviews through social media and text analytics to discover how the multisensory service experience impacts the relationship between customer evaluation and satisfaction. Lee *et al.* (2020) also use social media and text analytics to explore customer satisfaction antecedents shown in hotel reviews of TripAdvisor.com. Social media and text analytics and other online reviews have become a new research paradigm to analyze customer perception and satisfaction (Lee *et al.*, 2019; Lee *et al.*, 2020; Xiang *et al.*, 2015).

We collected initial data of 521,141 customer reviews (between January 2004 and June 2015) of 488 hotels in New York City (NYC) from TripAdvisor.com using self-developed JAVA scripts in July 2015. We selected NYC because it is the symbol of diversity and has a variety of hotels, from the economy (1 star) to luxury (5 stars) hotels (Jeong and Jeon, 2008; Lee *et al.*, 2017). We removed reviews with non-English languages or those with no review text or overall review ratings. The data reduced to 405,000 customer reviews. Then, we derived reviews of only upper-upscale and luxury hotels according to TripAdvisor.com and STR market definition (Smith Travel Research, 2018). The final data consisted of 141,973 reviews of 226 hotels.

Then, we used XLMiner for text mining and statistical analysis (Linoff and Berry, 2011; Shmueli *et al.*, 2016). Table 2 shows how the text mining method measured the value of wellness attributes in a binary form (0 or 1) at the review level, examining whether each review contains a term in the preformed dictionary from Study 1. Finally, we aggregated all the measured variables at the hotel level for regression analysis, yielding the data of 226 hotels. Table 3 shows the operationalization of wellness attributes and customer satisfaction and dissatisfaction at the hotel level.

We measured the relationship between wellness attributes and customer satisfaction/dissatisfaction through multiple regression analyses to assess the second research proposition. We followed the empirical model in the previous research, as shown as follows:

Then, we interpreted the regression analysis result based on the Kano model, as shown in Table 4. The current study adopted the Kano model because it incorporates the most diverse roles of attributes in customer satisfaction and dissatisfaction:

$$\begin{aligned} (\text{Dis})\text{Satisfaction} = & \beta_0 + \beta_1\text{physical} + \beta_2\text{beauty} + \beta_3\text{nutrition} + \beta_4\text{mental} \\ & + \beta_5\text{rest} + \beta_6\text{social/environmental} \end{aligned}$$

Results

The result of content analysis (Table 2) shows that the wellness model consists of definitions and primary examples involving six wellness attributes (i.e. physical fitness, beauty care, nutrition and diet, mental activity and education, rest and meditation and social contacts and environmental sensitivity). The presented model extends the previous wellness model by adding valid and detailed service features of wellness attributes offered in the upper-upscale and luxury hotels. Physical attributes consist of cardiovascular and health-enhancing activities and primary examples include Technogym, Pilates and treadmill. Likewise, beauty care attributes incorporate features such as massage, rehabilitation, aromatherapy, remedies and facial cares. Nutrition and diet wellness attributes include healthy dietaries, in the model stated as nutrition, diet, toxin-free, and detox. Mental and education attributes incorporate reading clubs, art and seminars, while rest and meditation attributes focus on rest, relaxation and mindfulness. We integrated wellness attributes such

Table 3.
Variables and their
operationalization
(*N* = 226)

Type	Variable	Description	Operationalization	Mean	SD	Min.	Max.
DV	Customer satisfaction	Proportion of positive reviews	# of reviews with 4 to 5 ratings/ # of total reviews	0.830	0.105	0	1
	Customer dissatisfaction	Proportion of negative reviews	# of reviews with 1 to 2 ratings/ # of total reviews	0.063	0.051	0	1
IV	Physical wellness attribute	Proportion of reviews with physical wellness attributes	# of reviews with words in physical wellness attribute/ # of total reviews	0.032	0.032	0	1
	Beauty wellness attribute	Proportion of reviews with beauty wellness attributes	# of reviews with words in beauty wellness attribute/ # of total reviews	0.012	0.022	0	1
	Nutrition wellness attribute	Proportion of reviews with nutrition wellness attributes	# of reviews with words in nutrition wellness attribute/ # of total reviews	0.016	0.014	0	1
	Mental wellness attribute	Proportion of reviews with mental wellness attributes	# of reviews with words in mental wellness attribute/ # of total reviews	0.001	0.001	0	1
	Rest wellness attribute	Proportion of reviews with rest wellness attributes	# of reviews with words in rest wellness attribute/ # of total reviews	0.028	0.011	0	1
	Social and environmental wellness attribute	Proportion of reviews with social and environmental wellness attributes	# of reviews with words in social and environmental wellness attribute/ # of total reviews	0.109	0.045	0	1

Table 4.
Results of regression
analysis for
satisfaction and
dissatisfaction
(*N* = 226)

IV: Hotel wellness attributes	DV: Satisfaction		DV: Dissatisfaction		Role in Satisfaction and Dissatisfaction
	β	Std. error	β	Std. error	
Physical	−0.009	0.259	0.026	0.129	Indifferent
Beauty	0.131*	0.364	−0.106	0.181	Attractive
Mental	−0.011	6.971	−0.002	3.476	Indifferent
Nutrition	0.195***	0.517	−0.171**	0.258	One-dimensional
Rest	−0.326***	0.700	0.297***	0.349	Reverse
Social and environmental	0.169**	0.184	−0.174**	0.092	One-dimensional
R^2	0.133		0.108		
Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$					

as meditation, yoga and quiet under the mental and education wellness attributes through the content analysis. Lastly, social and environmental wellness attributes include scenic, view, natural, garden and trail. The specific wellness attributes added to the wellness model represent and confirm the structure of wellness attributes' existence in the upper-upscale

and luxury hotels. Thus, Study 1 supports Proposition 1, which states that physical fitness, beauty care, nutrition and diet, mental learning and education, rest and meditation, and social and environmental wellness attributes are integral to the wellness model's structure in upper-upscale and luxury hotels. The text analytics process in Study 2 uses the wellness attributes word dictionary derived from the wellness model developed in Study 1.

Table 3 shows the result of descriptive analysis for Study 2. Independent variables are the proportion of each wellness attribute in total reviews, and dependent variables are the proportion of reviews with customer satisfaction and dissatisfaction. The mean value of customer satisfaction is 0.830 (the proportion of positive reviews over the total number of reviews). In contrast, the mean value of customer dissatisfaction is 0.063 (the proportion of negative reviews over the total number of reviews). Previous research analyzing online reviews validated the calculation and "positive-negative" dichotomy adopted in this study (Lee *et al.*, 2017; Zhang *et al.*, 2015). The final data consisted of 141,973 reviews of 266 hotels with average star ratings of 4.27.

The regression analysis result indicates a significant relationship between wellness attributes and customer satisfaction/dissatisfaction, shown in Table 4. The data explain customer satisfaction and dissatisfaction by 13.3 and 10.8%, respectively, which is acceptable statistics in the research of similar context (Gerdt *et al.*, 2019; Zhang *et al.*, 2015). The result of regression analysis on customer satisfaction shows that rest ($\beta = -0.326$, $p < 0.01$), nutrition ($\beta = 0.195$, $p < 0.01$), social and environmental ($\beta = 0.169$, $p < 0.05$), and beauty attributes ($\beta = 0.131$, $p < 0.1$) have significant impact on customer satisfaction. The result of analysis on customer dissatisfaction indicates that rest ($\beta = 0.297$, $p < 0.01$), social and environmental ($\beta = -0.174$, $p < 0.05$), and nutrition attributes ($\beta = -0.171$, $p < 0.05$) show significant relationship with customer dissatisfaction. We performed fractional regression and beta regression as robustness analysis because our dependent variable is the fractional response between zero and one, and both regression analyses showed similar results.

Beauty, nutrition, rest and social and environmental attributes significantly impact customer satisfaction and dissatisfaction. Figure 3 displays the orientation of impact (i.e. positive or negative), and Table 4 shows the role of each wellness attribute (i.e. attractive, one-dimensional, must-be, indifferent and reverse attributes), applied through the Kano model (Kano *et al.*, 1984; Zhang *et al.*, 2015). The findings in Table 4 confirms the second proposition; each wellness attribute has a unique role in developing customer satisfaction and dissatisfaction. Beauty attributes are distinguished as attractive attributes because they have a significant positive relationship with customer satisfaction but not with dissatisfaction. The implementation of beauty attributes should enhance customer satisfaction rather than to resolve dissatisfaction. Nutrition and social and environmental attributes are one-dimensional attributes, and rest attributes are reverse attributes. Providing such wellness attributes is critical to enhancing customer satisfaction and alleviating dissatisfaction because they all significantly impact customer satisfaction and dissatisfaction. Technology can support providing nutrition, social and environmental, and rest attributes to customers. Possible examples include offering healthy and organic food options in restaurants and room services, providing meditation service through mobile applications and adopting a voice-recognition system (Alibaba, 2020; Hyatt, 2020; Westin, 2020). Lastly, physical and mental wellness attributes are indicated as indifferent attributes because they have a non-significant relationship with customer satisfaction and dissatisfaction. The result is different from previous research implemented in wellness destinations which showed the significant relationship between physical/mental wellness attributes and customer

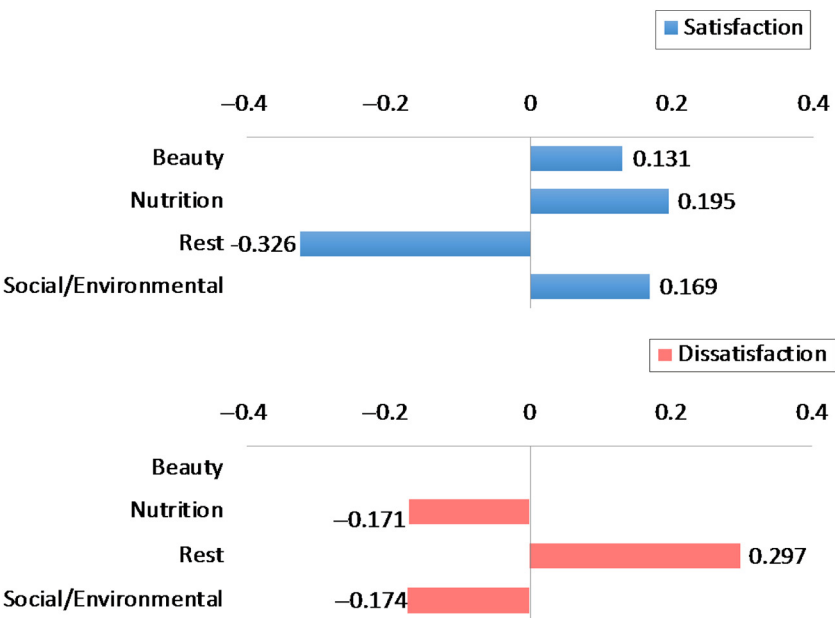


Figure 3.
Estimated
coefficients on
satisfaction/
dissatisfaction

satisfaction (Chen *et al.*, 2013a, 2013b; Gustavo, 2010; Hall *et al.*, 2011). Thus, an in-depth study is needed to investigate why the results differ in the two contexts (i.e. wellness destinations, general lodging industry).

Conclusion and discussion

Conclusion

The result of the research confirms the existing six wellness attributes in the upper-upscale and luxury hotels and reveals unique roles of wellness attributes with their dichotomous impact on customer satisfaction and dissatisfaction. The study has theoretical implications of confirming the wellness structure in the upper-upscale and luxury hotels and applying the Kano model to define specific roles of wellness attributes. The study makes a novel approach to the topic of wellness through mixed methods of content analysis and social media analytics. The unique roles of wellness attributes found in the study reveal how customers perceive wellness attributes and lead hotel operators the ways to use wellness attributes in a marketing strategy.

Theoretical implications

The current study introduces the underlying structure of wellness in the upper-upscale and luxury hotel context. While there has been a wellness model established for wellness-focused hotels and tourism (Chi *et al.*, 2020; Mueller and Kaufmann, 2001), there has been no research showing the underlying structure of wellness in the upper-upscale and luxury hotels. Using the wellness attributes from Mueller and Kaufmann's (2001) research, the present study implements content analysis to extend the wellness model for upper-upscale and luxury hotels. The current study follows the thorough content analysis process of selecting appropriate samples, coding subjected contents, condensing data and interpreting

data aligned with the research propositions (Krippendorff, 2004). The current study develops a wellness model called a wellness attributes dictionary through the content analysis of previous research on wellness and website analysis of sites of the upper-upscale and luxury hotels. The current study also confirms the previous wellness model in the upper-upscale and luxury hotels and makes a novel approach to the topic by adopting new data types. The suggested wellness model supports the understanding of the underlying structure of wellness attributes of the upper-upscale and luxury hotels and facilitates the in-depth study of discovering which attribute has the potential to enhance customer satisfaction or dissatisfaction.

This study makes an initial approach by applying the Kano model in the wellness research context. Before the current study, there has been limited study on the relationship between wellness attributes and customer dissatisfaction. The Kano model overcomes the status and measures each wellness attribute's disparate impact on customer satisfaction and dissatisfaction (Mikulić and Prebežac, 2016). The Kano model specifies the roles of wellness attributes by discovering whether each wellness attribute has a significant relationship with customer satisfaction or dissatisfaction (i.e. attractive, one-dimensional, must-be, indifferent and reverse attributes). The specified roles widen the view of wellness attributes' roles and their use to enhance customer satisfaction or reduce dissatisfaction. The application of the Kano model reveals undiscovered dichotomous roles of wellness attributes in customer satisfaction and dissatisfaction. This approach differs from previous studies, which merely discover the impact of wellness attributes on customer satisfaction.

Methodological implications

The current study applies a mixed methods approach that facilitates investigating wellness attributes from multiple perspectives. The previous study implemented the mixed methods approach with interviews and surveys or experimental design (Dyussebayeva *et al.*, 2020; Lee and Hallak, 2020). However, the current study adopts a mixed methods of content analysis and social media analytics. Content analysis reveals the underlying structure of wellness in the upper-upscale and luxury hotels. Social media analytics measure the magnitude of the impact of wellness attributes on customer satisfaction and dissatisfaction. Consequently, the multi-process of the analysis implements an in-depth study on the topic of wellness.

The study makes a novel approach using social media analytics to discover the impact of wellness attributes on customer satisfaction and dissatisfaction in the upper-upscale and luxury hotels. The current study reveals customers' perceptions of wellness attributes embedded in user-generated online reviews. This new approach differs from traditional methods by deriving the subjected data directly from actual hotel visitors with real-time updates rather than analyzing interviews or surveys. Moreover, the vast amount of data of user-generated online reviews enables discovery into customers' general perceptions toward wellness attributes. Social media analytics help provide an in-depth insight into the research questions and better understand wellness attributes' roles in customer satisfaction and dissatisfaction, specifically in the upper-upscale and luxury hotels (Truong *et al.*, 2020).

Practical implications

The current research aligns with the objectives of the study and reveals different wellness attributes' roles in developing customer satisfaction and dissatisfaction. The findings serve as guidelines for hotel operators strategically using wellness attributes to satisfying the customers.

Based on the results, rest attributes have the most significant impact on both customer satisfaction and dissatisfaction, followed by nutrition and social and environmental

attributes. This result aligns with previous research, which states that stress relief and relaxation (Chen *et al.*, 2008; Gustavo, 2010) and environment (Chen *et al.*, 2013a, 2013b; Heung and Kucukusta, 2013) have a significant influence on customer satisfaction than the other attributes. Also, the result suggests hotel operators provide a restful and relaxing environment for customers. In hotels with compact spaces, like in NYC, technology can fabricate personal relaxation areas. For instance, Hyatt provides an audio meditation service through its mobile application (Hyatt, 2020) that enables customers to enjoy relaxing and restful moments in compact spaces of hotels in NYC. The new technology-focused hotel established by Alibaba, Flyzoo hotel, shows how technology implementation enhances customers' experiences (Alibaba, 2020). Customers can draw curtains and adjust the light for their sleep through the voice recognition system. The robots in the hotels let customers enjoy the food delivery system while simultaneously providing entertaining and novel experiences (Kandampully *et al.*, 2018). For hotels with limited areas, investing in new technology and offering virtual content is an adaptable strategy to provide restful and relaxing environments for customers.

Nutrition attributes have a one-dimensional role in customer satisfaction and dissatisfaction. In other words, customer satisfaction and dissatisfaction are determined by whether the hotel provides healthy meal options to customers. Hotel operators should consider the result and offer menus that meet customers' preferences. For instance, Westin promotes its concept as a wellness-focused hotel and provides diverse meal options aligned with customers' eating styles. In their restaurants, the menus offer various salads, hand-crafted drinks and specially made dishes for vegetarians (Westin, 2020). Westin's "SuperChefs" service provides nutrition-balanced menus to kids through doctors and dentists consultations (Westin, 2020). Providing ample meal options for customers' diverse eating styles can help enhance satisfaction and reduce dissatisfaction.

The research reveals that beauty attributes are attractive ones, having a disparate impact on customer satisfaction and dissatisfaction. If hotels fail to offer beauty attributes, they do not incur customer dissatisfaction, but provided beauty attributes can enhance customer satisfaction. Hotel operators can utilize the role of beauty attributes (e.g. spa, massage, aromatherapy) in their marketing strategies. For example, showing a pleasant spa atmosphere will enhance customer satisfaction. However, when a property manager aims to sustain customer satisfaction levels in a more moderate stance, they should make another approach. In this case, an impactful strategy to enhance customer satisfaction is to focus on one-dimensional and reverse attributes (i.e. rest, nutrition and social and environmental attributes).

Mental attributes have a non-significant relationship with either customer satisfaction or dissatisfaction. Previous studies implemented in wellness destinations recognize mental attributes as one of the greatest motivations to visit wellness-focused hotels (Gustavo, 2010) and rank mental activities as important hotel attributes in wellness destinations (Chen *et al.*, 2013a, 2013b). However, in the current study, the upper-upscale and luxury hotels provide limited mental wellness attributes, as shown in the mean value of mental attributes (0.001) in Table 3. The mental attributes have indifferent roles because they are not prevalent in the upper-upscale and luxury hotels. However, some cases show that when mental attributes, such as books and artwork, are present, customers recognize them as critical success factors. For example, mental attributes are a success factor for the Library Hotel Collection in NYC. Although hotels in NYC implement limited mental wellness attributes, a more in-depth study is needed to prove the significance of mental wellness attributes when provided to customers.

Despite the emphasis on the importance of physical attributes in previous studies (Chen *et al.*, 2008; Gustavo, 2010; Hall *et al.*, 2011), physical attributes show a non-significant relationship with both customer satisfaction and dissatisfaction. The different result in wellness destinations and the general lodging industry demonstrates that context should determine the various applications of physical attributes. Physical attributes present a relatively high mean value (0.032, Table 3) which aligns with a research that analyzes attributes mentioned in online reviews in the similar context as the current study, hotels in NYC (Hu *et al.*, 2019). The research indicates that physical attributes are widely dispersed in reviews regardless of the valence, and the satisfaction level of a physical attribute relies on its quality, not its presence. Technology can support to enhance the quality of physical wellness attributes. For instance, Hilton's Five Feet to Fitness service provides a workout environment in guest rooms (Hilton, 2020). The service also offers an in-room kiosk providing on-demand training content. The service presents customized and easily accessible services to customers. Likewise, technology can help deliver physical attributes to enhance quality of services. More investigation can provide clear guidance for hotel operators to implement physical wellness attributes.

Marketing every wellness attribute of a property can be an attractive idea for hotel operators. However, using the roles of wellness attributes can maximize any marketing channel's effectiveness (e.g. online, social media and OTA). According to the findings, rest, nutrition and social and environmental wellness attributes showed a relatively high impact on customer satisfaction/dissatisfaction. Thus, hotel operators or marketers should develop effective marketing strategies that use those wellness attributes. For instance, Hurawhlhi Island Resort in the Maldives is launching "Ocean Healing Retreats." Their novel experiences include meditation by the ocean and underwater yoga at their submerged restaurant. Another promotional strategy for hotel operators involves hiring small-time celebrities or influencers to advertise wellness attributes effectively on their social media platforms. Dynamic pictures and stories on Instagram are key drivers in upper-upscale and luxury hotel services. Moreover, the findings of this study bear notable managerial implications for operators from satisfied and dissatisfied tourists. Based on the results, several reviewers expressed discontent with the absence of wellness attributes in their service experience. Hence, hotel operators should monitor customers' comments and respond to any service gaps (Sigala, 2018). Thus, this study's results will shed light on the effective use of social media platforms as a service recovery or service improvement tool.

Limitations and suggestions for future studies

Like other studies, the current study has several limitations. The online review platform does not holistically present customers' overall assessment of the quality of wellness attributes. This study is a stepping-stone to expand the investigation on customers' perceptions of wellness attributes using personal interviews, surveys and longitudinal observations. For instance, personal interviews and surveys in future studies can evaluate the different findings between the current study and previous research on wellness. Moreover, a longitudinal study is essential, given that customers evolve in terms of their preference for wellness attributes over time. The inclusion of diverse methods will enhance external validity.

Considering that no prior study introduces a concrete wellness model for the lodging industry, this exploratory study lays a precedent. It adopts a wellness model suggested in the hospitality journal and expands the wellness attributes dictionary through content analysis (i.e. content analysis on previous literature and website analytics).

Although the current study reveals the underlying structure of wellness attributes of the upper-upscale and luxury hotels, the suggested wellness model lacks applicability in the lodging industry due to its generalizability. In a future study, conceptualizing a new wellness model by conducting a scale development process can help overcome the current exploratory study's constraints. Extending on to the result from the current study, we would like to implement structural equation modeling with a mix of interviews and surveys to establish a rigorous wellness model to be applied in the general lodging industry.

The current exploratory study focuses on a single factor of customer satisfaction/dissatisfaction, and the explanatory power for the analysis is above the standard for research in social science. However, expanding the research with diverse methodologies or considering other influential variables can increase explanatory power. For instance, by following Back's (2012) impact range asymmetric test with the survey method, a future study can overcome this work's limitation. This approach can further assess improvement priorities among the wellness attributes of upper-upscale and luxury hotels and offer results that may assist the development of effective marketing strategies. Testing control variables found in online reviews can also help explain the relative impact of wellness attributes on customer satisfaction/dissatisfaction. Attributes recognized in previous research, such as location, room quality, service and price (Dolnicar and Otter, 2003), can be good examples to test during future analysis.

Lastly, only one geographic location, NYC, and specific hotel industry segments provide the drawn review data. Although NYC consists of hotels on different scales, the city cannot represent every hospitality market type. Another consideration is that customers' characteristics and expectations vary between diverse tourism destinations. Likewise, different wellness attributes can play different roles in customer experience in budget or mid-scaled hotels. In other words, depending on the location, hotel price range, hotel brands, customers' preference for hotel attributes can be different (Lee *et al.*, 2019). Therefore, future studies should include various locations and segments of hotels to increase the generalizability and practicality of the research.

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