



The effects of medical service attributes on the well-being of pregnant customers

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Abstract

Based on spillover theory, in this study examined the impacts of physician concern, staff concern, convenience of the care process, and tangible attributes on hedonic and eudaimonic well-being of pregnant customers. The sample comprised 190 pregnant customers who used medical services. An online survey was distributed to customers via a survey company. Partial least squares structural equation modeling analysis was used to examine relationships between variables. Our results demonstrate how staff concern and convenience of the care process determine customer experiences and evaluations. Customer satisfaction has positive direct and indirect effects on both their hedonic and eudaimonic well-being. The findings of this study can be used by medical service providers to design services to improve the satisfaction of pregnant customers. This study contributes to the existing service literature by examining the relationship between medical service attributes and pregnant customers' well-being.

Keywords Medical services · Physician concern · Staff concern · Convenience of the care process · Tangible attributes · Well-being · Pregnant customers

Introduction

Medical services are integrated activities designed to provide patients with medical treatment by licensed professionals (Yoon et al., 2007). Previous research showed that managing relationships with customers is becoming more important in healthcare (Almunawar & Anshari, 2012). Medical services providers believe that patients should be given more choices, which in turn allow providers to treat them better as customers when providing care and arranging treatment (Mazurenko et al., 2016). In addition, previous research showed that treating the patient as a customer has many advantages. For instance, if the patient is considered a customer, the provider (hospital) assumes the role of the seller (medical service as the business), whose aim is to satisfy the customer's (patient's) needs (Reeder, 1972). The literature also discusses the consumer-driven nature of U.S.

healthcare, suggesting that, as patients increase their health literacy and control over healthcare decisions, they transition from their roles as pure patients to customers (Herzlinger, 2006, 2010; O'Connor et al., 2000; Powell & Läufer, 2010).

The well-being of customers is important to service providers (Falter & Hadwich, 2020). Customer well-being is increasingly considered a key outcome of the customer's own activities (Rosenbaum et al., 2011). Well-being is defined as associated states of health, happiness, and prosperity (Mick et al., 2012). Medical services are services that people need but do not necessarily want (Berry & Bendapudi, 2007) and have been described as the most personal and important services consumers can buy (McGlynn et al., 2003). Health care has a pervasive impact on economies and the quality of individual daily life (Berry & Bendapudi, 2007). Prior research has also shown that medical services impact patient quality of life and have the potential to transform people's lives (Sweeney et al., 2015). In other words, medical services directly impact consumer quality of life and their well-being. Ostrom et al. (2015) also stated that well-being is an increasingly desirable outcome for private and public service providers.

Due to increasing competition in the medical service industry, service providers need to create positive customer

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experiences to differentiate themselves from their competitors. Customers can experience improved life satisfaction through positive customer service experiences (Ahn et al., 2019). Although a number of studies have examined the relationship between customer experiences and well-being in various sectors, few studies have examined the impact of medical service experiences on customer well-being. Pregnancy is a life-changing event that has important implications for women's health, well-being, and social roles (Striegel-Moore et al., 1996; Yali & Lobel, 2002). By understanding pregnant customers' needs, delivering exceptional experiences, and building long-term relationships with them, medical services can benefit from increased revenue and competitive advantage. However, despite the unique characteristics of pregnant customers, few studies have examined their experiences with medical services. Thus, in this study we examined 1) the relative impact of medical service attributes on pregnant customer satisfaction and 2) direct and indirect effects of satisfaction on customer well-being in the medical service context. Based on spillover theory, we assumed that a positive medical service experience would improve customers' perceived well-being.

Literature review

Spillover theory

Spillover refers to the extent to which information provided in messages changes beliefs about attributes that are not mentioned in the messages (Ahluwalia et al., 2001). It occurs when information and existing perceptions about one entity influence beliefs about another related entity (Raufeisen et al., 2019). According to spillover theory, perceptions, attitudes, and behaviors in one's social setting can be exhibited in another realm as a reflection of one's abilities and experiences (Sthapit et al., 2021). Spillover effects are pervasive in consumer decision-making and are well documented in the marketing literature (Balachander & Ghose, 2003; John et al., 1998).

The spillover effect occurs when the functions of one person in one area are influenced by the functions and experiences of that person in another area. For example, when personnel are engaged in their work, the positive feelings they derive from work will likely spill over into other life domains (Golembiewski, 1995). A spillover also can be triggered by an external stimulus (e.g., a delightful service encounter) that activates a corresponding node. Previous research showed that customer experiences have positive impacts on individual responses (Mehrabian & Russell, 1974). According to spillover theory, one's ability and experience can be reflected in another area (Sthapit et al., 2021). Prior research found that service experiences

may affect the emotional states of customers (Altinay et al., 2023). Service experiences impact customers' emotional, cognitive, and psychological states (Fitzpatrick & Stalikas, 2008; Helena Vinagre & Neves, 2008).

One study showed that favorable customer experiences may enhance well-being among pregnant customers in particular (Arici et al., 2022). Because interactions with service providers add to individual experiences (Wu, 2007; Chen et al., 2020), they may help to meet pregnant customers' emotional needs. That study also observed beneficial correlations between hospital experiences and patients' subjective well-being (Altinay et al., 2023). These correlations also reflect spillover of service experience into other fields. In summary, we believe that the service experiences of pregnant customers may affect their well-being.

Hypothesis development

Customer satisfaction with service experiences

The service experience is described as the core of service delivery and service design (Zomerdijk & Voss, 2010). The concept of a service experience was first introduced by Pine and Gilmore (1999) when conceptualizing the "experience economy." The phenomenological characteristics of the service experience are mainly focused on individual experiences, which include internal experiences, subjective experiences, and event-specific experiences. However, such research increasingly recognizes that the service experience is also social, because people do not live in isolation (Helkkula, 2011). In addition, recent definitions take into account the personal and subjective responses of experienced customers to any direct or indirect contact with the provider (Meyer & Schwager, 2007; Verhoef et al., 2009). Therefore, the service experience is a subjective reaction or explanation of service elements that occur in the course of purchase or use, or in the imagination or memory (Jaakkola et al., 2015).

Customer satisfaction with service experience is very important and is the most direct evaluation element of a customer's experience or consumption. Oliver Richard (1997) defined customer satisfaction as meeting the customer's expectations of products and services based on comparison with the perceived performance. If the perceived performance matches customer expectations of services, they are satisfied (Amin & Nasharuddin, 2013). It is generally accepted that service experience affects the customer's overall satisfaction with service brands (Grace & O'Cass, 2004). Medical customer satisfaction refers to subjective responses by customers to both tangible and intangible service stimuli.

Antecedents of customer satisfaction

During the last decade, numerous studies have examined antecedents and consequences of satisfaction (Chen et al., 2013; Han & Ryu, 2012; Slåtten et al., 2011) because customer satisfaction is the ultimate goal of every business due to its potential impact on repeat behavior and profits (Ali et al., 2012; Jani & Han, 2011; Ryu et al., 2012). However, the definitions and conceptualization of customer satisfaction vary in the marketing literature. The concept of satisfaction means that consumers want the service they receive to live up to certain expectations (Ali et al., 2016). Previous research showed that pregnancy may lead individuals to have distinct syndromes, like anxiety (Huizink et al., 2004). Pregnancy anxiety represents a particular emotional base that is specifically rooted in concerns among pregnant women about pregnancy (Dunkel Schetter, 2011). When doctors provide services to meet customer needs and expectations, such as good communication and professional treatment, the customers will have high satisfaction. A previous study showed that a participatory communication style was positively correlated with patient satisfaction (Speedling & Rose, 1985). Another study showed that doctors care about their patients and are responsible for providing quality care (Uhas et al., 2008). Similarly, factors such as partnerships and active attending physicians are associated with increased patient satisfaction (Little et al., 2001). Previous research showed that the physician and staff act as maternal health care professionals to support physiological processes around pregnancy and birth and enable a smooth transition to motherhood (Kasper et al., 2022). Physician concern can positively impact the psychological states of pregnant customers by fostering trust and empowering customers in decision-making. Thus, when doctors ask more psychosocial questions than biomedical questions and have better nonverbal sensitivity, patients have higher levels of satisfaction. Therefore, in this study we propose the following hypothesis:

H1: Physician concern increases customer satisfaction.

Prior studies have emphasized the importance of the human and psychosocial aspects of nursing in the nursing process and indicated that nurses need to foster a caring attitude and certain caring behaviors (Bassett, 2002) because nurse attitudes and behaviors play important roles in patient satisfaction. Specifically, what a nurse is like as a person (consideration and sensitivity, self-dedication, and other personal characteristics) and what a nurse's style of work is like (giving time to patients, appearing unhurried and in control) are important contributors to patient satisfaction (Dyson, 1996). Previous research showed that pregnant individuals usually fear for the health and well-being of their baby, the impending childbirth, hospital, and healthcare experiences

(including their own health and survival in pregnancy), birth and the postpartum period, and parenting or the maternal role (Huizink et al., 2004). Staff displays of concern can positively impact the psychological well-being of pregnant customers by providing emotional support. Kourkouta and Papathanasiou (2014) stated that good communication between the nurse and patient is crucial for implementing individualized nursing care, coping with poor prognoses, and enacting treatment plans. Communication with medical staff not only positively influences the patient's understanding of problems and the current situation (Sherko et al., 2013), but can also help patients overcome psychological difficulties (Szirony & Kushner, 2018). Here, we consider all interactions between staff and pregnant women to be opportunities for healthcare workers to express their concerns. Therefore, the following hypothesis is proposed:

H2: Staff concern increases customer satisfaction.

Despite the complex nature of medical services, patients still want a wide range of services and continue to value services that are convenient to them (Tuzovic & Kuppelwieser, 2016). Research shows that convenience is an important service attribute (Kumar et al., 2017). Medical organizations need to provide convenient services to patients and adapt to changing patterns of demand (Chang & Polonsky, 2012; Savory & Fortune, 2014). Berry et al. (2002) found that convenience is an important factor in creating value for customers and identified different types of convenience associated with service encounters, because the conveniences that customers expect vary from service to service. In this study, convenience refers to the ease of the care process, along with the speed of service procedures. Patient satisfaction is affected by flexible and convenient delivery systems (Powers & Jack, 2008; Zhang et al., 2003). Previous research showed that psychological distress experienced by the mother could contribute to suboptimal fetal environment, including the medical and life environment. The action of this psychological mechanism during pregnancy may affect the state of the pregnant individual and the health of the fetus (Vehmeijer et al., 2019). Thus, the ability to improve convenience has a positive effect on patient satisfaction. This leads to the following hypothesis:

H3: Convenient care processes increase customer satisfaction.

Research has shown that service production also often involves tangible elements (Bitner, 1992; Lovelock & Gummesson, 2004). A patient evaluates a medical service based not only on clinician skill and manner, but also the medical equipment and furnishings in the clinic (tangible attributes) (Ding & Keh, 2017). A prior study suggested

that tangible attributes include the environment in which the service is delivered as well as other commodities that facilitate performance or communication of the service (Zeithaml & Bitner, 1996; Zeithaml et al., 1983). Here, the tangible attributes include the comfort of areas such as waiting areas for medication and at the doctor's office; hospital amenities that are easy to use; advanced equipment; and laboratories and doctor's offices that are easy to find. Different medical devices, hardware, and software (such as telemedicine tools or mobile X-rays) provide patient convenience (Kumar et al., 2017). Furthermore, services with greater tangible attributes can reduce perceived risk (Sharma et al., 2014), providing patients with better experiences (Ponsignon et al., 2015). By understanding the psychological mechanisms of pregnant individuals, such as information processing and trust, and addressing these factors, tangible attributes of medical service can contribute to positive experiences and better psychological outcomes. In the other words, the overall feeling and experience of patients can affect their satisfaction. Thus, tangible attributes can influence pregnant customer satisfaction and the following hypothesis is proposed:

H4: Tangible attributes of medical service increase customer satisfaction.

Consequences of customer satisfaction

Hedonic well-being refers to a person's comprehensive evaluation of their quality of life. The concept focuses on the experience of happiness, and the two important dimensions reflecting subjective happiness are satisfaction evaluation and positive emotion (Ahuvia & Friedman, 1998). The healthcare sector creates conditions for patients and professionals to improve patient experience and well-being through continuous and professional care (Wilson & Leese, 2013), and to increase the patient's quality of life. Patient-centered medical services are related to patient well-being; a focus on patient-related factors and more tailored care can lead to positive well-being and positive nursing experiences (Aarts et al., 2012). In other words, hospital services may provide pregnant individuals with greater security and comfort and make them happier. Hedonism can induce a more positive emotional state (Kahneman et al., 1999). Therefore, professionals who work in a skilled manner and provide care for pregnant patients in a sensitive manner can increase patient satisfaction and create a strong sense of well-being (Aarts et al., 2012). Previous research showed the presence of usually one anxiety during the last month of pregnancy in nulliparous pregnant patients, and that pregnancy anxieties could be clustered in anxiety about pregnancy and childbirth (Standley et al., 1979). If pregnant patients can visualize their future children through advanced hospital facilities, this enables them to satisfy their curiosity and meet their

objective needs for the existence condition and well-being of the fetus (Goberna-Tricas et al., 2011). That is, the hospital can through provide services for pregnant customers to increase their satisfaction, which increases their happiness. Therefore, this research proposes the following hypothesis:

H5: Customer satisfaction can positively affect customer hedonic well-being.

Eudaimonic well-being refers to the extent to which a person is fully functioning and capable of realizing his/her true potential (Bhullar et al., 2013). Ryff (1989) proposed that eudaimonic well-being involves the concepts of autonomy, personal growth, purpose in life, environmental mastery, positive relatedness, and self-acceptance. Eudaimonic well-being facilitates coping with stress and increases psychological well-being by positively affecting mental health (Dehestani et al., 2019). Advanced hospital equipment and related services enable pregnant patients to face pregnant life in a good state of mind, thereby increasing their satisfaction with pregnant life and enabling them to experience the happiness of pregnancy. A previous study found a significant and direct relationship between eudaimonic well-being and satisfaction (Niaghiha et al., 2019). The research also showed that pregnant individuals' emotional reactions change following delivery (Kendell et al., 1987). These changes included anxiety about future parenting and life (Standley et al., 1979). If a hospital can the confidence of patients and make them feel more positive about themselves, the patients will have high satisfaction with the medical services provided and maintain good psychological health. This leads to the following hypothesis:

H6: Customer satisfaction can positively affect their eudaimonic well-being.

Based on spillover theory, for this study we generated hypotheses to evaluate whether medical service attributes (i.e., physician concern, staff concern, convenience of the care process, tangible attributes) can increase the well-being of pregnant customers by increasing their satisfaction.

Methods

Data collection

To examine the spillover effect of medical customers' service experience on their well-being, a self-administered online survey was conducted in the United States due to the large size of its health care market (Statista, 2023). According to recent statistics, health care market revenue in the United States is projected to reach US\$17.03bn in 2023 and

to grow to US\$27.67bn by 2027. The study population comprised pregnant customers aged over 19 years old who used medical services in one year. Data were collected online by the online survey company. A link to the online form was distributed via an online survey platform. Screening questions were used to ensure that the respondents had used a medical facility and were therefore eligible to participate in the study (e.g., “Have you visited a medical facility in one year?” “What was name of the medical facility that you most recently visited?” “How many times did you visit the above-mentioned facility?”). To increase customer engagement with the survey, they were asked to provide the name of the medical service facility they used, and this name was embedded in service-related questions (e.g., When I visit *Houston Methodist Hospital*, physicians paid enough consideration to my concerns regarding medical procedures. Visiting *Houston Methodist Hospital* made my life better.) After deleting incomplete responses, a final sample size of

190 was achieved, which meets the minimum sample size required for partial least squares-structural equation modeling (Hair et al., 2013). The majority of participants were aged between 19 and 38 years (63%).

Data analysis

To understand customer experiences with medical services, we adopted items from Choi et al. (2005). Three items were modified from Su and Hsu (2013) and used to measure satisfaction among pregnant customers. Finally, customer well-being was measured using () items adopted from other previous studies (Pavot & Diener, 1993; Ryff, 1989; Waterman, 1993). All items were measured using a 7-point Likert-type scale (“1- Strongly disagree” to “7- Strongly agree”). Items are shown in Table 1. A PLS-SEM approach was used to evaluate the hypothesized relationships, as this method minimizes unexplained variance and facilitates measurement

Table 1 Constructs and measurement items

Item	Loading
Physician concern (AVE=0.61, CR=0.74, α =0.73)	
Physicians were polite.	0.78
Physicians paid enough consideration to my concerns regarding medical procedures.	0.77
Physicians made me feel comfortable.	0.79
Staff concern (AVE=0.54, CR=0.73, α =0.74)	
Nurses were friendly.	0.78
Nurses explained the treatment/medication process well.	0.72
Care providers tried to help me as much as they could.	0.73
There was a good coordination among care providers.	0.71
Convenience of the care process (AVE=0.60, CR=0.71, α =0.71)	
Laboratory tests were performed promptly.	0.74
The payment procedure was quick and simple.	0.80
The process for setting up the appointment was simple and easy.	0.79
Tangible attributes (AVE=0.56, CR=0.74, α =0.75)	
The waiting areas for medication and at the doctor’s office were pleasant.	0.78
It was easy to use the amenities in the hospital.	0.74
The hospital seems to be equipped with the latest equipment.	0.77
It was easy to find care facilities (lab, doctor’s office).	0.72
Satisfaction (AVE=0.63, CR=0.71, α =0.71)	
Overall, I am satisfied with this hospital.	0.80
Compared to my expectations, I am satisfied with this hospital.	0.78
Compared to the ideal situation, I am satisfied with this hospital.	0.80
Hedonic well-being (AVE=0.61, CR=0.72, α =0.73)	
Visiting this hospital made my life better.	0.78
Visiting this hospital made my life more satisfying.	0.75
Visiting this hospital made my life happier.	0.82
Eudaimonic well-being (AVE=0.60, CR=0.71, α =0.71)	
Visiting this hospital made me more confident.	0.77
Visiting this hospital made me more positive about myself.	0.82
Visiting this hospital made me closer to my ideal self.	0.73

AVE is Average Variance Extracted; α is Cronbach’s alpha and CR is Composite Reliability

errors (Hair et al., 2017). Harman's single factor analysis was used to evaluate common method bias. Our results showed that no single factor explained more than 50% of the variation.

Results

Measurement model

Composite reliability (CR) and Cronbach's alpha were used to examine the reliability and internal consistency of the proposed model (Hair et al., 2017). As outlined in Table 1, all Cronbach's alpha coefficients and CR of the latent variables were greater than 0.70, indicating the reliability and good internal consistency of the model. The average variance extracted (AVE) was used to evaluate convergent validity. All AVE values were above 0.50, supporting convergent validity (Hair et al., 2017). All factor loadings were also greater than 0.70. The square roots of AVE values of the structures were higher than the correlation coefficients between the structures, supporting discriminant validity (Fornell & Larcker, 1981) (see Table 2). Lastly, as PLS-SEM does not produce the model fit as the covariance-based counterpart does, Goodness-of-fit (GoF) assessment was used to examine model fit (Tenenhaus et al., 2005). The geometric means of average AVE and average R^2 for endogenous constructs were used for the calculation of model fit values. The calculated value of the average AVE was 0.59, with R^2 values of 0.56 for satisfaction, 0.19 for hedonic well-being, and 0.38 for eudaimonic well-being. Following parameters established in the work of Wetzels et al. (2009), the GoF value of the research model is 0.51 indicating a large effect. Thus, the analysis of measurement and structural models were validated and fit.

Structural model

The proposed model was tested using a bootstrapping technique with 5000 bootstrap replicates. This technique is provided by SmartPLS when testing relationships and paths

between exogenous constructs (i.e., physician concern, staff concern, convenience of the care process, tangible attributes) and endogenous constructs (i.e., satisfaction and well-being). Using bootstrap technique is subsamples were drawn from data using replacement and resampling. Staff concern ($\beta=0.22$, $t=1.98$, $p=0.04$) and convenience of the care process ($\beta=0.47$, $t=5.51$, $p<0.001$) had significant and positive impacts on pregnant customer satisfaction. Thus, H2 and H3 were supported. Customer satisfaction directly influenced both hedonic ($\beta=0.44$, $t=5.80$, $p<0.001$) and eudaimonic ($\beta=0.62$, $t=14.27$, $p<0.001$) well-being in the medical service context, supporting H5 and H6. However, in this study, physician concern and tangible attributes did not significantly influence pregnant customer satisfaction (Table 3). Lastly, our results showed that customer satisfaction influenced the relationship between convenience of the process and hedonic ($\beta=0.21$, $t=4.52$, $p<0.001$) and eudaimonic well-being ($\beta=0.29$, $t=5.09$, $p<0.001$). Thus, the indirect effect of customer satisfaction was confirmed (Table 4). Structures and measurement items were derived from previous research and are shown in Fig. 1.

Discussion

In this study, we aimed to examine the effects of medical service attributes on pregnant customer well-being. The results are summarized as follows. First, there were positive impacts of staff concern and convenience of the care process on pregnant customers' satisfaction. Similar to previous studies (Sherko et al., 2013, Szirony & Kushner), customers' relationship with staff and easy processes were important determinants of their positive evaluation. Considering limited studies on pregnant customers' satisfaction, this study address how medical service providers can increase company performance through creating positive experiences. Second, although previous studies suggested the importance of interaction with physicians and managing tangible attributes in the medical service sector (Little et al., 2001; Ponsignon et al., 2015), in this study, the effects of physician

Table 2 Discriminant validity (Fornell-Larcker criterion)

Constructs	1	2	3	4	5	6	7
1. Physician concern	0.78						
2. Staff concern	0.63	0.76					
3. Convenience of the care process	0.65	0.69	0.77				
4. Tangible attributes	0.66	0.71	0.66	0.75			
5. Satisfaction	0.53	0.64	0.71	0.60	0.79		
6. Hedonic well-being	0.52	0.61	0.55	0.52	0.44	0.78	
7. Eudaimonic well-being	0.61	0.62	0.66	0.60	0.62	0.68	0.77

Diagonal elements are squared AVE values

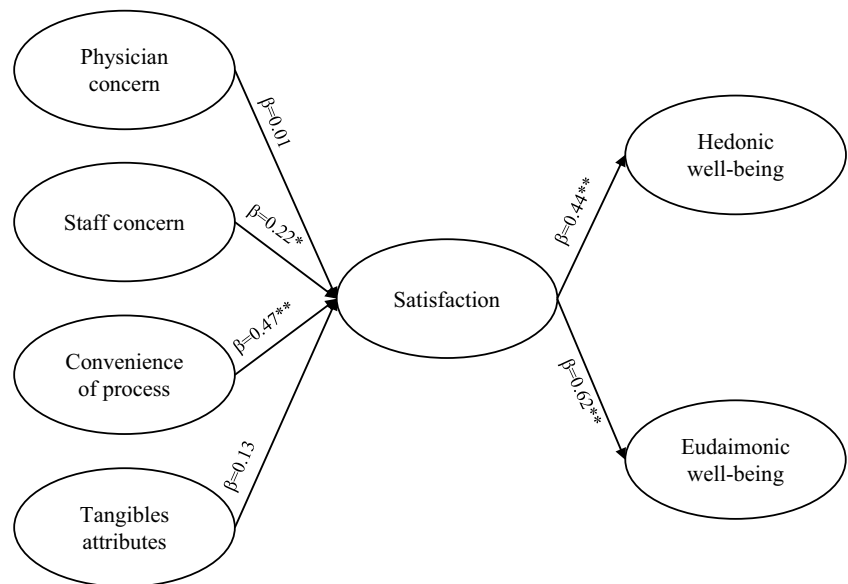
Table 3 Results of testing hypotheses

Hypotheses: General framework	β	t-value	p value
H1. Physician concern → Satisfaction	0.01	0.01	1.00
H2. Staff concern → Satisfaction	0.22	1.98	0.04
H3. Convenience of the care process → Satisfaction	0.47	5.51	0.00
H4. Tangible attributes → Satisfaction	0.13	0.87	0.38
H5. Satisfaction → Hedonic well-being	0.44	5.80	0.00
H6. Satisfaction → Eudaimonic well-being	0.62	14.27	0.00
R-squared value			
Satisfaction	0.56		
Hedonic well-being	0.19		
Eudaimonic well-being	0.38		

Table 4 Results of testing for indirect effects

Hypotheses: General framework	β	t-value	p value
Physician concern → Satisfaction → Hedonic well-being	0.00	0.00	1.00
Physician concern → Satisfaction → Eudaimonic well-being	0.00	0.01	1.00
Staff concern → Satisfaction → Hedonic well-being	0.10	1.72	0.09
Staff concern → Satisfaction → Eudaimonic well-being	0.13	1.93	0.05
Convenience of the care process → Satisfaction → Hedonic well-being	0.21	4.52	0.00
Convenience of the care process → Satisfaction → Eudaimonic well-being	0.29	5.09	0.00
Tangible attributes → Satisfaction → Hedonic well-being	0.06	0.81	0.42
Tangible attributes → Satisfaction → Eudaimonic well-being	0.08	0.86	0.39

Fig. 1 Proposed theoretical model. Note: ** $p < 0.01$, * $p < 0.05$



concern and tangible attributes were limited. This indicates that the impact of medical service attributes may vary across different customers and service types. Lastly, results revealed both direct and indirect effects of satisfaction in the relationship between medical service attributes and well-being. In line with the previous studies (Ahn et al., 2019), satisfaction with service experience

is important in predicting experiencing subjective happiness and actualizing one’s potential. This result suggests that understanding and managing customer emotions during service experiences is an important area of inquiry for service researchers and practitioners (Ostrom et al., 2015), especially in the medical services sector (Berry & Bendapudi, 2007).

Theoretical implications

Customer satisfaction is critical because it reflects the customer's subjective assessment of the performance of attributes associated with the consumer experience. Previous studies have shown that convenience, cost savings, time savings, and past experiences are all related to customer attitudes (Yeo et al., 2017). Furthermore, effective delivery of functionality and related service attributes increase customer satisfaction (Zhao & Bacao, 2020). However, the attributes of medical services do not refer specifically to a particular service, but to all services that consumers receive throughout the hospital process. Therefore, all of these services can affect customer satisfaction. Thus, in this paper we examined the antecedents of pregnant customer satisfaction in four specific contexts: physician concern, staff concern, general convenience, and physical facilities, providing new insights into the effects of these factors on customer satisfaction with medical services. Similar to previous studies (Gonzalez, 2019; Lonial & Raju, 2015), our findings showed that the impact of physician concern, staff concern and convenience of the care process affected customer satisfaction. However, staff concern and tangible attributes were not sufficient to result in positive customer evaluations. For pregnant customers, trusting and having interaction with their physicians were more important than staff attributes. Our results also show that customer satisfaction is more influenced by intangible attributes of medical service (e.g., convenience of the process) than by tangible attributes such as decor and furniture. These results can be explained by the fact that medical service employees may treat pregnant customers with more benevolence than those who are not pregnant (Hebl et al., 2007).

The spillover effect is likely to be influenced by the customer's expertise (Ding & Chai, 2012). The service experience refers to the client's subjective response to or overall interpretation of their direct or indirect interactions with the service staff (Maklan, 2012). An enhanced service experience is an important precedent for customer well-being, and through an enhanced service experience, customers can meet their needs for self-realization, which in turn generates happiness. Consistent with previous studies, customer experience significantly affected emotional responses to services and products as well as customer well-being (Hwang & Lyu, 2015; Naidoo & Sharpley, 2016; Hosany et al., 2015; Woodruff et al., 1983). This study expands existing knowledge about the positive influence of service experiences on customer well-being in the medical sector. In particular, positive and pleasant medical service experiences lead to higher levels of subjective well-being (Huang et al., 2019). Furthermore, the service experience is an important factor contributing to positive emotions and subjective well-being (Huang et al., 2019). Therefore, in this study we used

spillover theory to show that the medical service experience can have a positive effect on well-being.

Practical implications

To foster greater patient concern in staff, the needs of the staff need to be understood; only if the staff have minimal worries will they be able to devote themselves to their work. First, the company can create an "open box" to understand the real needs of their employees. The larger the company, the harder it is for upper and lower-level employees to communicate, making it difficult for employees to communicate their true thoughts. If a company creates an open mailbox, opinions can be collected and dealt with in a timely manner. Second, enterprises should implement good annual salary incentive mechanisms. Enterprises can increase the base salary year by year according to the employee's entry time. As employee benefits increase, they are more likely to be willing to contribute to the company. Third, employees should have increased spare time. The company can build recreational facilities, such as basketball courts, badminton courts, reading rooms, and library rooms to improve the quality of life and recreation time of employees. Fourth, career development plans should be formulated. If the career development of an enterprise is limited, employees lose motivation and passion. Fifth, spiritual motivation and sense of belonging are also important considerations as they enhance the quality of work of employees. A sense of belonging refers to an employee's conceptual identity and dependence on the organization, and is a conscious tendency of a personal value relationship to belong to or depend on an organization. When employees have a strong sense of responsibility, employees will have the spirit of ownership and consider the company's business to be their own, leading to synchronization of business goals and personal labor goals.

The care process, which includes pre-admission decision-making, visits, scheduling, registration and admission, transactions, care delivery, and post-discharge facilities can be improved in multiple ways. First, hospitals should provide network systems and online services so that patients can communicate and have a good understanding of medical facts before any admission decisions are made. Second, hospitals should provide as many service points as possible to patients, such as service reception desks and convenient transportation services. Third, schedules should be convenient for the patient. Given that the appointment arrangement system is "at the crossroads of efficiency and timely access to medical services," it has the potential to cause dissatisfaction among patients and providers. Patients want to see their doctors as soon as possible. Therefore, hospitals should provide patients with services as soon as possible. Fourth, hospitals should also consider the convenience of the duration of service. Patient registration procedures should be

minimized to improve convenience. For example, an administrative service center could be established to effectively coordinate and organize healthcare and reduce unnecessary procedures. Fifth, transaction convenience refers to the time and effort spent by consumers to complete a purchase transaction. In the case of healthcare, patients are usually required to pay prior to actual consultation with doctors and medical personnel. As a result, the bill may increase as the complexity of the patient's medical condition increases; therefore, hospitals should provide accurate payment data as soon as possible to avoid inconvenience to patients. Furthermore, hospitals should try to provide care in a patient-friendly manner, such as decreasing the time the patient spends receiving care and diversifying the means of care so that patients can choose care that is acceptable to them. Finally, the hospital should provide appropriate services after discharge, for example, additional advice from the doctor.

Limitations and future research

Although this study made theoretical and practical contributions, it is not without limitations. We utilized a survey to collect data. Therefore, future research should focus on collection and analysis of additional data sources such as qualitative interviews. By using qualitative data, researchers can understand why, what and how medical service experience influences customers' well-being. We considered only American users, and cross-cultural studies are therefore needed in the future. In addition, we considered only medical services received by pregnant customers without considering other types of medical services, limiting the generalizability of our findings.

Data availability Datasets generated and/or analyzed within the current study are available from the corresponding author upon reasonable request.

Declarations

Ethical approval statement All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee.

Informed consent Informed consent was obtained from all individual participants included in the study.

Conflict of interest The authors have no conflicts of interest to declare.

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