Impact of green atmospherics on guest and employee well-being response, place dependence, and behavior in the luxury hotel sector

ABSTRACT

This study aimed to unearth the attributes of green indoor atmospherics and uncovered their influence on guests' and employees' mental well-being and intention generation process by considering the impact of occupant types (hotel guest and hotel employees) in luxury hotels. Mixed methods were used to achieve this research goal. The qualitative procedure explored seven vital attributes of green indoor atmospherics that both hotel guests and employees perceive as being critical. The attributes were categorized into green ambient conditions, green items, and green spaces/areas. Our quantitative process revealed that performance of these green indoor atmospherics is essential in generating mental well-being, place dependence, and behavioral intentions among guests and employees, and that mental well-being and place dependence maximized the effect of its predictors on intentions. In addition, the strength of the green ambient conditions, mental well-being, and intention relationships significantly differed across occupant types. Research value and originality are discussed.

KEYWORDS: Green indoor atmospherics, green ambient conditions, green items, green spaces/areas, mental well-being, place dependence

Introduction

The green atmospherics of a building reduces various harmful effects on the environment and possibly increases the occupants' mental and physical health outcomes (Gascon et al., 2017; Liang et al., 2014; Vujcic et al., 2017). Recently, designing green indoor atmospherics and improving its performance have accordingly received an increasing attention from researchers and practitioners in diverse sectors (Liang et al., 2014; Van den Bosch & Sang, 2017). Many researchers in environmental psychology, consumer behavior, and organizational behavior asserted that indoor atmospherics affect the occupants' diverse approach (or avoidance) responses and behaviors (Bitner, 1992; González-Hernández & Orozco-Gómez, 2012; Liang et al., 2014). Undeniably, indoor atmospherics in a hotel is also the essential factor influencing its occupants' cognitive, affective, and conative evaluations of their hotel experiences (Trang et al., 2019; Oliver, 2010; Peng & Chen, 2019). Given this, there has been a growing interest about the importance and value of designing a hotel's physical environment to be eco-friendly/healthy through energy-saving/recycling initiatives or purchasing environmentally-friendly products, and using such green atmospherics as a means to enhance cost-efficiency as well as to ensure the human occupants' favorable responses and behaviors in a hotel (Han et al., 2018; Trang et al., 2019). The human occupants within a hotel can be both guests and workers (Bitner, 1992; Trang et al., 2019).

According to Pietilä et al. (2015) and Van den Bosch and Sang (2017), green items and green areas that are critical aspects of green atmospherics are particularly of importance in relieving the occupants' mental stress and improving their health. Despite the criticality of green atmospherics and its effect, there exists a dearth of research that empirically explore the role of performance of a hotel's green indoor atmospherics in guests' and employees' decision-making process. In addition, little evidence exists regarding what constitutes the hotel's green indoor atmospherics. Extant physical environment studies in the lodging sector

have hardly utilized the systematic mixed methods approach for uncovering the attributes of indoor atmospherics and exploring the possible effect of them. Moreover, while mental well-being and place dependence are emerging concepts in consumer behavior and organizational behavior literature (Gascon et al., 2017; Kim et al., 2016; Pietilä et al., 2015; Sirgy et al., 2007; Vujcic et al., 2017), little research has linked performance of green indoor atmospherics to these crucial variables in explaining guest/employee intention formation. The theoretical framework encompassing the above-mentioned constructs and their relationships has also hardly been compared across occupant types with a hotel.

In this regard, this research attempted (1) to identify the attributes of green indoor atmospherics that both guests and employees perceive as being critical through a qualitative process, (2) to unearth the role of performance of the identified green indoor atmospherics in increasing guests' and employees' mental well-being, place dependence, and behavioral intentions, (3) to examine the comparative importance among study variables in determining intentions, (4) to investigate the indirect effect of mental well-being and place dependence in the relationships between performance of green indoor atmospherics and behavioral intentions, and (5) to test if the proposed relationships among research variables differ between hotel guests and hotel employees (occupant types). This study provides contributions to the body of literature in sustainability by identifying the distinctive attributes of green indoor atmospherics in luxury hotels and by empirically testing a conceptual model that delineates how green stimuli influences the occupants' perceived well-being, place dependence, and behavioral intentions based on an exploratory sequential mixed methods approach, which utilizes both qualitative and quantitative procedures. The results from this study also provide significant implications for industry and directions for future research.

Literature Review

Stimulus organism response theory that undergirds the conceptual framework

Stimulus organism response (SOR) theory is a theoretical framework that systematically explicates as various environmental attributes can act as stimulus that influence individuals' intrinsic status of mind (organism), which consequently affects the individuals' behavior (response) (Zhai et al., 2020). The SOR theory is rooted from the environmental psychology (Mehrabian & Russell, 1974), and has been further developed by various researchers in service environment (e.g., Baker, 1986; Bitner, 1992; Donovan & Rossiter, 1982; Kotler, 1973). In particular, environmental psychologists argue that positive behaviors derive from individuals' well-being and happiness through positive experience (Peterson, 2008). The manipulation of atmospherics to green environment provide individuals with such positive experience, which contribute to the favorable responses and behaviors (Kreidler & Joseph-Mathews, 2009). In this regard, our conceptual framework informs the foundation of methods, guides the research inquiry, and provides a coherent understand of complex social science phenomena (Wacker, 1998), which follows Lewin (1951)'s pragmatic stance that "there is nothing so practical as a good theory" (p. 16). Our conceptual framework encompassed consumer's behavioral mechanism that undergirds performance of green indoor atmospherics, which positively influence individuals' mental well-being, place dependence, and behavioral intentions. Performance of green indoor atmospherics includes green ambient conditions, green items, and green spaces/areas as its dimensions. In addition, mental well-being, place dependence, and behavioral intentions are used as outcome variables of performance of green indoor atmospherics.

Performance of green indoor atmospherics

The lodging industry is generally regarded as the main contributor of pollution and ecological deteriorations among diverse forms of hospitality/tourism businesses (Casado-Díaz et al.,

2020; Chan, 2013; Han & Hyun, 2018; Tanford et al., 2020; Trang et al., 2019). Irrefutably, hotels generate a considerable amount of grey water, greenhouse gas, and food wastes and consume a substantial amount of natural resources (Chen & Tung, 2014; Han et al., 2018; Liang et al., 2014). This is increasingly becoming a critical issue as the lodging industry has been expanding faster than ever for the last few decades. Minimizing the environmental impact through greening lodging operations hence has been indisputably the major issue in the entire lodging sector (Chan, 2013; Han & Hyun, 2018; Hu et al., 2019).

Indoor atmospherics refer to the internal physical surroundings (or physical environment) of a building (Shuang et al., 2014). Consistently, green indoor atmospherics in the present study can be described as the eco-friendly and healthy internal physical environment of a hotel. People within the building are inevitably exposed to the physical surroundings (Bitner, 1992; Shuang et al., 2014). Green indoor atmospherics have diverse constituents (e.g., green interior decoration, living trees, flowers, potted plants, green rest areas, fresh air, natural light, fresh/natural odor, ventilation, green walls) (Han et al., 2018; Liang et al., 2014; Muposhi & Dhurup, 2017; Pietilä et al., 2015; Vujcic et al., 2017). Cone (1998) and Bitner (1992) indicated that the scope of indoor atmospherics contains all aspects of the interactions between people in a building and the physical environment that they are exposed to. Visitors/employees in a hotel are therefore interacting with various elements of its green indoor atmospherics (Liang et al., 2014; Trang et al., 2019).

Besides, green and healthy atmospherics in a lodging operation has recently been regarded as an emerging tool for boosting internal and external customers' positive experiences at the hotel (Han et al., 2018; Trang et al., 2019). Green atmospherics is often believed to generate the natural solution for enhancing occupants' positive responses and behaviors (Muposhi & Dhurup, 2017; Pietilä et al., 2015; Wood et al., 2017). In particular, luxury hotels consistently strive to provide green atmospherics as individuals embrace

sustainability as not only design preference but also a moral code (Travel Tech Today, 2020). Indeed, occupants' diverse approach responses/behaviors and various avoidance responses/behaviors can be under the influence of indoor atmospherics (Bitner, 1992; Liang et al., 2014; Muposhi & Dhurup, 2017). According to Bitner (1992), such responses comprise cognitive, emotional, and physical aspects, and such behaviors encompass retention, switching, turnover, loyalty, disloyalty, and word-of-mouth. These responses and behaviors are generated by not only customers but also workers in a building (Bitner, 1992; Vujcic et al., 2017).

Getting access to nature encompassing diverse aspects of green atmospherics is intuitively related to individuals' mental well-being/health (Wood et al., 2017). This relationship is supported by a considerable body of the literature (Douglas, 2012; Han & Hyun, 2019; Wood et al., 2017). According to Han and Hyun (2019), the green indoor atmospherics in the hotel affect a positive state of mind that creates mental health and well-being. Moreover, the study from Wood et al. (2017) identified that positive mental well-being is largely dependent on the existence of green space. The findings from previous studies imply that green indoor atmospherics have a significant role in helping individuals in modern society with psychological restoration by exposing to green spaces/conditions. In this regard, the following hypotheses were generated:

H1a: Performance of green ambient conditions significantly affects mental well-being among hotel guests.

H1b: Performance of green ambient conditions significantly affects mental well-being among hotel employees.

H2a: Performance of green items significantly affects mental well-being among hotel guests.

H2b: Performance of green items significantly affects mental well-being among hotel employees.

H3a: Performance of green spaces/areas significantly affects mental well-being among hotel guests.

H3b: Performance of green spaces/areas significantly affects mental well-being among hotel employees.

Mental well-being

The term "mental well-being" is increasingly becoming an important topic in the consumer behavior and organizational behavior literature (Dana & Griffin, 1999; Kim et al., 2016; Sarwar et al., 2020; Sirgy et al., 2007; Vada et al., 2019). Especially, in hospitality and tourism, mental well-being is indisputably the major trend. The market centering on well-being, accordingly, has been fast growing (Voigt et al., 2011). Mental well-being is a crucial concept for both patrons (Han et al., 2017; Kim et al., 2016; Pyke et al., 2016) and workers (Dana & Griffin, 1999; Sourvinou & Filimonau, 2018; Su & Swanson, 2019). As patrons pursue a more psychologically and physically healthy daily life, they actively seek for spending their time in the place where they can experience mental well-being experiences (Kim et al., 2016; Pyke et al., 2016). Likewise, since workers seek a more mentally and physically healthy lifestyle, they are more inclined to work in the place that promotes their well-being outcomes than ever (Sharma et al., 2016; Su & Swanson, 2019). Mental well-being refers to individuals' perceived (self-rated) status of being calm, healthy, and happy in psychological and emotional manners (Kim et al., 2016). Mental well-being and individuals' perception regarding the benefits derived from it influence their dependence/attachment to the place and induce their positive decisions/behaviors for the place (Mandal, 2016; Vada et al., 2019).

Many studies have identified the importance of mental well-being in individuals' decision-making process and behavior (Dana & Griffin, 1999; Kim et al., 2015; Sharma et al., 2016; Su & Swanson, 2019; Sirgy et al., 2007). In their recent empirical research in tourists' behaviors, Vada et al. (2019) demonstrated that tourists' well-being perception formed based on memorable tourism experiences makes their dependence/attachment to the place stronger and makes their intention to visit the place stronger. Their research also found that the dimensions of tourists' well-being perception (hedonic and eudaimonic aspects) significantly mediated the effect of memorable tourism experience on its subsequent factors. Their finding was in line with Mandal's (2016) indication that psychological variables such as mental well-being are significant determinants of place dependence and intentions. Mandal's (2016) result further showed that the effect of such psychological variables on place dependence and intentions are stronger than that of demographic variables. Su and Swanson (2019) examined hotel employee behaviors. Their empirical result indicated that hotel employees' mental well-being along with organizational identification, organizational trust, and corporate social responsibility are significant predictors of employees' green behavior. Undeniably, increasing occupants' mental well-being brings diverse outcomes that are beneficial to the company. The outcomes include the occupants' dependence on the company, loyalty, and buying/recommendation intentions/behaviors (Kim et al., 2016; Su & Swanson, 2019; Sirgy et al., 2007; Vada et al., 2019).

H4a: Mental well-being significantly affects place dependence among hotel guests.

H4b: Mental well-being significantly affects place dependence among hotel employees.

H5a: Mental well-being significantly affects behavioral intentions among hotel guests.

H5b: Mental well-being significantly affects behavioral intentions among hotel employees.

Place dependence

Place is considered as the anchor for affect/memory/expression of human identity (Butcher & Breheny, 2016). Human identity is connected to the place in a personal/cultural manner (Scannell & Gifford, 2009). Dependence on the place elicits an emotion/memory and supports a secure sense of the human identity (Butcher & Breheny, 2016). The stronger the dependence on the place, the stronger the tiles are for both an individual and the place (Scannell & Gifford, 2009). Place dependence refers to a psychological and affective bond/attachment that links a person to a particular place (e.g., building, home, destination, park, city, restaurant, hotel) (Lee & Shen, 2013; Yüksel et al., 2010). Plunkett et al. (2019) described that the concept of this place dependence also comprises the ability of the place to meet individuals' functional/emotional needs that are not equivalently met by other places. Since place dependence can be special depending on the behaviors that people conduct at places that they believe special, it has been largely adopted in studies of diverse human behaviors (e.g., hospitality, leisure, tourism, consumer/employee behavior, environmental behavior) (Plunkett et al., 2019; Yüksel et al., 2010)

In consumer behavior and tourism literature, patrons' post purchase intentions and behaviors have often been found as the function of place dependence (Lee & Shen, 2013; Lewicka, 2011; Plunkett et al., 2019; Stylidis, 2018). Lewicka (2011) found that travelers who feel comfortable and familiar to a place are likely to have strong place dependence/attachment and revisit the place. Lewicka (2011) also asserted that travelers' dependence to the place is intensified by their multiple visits to the place. In the recreation context, Plunkett et al. (2019) examined visitors' behaviors. Their finding showed that place dependence is significantly linked to visitors' behavioral loyalty. In addition, in their research about destination loyalty, Lee and Shen (2013) demonstrated that place dependence is a crucial driver of travelers' attitudinal loyalty whose major aspect includes positive behavioral

intentions for the destination. Individuals feel dependence/attachment to the place that they like, and this place dependence influences their decision formation and behavior (Yüksel et al., 2010).

H6a: Place dependence significantly affects behavioral intentions among hotel guests.
H6b: Place dependence significantly affects behavioral intentions among hotel employees.

Occupant types

Physical surrounding influences people and their behaviors (Bitner, 1992; Jeong & Lee, 2006). It affects all types of occupants of a building, comprising patrons and workers (Bitner, 1992; Han & Hyun, 2019; Shuang et al., 2014). Similarly, green physical surrounding is also influential to these occupants' responses and behaviors (Han & Hyun, 2019; Jeong & Lee, 2006; Trang et al., 2019; Vujcic et al., 2017). Nonetheless, such responses and behaviors can be dissimilar across types of occupants within a building (Han & Hyun, 2019). Indeed, prior research in the extant literature indicated the possible dissimilarity in decision formation and behavior between customers and employees (Hobbs & Besner, 2016; Jyoti & Sharma, 2012; Torres et al., 2017).

In particular, Jyoti and Sharma (2012) assessed the influence of market orientation on business performance. Their result showed that customer affective evaluation and employee affective evaluation included a differential level of importance in inducing business performance. In their empirical research about project management practices with internal and external customers, Hobbs and Besner (2016) demonstrated the difference in managing diverse projects (e.g., business, software development, information technology, telecommunication) between internal customers and external customers. Torres et al. (2017) examined visitor and employee incivility in the hospitality industry. Their empirical result

revealed that customer incivility and employee incivility contained a dissimilar level of criticality in eliciting customer aggression and employee sensitivity to uncivil behaviors. Individuals' responses/behaviors to physical environment differ significantly between when they engage in consumption behaviors as patrons and when they engage in working as employees (Han & Hyun, 2019).

H7a–f: Occupant types of the hotel (hotel guests and hotel employees) significantly affect the relationships among study constructs.

Methodology

This study adopted mixed methods design to provide a stronger understanding of the research problems and more insight into the research by integrating both the qualitative and quantitative data (Creswell & Clark, 2006). Among various types of mixed methods design, this study adopted an exploratory sequential mixed methods design, which involves a two-phase data collection. In detail, researchers first collected and explore qualitative data, such as focus group, to develop a new psychometric instrument or new variables. In second phase, researchers collected and tested the quantitative data based on newly developed instruments.

Phase 1: Qualitative process

Identification of the attributes of green indoor atmospherics

The area of the green indoor atmospherics in luxury hotel is relatively unexplored. In this regard, a qualitative process was first utilized by conducting a focus group discussion in order to identify the attributes of green indoor atmospherics that both hotel guests and employees believe to be crucial (Churchill, 1979). The participants of the focus group included five actual hotel guests who frequently stay at a hotel, five hotel employees, and three professors

whose major is hospitality management. All participants of the focus group discussion ensure that they are valid and relevant participants as possessed sufficient knowledge and experience about the luxury hotels. The focus group discussion was conducted at the reserved conference room and a moderator (the first author of this study) led the discussion. Participants freely shared their diverse perspectives and experiences with regard to the study issues. Through the focus group discussion, the authors identified the themes related to the performance of green indoor atmospherics in hotel. A total of seven general attributes of green indoor atmospherics that both hotel guests and employees perceive as being important were uncovered. The attributes comprised (1) air quality (e.g., temperature, humidity, circulation, and ventilation), (2) scent (e.g., aroma, pleasant smell, fresh odor), (3) natural light (e.g., natural light through glass windows, effective design maximizing natural lighting), (4) green interior décor (e.g., placed green items, green walls, green decorations), (5) living plants (e.g., a variety of living flowers, trees, and potted plants), (6) green rest areas (e.g., sustainably-designed rest areas), and (7) green spaces (e.g., green spaces for leisure/physical activities/free time). The importance of these uncovered green physical environment attributes was also stressed by the extant literatures (e.g., Bitner, 1992; Kreidler & Joseph-Mathews, 2009; Pietilä et al., 2015; Wood et al., 2017).

Categorization

The next step of the qualitative process was categorization (Spiggle, 1994). In particular, the focus group participants grouped the identified attributes of green indoor atmospherics whose characteristics are similar into a few categories. This grouping process was individually done for the avoidance of outside impact (Kolbe & Burnett, 1991). Upon completion of categorization, every category created by every participant was compared. The disagreement was unraveled through discussion. Through this procedure, a total of three categories of green

indoor atmospherics that both hotel guests and employees consider to be crucial were generated. The explored categories included (a) green ambient conditions, (b) green items, and (c) green spaces/areas. The first category, (a) green ambient conditions, contained (1) air quality (e.g., temperature, humidity, circulation, and ventilation), (2) scent (e.g., aroma, pleasant smell, fresh odor), and (3) natural light (e.g., natural light through glass windows, effective design maximizing natural lighting). The second category, (b) green items, comprised (4) green interior décor (e.g., placed green items, green walls, green decorations) and (5) living plants (e.g., a variety of living flowers, trees, and potted plants). The third category, (c) green spaces/areas, encompassed (6) green rest areas (e.g., sustainably-designed rest areas) and (7) green spaces (e.g., green spaces for leisure/physical activities/free time).

Measures for performance of green indoor attributes

In order to test the performance of green indoor attributes, the measurement items were developed both based on the focus group discussion and based on the existing studies of physical environment and consumer behavior (Bitner, 1992; Kreidler & Joseph-Mathews, 2009; Muposhi & Dhurup, 2017; Pietilä et al., 2015; Vujcic et al., 2017; Wood et al., 2017). Specifically, three items were chosen and used to measure green ambient conditions (e.g., "Natural light through glass windows are easily observable in this hotel."). In addition, two items were utilized to assess green items (e.g., "Diverse green items and green interior decorations are appealing and easily observable in this hotel."). Moreover, we used two items to measure green spaces/areas (e.g., "Green rest area(s) are readily available at this hotel"). These multiple items were evaluated using a seven-point Likert type scale ranging from "strongly agree" to "strongly disagree".

Phase 2: Quantitative process

Data collection from guests

A field survey method was utilized to collect the data at luxury hotels located in metropolitan cities in South Korea. The hotels were considered to have a sufficient level of indoor and outdoor physical environment quality as they consistently strive to initiate sustainable practices and to create green atmospherics based on the standard that majority of luxury hotel brand should meet environmental commitment. Moreover, decorating the hotel areas with green continuously regarded as innovative lifestyle trends for hotels as individuals embrace sustainability as not only design preference but also a moral code (Travel Tech Today, 2020). For the collection of guest responses, surveyors (well-trained students) approached guests in the diverse areas of the hotels (e.g., lobby areas, rest areas, near retail stores). After the explanation of the research is given, guests were asked if they are willing to participate in the survey. The survey participants were requested to read the research description and questions thoroughly. The completed questionnaire was returned onsite. As a coupon of appreciation, a small gift (key ring) was given to the participants. The survey participation was voluntarily done. The data collection was done for about ten days. Through this process, a total of 270 completed responses were finally collected. After removing unusable responses, a total of 253 cases were used for data analysis. The sample size of 253 cases for guests is greater than the minimum size of 200–400 suggested by Hair et al.'s (2010) when using the structural analysis.

Data collection from employees

For the data collection of employee responses, surveyors distributed the questionnaire to employees in the same luxury hotels where the survey for the collection of guest responses was conducted. A detailed explanation about the research was provided to the participants. They were asked to carefully read the research description and requested to answer the

questions. The survey participation was voluntary. The completed questionnaire by employees was returned onsite. After checking the completeness, a small gift was provided to the participants. It took about ten days to collect a total of 259 responses. Upon exclusion of the unusable cases, a total of 247 responses left. These responses were utilized for data analysis. The sample size of 247 cases for employees is greater than Hair et al.'s (2010) recommend minimum size of 200–400 when using the structural equation modeling.

Measures for study variables and questionnaire development

The survey questionnaire included description about the research, measures for performance of green indoor atmospherics, measures for other study variables, and questions for socio-demographic characteristics. The measurement items for mental well-being, place dependence, and behavioral intentions were adopted from previous studies in the extant literature (Chua et al., 2017; Gascon et al., 2017; Henning-Thurau, 2004; Oliver, 2010; Wood et al., 2017; Yüksel et al., 2010). Multiple items and a seven-point scale were used. Specifically, five items were utilized to measure mental well-being (e.g., "I feel healthy and happy when staying (working) at this hotel"). To measure place dependence, we used three items (e.g., "For what I like to do, I could not imagine anything better than the settings and facilities provided by this hotel."). Additionally, three items were utilized for the evaluation of behavioral intentions (e.g., "I will continue using (working at) this hotel"). The questionnaire including these items was pre-tested by hospitality academics and industry professionals. A slight amendment was made on the basis of their feedback. The refined questionnaire was further improved through two academic experts' review.

Results

Sample characteristics of guests

Of 253 guests, about 54.9% were females, and 45.1% were males. Their mean age was 35.08 years old. The participants' income level was asked. About 46.2% indicated the income between $40,000 – $84,999, followed by an income of $39,999 or less (34.8%) and an income of $85,000 or more (19.0%). Regarding the education level of the participants, about 71.1% indicated that they are 4-year college graduates, graduate degree holders (19.4%), 2-year college graduates (7.1%), and high school graduates or less (2.4%). Most participants' purpose of travel was for pleasure (71.8%), followed by for business (17.8%) and other (10.4%). About 47.4% of the participants reported that the frequency of their hotel stay within the last one year was 3 – 5 times, followed by 1 – 2 times (26.5%), 6 – 9 times (15.4%), 10 – 15 times (6.7%), and 16 times or more (4.0%).

Sample characteristics of employees

Among 247 employees, while 53.4% were female workers, 46.6% were male workers. The participants' mean age was 32.5 years old. In terms of income, about 48.2% indicated the income between $30,000 – $59,999, followed by the income of $29,999 or less (44.1%) and the income of $60,000 or more (7.7%). When the employees' education level was asked, about 45.3% reported that they are 4-year college graduates, followed by 2-year college graduates (34.0%), graduate degree holders (19.0%), and high school graduates or less (1.6%). Regarding the period of work, about 31.2% of the participants reported 1 – 3 years, followed by 10 years or more (30.1%), 4 – 6 years (22.7%), and 7 – 9 years (16.2%). Lastly, in terms of employment status, about 72.5% indicated that they are full-time employees whereas about 27.5% indicated that they are part-time employees.

Multivariate normality check

Before the evaluation of the measurement model, a multivariate normality check was conducted in order to demonstrate that the assumption of the structural equation modeling is satisfied. As shown in the Appendix, our findings revealed that the absolute values of univariate skewness fell within the acceptable range from +3.00 to -3.00 for both guest group and employee group (Kline, 1998). In addition, our result showed that the absolute values of univariate kurtosis also fell between +3.00 and -3.00 for both the guest group and employee group (Kline, 1998). Therefore, the collected data from guests and the collected responses from employees did not considerably deviate from the normal distribution (Kline, 1998).

Measurement model of the guest group

A measurement model for guest responses was generated by using confirmatory factor analysis (CFA). AMOS 20 and SPSS 20 were utilized as data analysis tools. Our finding showed that the goodness-of-fit statistics of the measurement model was acceptable (χ^2 = 317.601, df = 119, $p < .001$, χ^2/df = 2.669, RMSEA = .070, CFI = .927, IFI = .928, TLI = .907). All standardized loadings between observed items and latent factors were significant ($p < .01$). The result of composite reliability (CR) calculation showed all constructs included the composite reliability values, which were greater than the cutoff of .70 (Hair et al., 2010). As shown in Table 1-1, the values fell between .820 and .883. Next, the value of average variance extracted (AVE) were calculated. The values are presented in Table 1-1. All values ranging from .602 to .791 exceeded the recommended threshold of .50 (Hair et al., 2010). These values were also greater than the squared value of correlations of each construct (see Table 1-1). This result provided the evidence of convergent and discriminant validity of the construct measures.

<INSERT TABLE 1-1>

Measurement model of the employee group

A CFA was conducted for the creation of the measurement model for employee responses. Our result showed that the model contained a satisfactory level of the goodness-of-fit statistics ($\chi^2 = 393.117$, $df = 119$, $p < .001$, $\chi^2/df = 3.304$, RMSEA = .071, CFI = .931, IFI = .932, TLI = .911). All standardized loadings among observed variables and latent variables were significant ($p < .01$). CR was calculated. Our result revealed that all constructs contained the reliability values exceeding the Hair et al.'s (2010) suggested cutoff of .70. The values ranged from .857 and .935 (see Table 1-2). Next, we calculated AVE values. The calculated values are reported in Table 1-2. All values ranging from .667 to .829 were greater than Hair et al.'s (2010) suggested threshold of .50. Moreover, the value of squared between-construct correlations were smaller than the AVE values (see Table 1-2). Therefore, convergent and discriminant validity of the measures were fulfilled.

<INSERT TABLE 1-2>

Structural model of the guest group

A covariance-based structural equation modeling with maximum likelihood estimation was conducted using guest responses. The generated model contained an acceptable level of goodness-of-fit statistics ($\chi^2 = 321.478$, $df = 125$, $p < .001$, $\chi^2/df = 2.572$, RMSEA = .079, CFI = .928, IFI = .929, TLI = .912). The mental well-being ($R^2 = .695$) is sufficiently accounted by exogenous variables (performance of green indoor atmospherics) and place dependence ($R^2 = .514$) is also satisfactorily explained by both performance of green indoor atmospherics and mental well-being. Moreover, behavioral intentions ($R^2 = .820$) is sufficiently accounted by performance of green indoor atmospherics, mental well-being, and place dependence. The

details about the structural equation modeling assessment results are shown in Table 2-1 and Figure 1. The hypothesized relationships among variables were tested. As expected, green ambient conditions ($\beta = .645$, $p < .01$), green items ($\beta = .212$, $p < .01$), and green spaces/areas ($\beta = .144$, $p < .05$) exerted a significant and positive influence on guests' mental well-being. Thus, Hypotheses 1a, 2a, and 3a were supported. In addition, the impact of mental well-being on place dependence ($\beta = .717$, $p < .01$) and behavioral intention ($\beta = .715$, $p < .01$) was positive and significant. Moreover, the relationship between place dependence and behavioral intentions was significant ($\beta = .244$, $p < .01$). These results supported Hypotheses 4a, 5a, and 6a.

<INSERT TABLE 2-1>

<INSERT FIGURE 1>

The indirect effect of mental well-being and place dependence were examined. As reported in Table 2-1, green ambient conditions ($\beta = .574$, $p < .01$), green items ($\beta = .189$, $p < .01$), green spaces/areas ($\beta = .128$, $p < .05$), and mental well-being ($\beta = .175$, $p < .01$) included a significant indirect influence on behavioral intentions. In addition, green ambient conditions ($\beta = .462$, $p < .01$), green items ($\beta = .152$, $p < .01$), and green spaces/areas ($\beta = .103$, $p < .05$) contained a significant indirect effect on place dependence. In terms of total effect, mental well-being ($\beta = .890$, $p < .01$) had the greatest total effect on intentions, followed by green ambient conditions ($\beta = .574$, $p < .01$), place dependence ($\beta = .244$, $p < .01$), green items ($\beta = .189$, $p < .01$), and green spaces/areas ($\beta = .128$, $p < .01$) (see Table 2-1).

Structural model of the employee group

A covariance-based structural equation modeling with maximum likelihood estimation for the use of employee responses was conducted. The model included an adequate level of goodness-of-fit statistics ($\chi^2 = 469.375$, $df = 125$, $p < .001$, $\chi^2/df = 3.755$, RMSEA = .080, CFI = .914, IFI = .914, TLI = .894). Our model in general contained an acceptable level of explanation power for mental well-being ($R^2 = 298$) by exogenous variables (performance of green indoor atmospherics), place dependence ($R^2 = .402$) by performance of green indoor atmospherics and mental well-being, and behavioral intentions ($R^2 = .493$) by performance of green indoor atmospherics, mental well-being, and place dependence. The results of the structural equation modeling are exhibited in Table 2-2 and Figure 1. The proposed relationships among research constructs were evaluated. Our result showed that green ambient conditions ($\beta = .220$, $p < .01$), green items ($\beta = .267$, $p < .01$), and green spaces/areas ($\beta = .219$, $p < .01$) had a significant effect on employees' mental well-being. Thus, Hypotheses 1b, 2b, and 3b were supported. Our finding also revealed that the influence of mental well-being on place dependence ($\beta = .634$, $p < .01$) and behavioral intention ($\beta = .407$, $p < .01$) was significant. In addition, the place dependence and behavioral intentions relationship was significant ($\beta = .370$, $p < .01$). Accordingly, Hypotheses 4b, 5b, and 6b were supported.

<INSERT TABLE 2-2>

The indirect influence of research constructs was examined. As shown in Table 2-2, green ambient conditions ($\beta = .141$, $p < .05$), green items ($\beta = .172$, $p < .01$), green spaces/areas ($\beta = .141$, $p < .05$), and mental well-being ($\beta = .235$, $p < .01$) contained a significant indirect impact on behavioral intentions. Green ambient conditions ($\beta = .140$, $p < .05$), green items ($\beta = .170$, $p < .01$), and green spaces/areas ($\beta = .139$, $p < .05$) also exerted

a significant indirect impact on place dependence. Next, the total impact of research variables was examined. Our result indicated that mental well-being ($\beta = .642$, $p < .01$) included the greatest total influence on behavioral intentions, followed by place dependence ($\beta = .370$, $p < .01$), green items ($\beta = .172$, $p < .01$), green ambient conditions ($\beta = .141$, $p < .05$), and green spaces/areas ($\beta = .141$, $p < .05$) (see Table 2-2).

Metric invariance test for comparison between guests and employees

Invariance test was performed to test the hypothesized moderating influence of occupant types. A baseline model containing 253 guest responses and 247 employee responses was created. All loading values between guests and employees were restricted to be equal. Our result showed that the goodness-of-fit statistics of the baseline model was acceptable ($\chi^2 = 815.561$, $df = 262$, $p < .001$, $\chi^2/df = 3.113$, RMSEA = .065, CFI = .918, IFI = .918, TLI = .904). This baseline model was then compared to nested models where a specific link of interest was restricted in an equivalent way. A chi-square test was for this empirical comparison. Results of the baseline model evaluation and chi-square test are shown in Figure 2 and Table 3.

<INSERT FIGURE 2>

<INSERT TABLE 3>

Our finding showed that path from green ambient conditions to mental well-being was significantly different between guest and employee groups ($\Delta\chi^2 [1] = 10.195$, $p < .01$). Therefore, Hypothesis 7a was supported. However, the links from green items ($\Delta\chi^2 [1] = 2.349$, $p > .05$) and green spaces/areas ($\Delta\chi^2 [1] = 1.719$, $p > .05$) to mental well-being were not significantly different between occupant types. Thus, Hypotheses 7b and 7c were not

supported. Our result further indicated that the linkage from mental well-being to behavioral intentions differed significantly across guest and employee groups ($\Delta\chi^2$ [1] = 6.545, $p < .05$), and that the mental well-being – place dependence link ($\Delta\chi^2$ [1] = 2.072, $p > .05$) and the place dependence – intentions link ($\Delta\chi^2$ [1] = 3.145, $p > .05$) were not significantly different between guest and employee groups. Accordingly, Hypothesis 7e was supported whereas Hypotheses 7d and 7f were not supported.

Discussion

The present research empirically attempted to fill the research gap with regards to the green indoor atmospherics and its impact by utilizing mixed methods design, including both qualitative and quantitative procedures. This study therefore provides several implications. First, this study is one of the very few types of research that explored the attributes of green indoor atmospherics, related them to mental well-being and place dependence in both guest and employee decision-making processes, and demonstrated the difference in intention formation across two types of occupants in hotel buildings. The existing literature in the hotel industry has offered a limited view pertinent to the green indoor atmospherics and guest and employee responses/behaviors. The present study, which effectively sealed this void through the intricate mixed methods approach, therefore contained a theoretically valuable meaning and originality. In particular, the key aspect of the proposed conceptual framework was the utilization of performance of green indoor atmospherics for prediction of its subsequent constructs. In the present research, green ambient conditions, green items, and green spaces/areas as dimensions of performance of green atmospherics were discovered to be crucial direct drivers of mental occupants' well-being in a hotel.

Second, our result successfully enriched the existing body of the hotel literature in that the proposed theoretical framework amply increase our comprehension about the role of

549 green indoor atmospherics in inducing guests' and employees' mental well-being perception
550 that leads to the increased place dependence and behavioral intentions (Douglas, 2012; Han
551 & Hyun, 2019; Wood et al., 2017). In addition, our result contained a crucial theoretical
552 meaning since the newly explored attributes of green indoor atmospherics uncovered through
553 the qualitative process have not been sufficiently delineated in existing studies explicating
554 internal/external customer decision-making process. The explored factors and the associated
555 measurement items can be extensively utilized in diverse indoor service/product consumption
556 situations (e.g., restaurants, cruises). Findings from the study imply that performance of green
557 ambient conditions, green items, and green spaces/areas are of utmost criticality in helping
558 guests and employees relieve their mental stress/anxiety and feel healthy and happy while
559 staying/working at the hotel. From the managerial aspect, strengthening the performance of
560 green indoor atmospherics (e.g., fresh air, natural scent, natural light, green interior décor,
561 living plants [flowers, trees, and potted plants], green rest areas, green spaces, green surfaces)
562 can be imperative for helping the hotel occupants feel stronger psychological and emotional
563 well-being.

564 Third, results of the present study identified the salient role of mental well-being in
565 determining guests' and employees' behavioral intentions. This result confirmed the previous
566 research that asserted the prominent influence of mental well-being on individuals' intention
567 generation process (Hwang & Lyu, 2015; Kim et al., 2016; Sirgy et al., 2007; Su & Swanson,
568 2019). Our finding provided crucial information that offering mental well-being to hotel
569 guests and hotel employees is a vital step for the increased intentions to remain with the hotel,
570 say positive things about the hotel, and be loyal for the hotel. According to Andreoni and
571 Galmarini (2014), fostering an individual's social relationship is one of the ways to cultivate
572 positive thinking, relieve anxiety, and stay psychologically and emotionally healthy. In this
573 regard, hotel proprietors should make diverse endeavors that help improve a guest's social

relationship by offering more interaction opportunities with others (e.g., discount about the use of leisure facilities [e.g., fitness, spa, swimming pool, golf range] for the guest's accompanying friends/people). Hotel proprietors also need to intensify an employee's social relationship with his/her peers (e.g., developing a team building activity that can spread fun/positivity at work). These efforts would contribute to increasing the guests' and employees' social relationship, which eventually improve their mental well-being when staying/working at the hotel.

Fourth, it was demonstrated that mental well-being and place dependence acted as significant mediators in the hypothesized theoretical frameworks (Dana & Griffin, 1999; Lee & Shen, 2013; Lewicka, 2011; Plunkett et al., 2019; Sharma et al., 2016; Su & Swanson, 2019; Sirgy et al., 2007). These constructs significantly mediated the influence of performance of green ambient conditions, green items, and green spaces/areas on behavioral intentions among guests and among employees. This result implies that while triggering guest and employee intentions directly, mental well-being and place dependence are essential variables that maximize the influence of performance of green indoor atmospherics on guests' and employees' behavioral intentions. It is thus of importance to deal with such mediators efficiently in order to make the best use of green ambient conditions, green items, and green spaces/areas and fortify the effect of these concepts in building guest and employee intentions to remain with the hotel, say positive things about the hotel, and have loyalty for the hotel. It is interesting to report that unlike the employee group where three dimensions of green indoor atmospherics have a similar level of importance in triggering mental well-being, green ambient conditions in the customer group had a greater influence on mental well-being as compared to green items and green spaces. It is thus essential for luxury hotel proprietors to focus more on fortifying the ambient conditions within the hotel and its performance in order to attain a stronger level of mental well-being among their guests.

Lastly, our result from the test for metric invariance provided evidence regarding the significant moderating influence of occupant types on the sequential relationships of green ambient conditions – mental well-being – behavioral intentions (Han & Hyun, 2019; Jeong & Lee, 2006; Trang et al., 2019; Vujcic et al., 2017). In particular, the magnitude of the relationship strength between green ambient conditions and mental well-being ($\beta_{guests} = .650$, $p < .01$; $\beta_{employees} = .189$, $p < .01$) and between mental well-being and behavioral intentions ($\beta_{guests} = .711$, $p < .01$; $\beta_{employees} = .387$, $p < .01$) was significantly greater in the guest group than in the employee group. This result implies that at a similar level of performance of green ambient conditions, guests feel stronger mental well-being than employees, and that at a similar level of mental well-being, guests more actively build behavioral intentions than employees. This finding offered meaningful theoretical insights that a hotel's green ambient conditions have a different level of criticality between occupant types when associating with mental well-being and behavioral intentions. The present research is also the first research that demonstrated the dissimilarity regarding the impact of performance of green ambient conditions on mental well-being and the impact of mental well-being on behavioral intentions between hotel guests and employees. Recognizing this dissimilarity in guests' and employees' responses, in order to effectively enhance mental well-being and behavioral intentions, luxury hotel proprietors should develop and use the tactics that are different for the guests and for the employees.

Conclusion

The existing literature in the hotel industry has hardly identified the attributes of green indoor atmospherics that both hotel guests and hotel employees believe to be important. In this regard, this study successfully uncovered the salient attributes of green indoor atmospherics in luxury hotels. The uncovered attributes were grouped into three dimensions (i.e., green

ambient conditions, green items, and green spaces/areas). Performance of these constructs was found to significantly influence the formation of mental well-being, place dependence, and behavioral intentions among hotel guests and hotel employees. In addition, mental well-being and place dependence were important mediators within our theoretical framework. Our finding also revealed the relative criticality of guests' and employees' mental well-being in building behavioral intentions. The process of generating behavioral intentions through green ambient conditions and mental well-being was significantly dissimilar between hotel guests and hotel employees.

Limitations and Recommendations for Future Research

While the findings of this research contributed to the hospitality and tourism literature, it includes a few limitations that need to be addressed by future research. First, behavioral intentions are a multi-dimensional concept. Oliver (2010) indicated that consumers' behavioral intentions comprise repurchase/revisit intention, word-of-mouth/recommendation intention, and loyalty intention. In this study, we used these components as measures for behavioral intentions. That is, a singular construct for behavioral intentions was utilized in the proposed theoretical framework. Using multiple dimensions for behavioral intentions in the future research can be an interesting extension of the present study. Second, this study placed an emphasis on mental well-being and place dependence linking performance of green indoor atmospherics and intentions. However, other processes (e.g., attitudinal, normative, and habitual) in existing social psychology theories (e.g., theory of planned behavior, norm activation theory) can also be used to offer additional insights into such a link. Future research should consider these processes for the broadening of our conceptual framework. Third, customer buying decision differs on the basis of situational factors (Perugini &

Bagozzi, 2001). The influence of diverse self-caused/circumstance-caused factors on the proposed theoretical framework should be considered in the future research.

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