International Journal of Hospitality Management 111 (2023) 103492

Contents lists available at ScienceDirect

International Journal of Hospitality Management

journal homepage: www.elsevier.com/locate/ijhm

Instilling the core tenets of hospitality in healthcare services: The role of service assurance and social presence

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ARTICLE INFO

Keywords:
Healthcare service
Service assurance
Social presence
Connected health devices
Hospitality

ABSTRACT

The rising elderly population around the globe together with an improved life expectancy is driving demand for effective healthcare. As healthcare technologies become increasingly innovative, various types of connected devices have been developed in order to provide high-quality healthcare services. The research question of this study is whether the presence of such devices and perceived assurance affect the satisfaction of the health service recipient. This study focuses on homecare services for elderly people and explores the effect of social presence by machines vs. humans and service assurance by machines vs. humans on customer satisfaction. This study found that using connected devices does not significantly impact customer satisfaction with the healthcare service provider. The findings of this study highlight the importance of perceived service assurance levels as well as social presence delivered by humans for homecare services.

1. Introduction

The rising elderly population around the globe together with an improved life expectancy is driving demand for effective healthcare. The WHO estimates that one in six people in the world will be aged 60 years or over by 2030 and the world's population of people aged 60 years and older will double by 2050 (World Health Organization, 2022). Accordingly, the quality of healthcare services has become a topic that is generating increasing interest internationally from academics and practitioners (Gaur et al., 2011; Hau et al., 2017).

Healthcare services are regarded as high-credence services (Choi and Kim, 2013), but patients normally do not have sufficient professional knowledge to assess the quality of the service they are receiving (Vandamme and Leunis, 1993). Previous studies found that healthcare service recipients tend to evaluate the quality of healthcare services based on their interactions with the healthcare service provider (Gaur et al., 2011). Significant social interaction is at the core of human well-being (Baumeister and Leary, 1995; Kawachi and Berkman, 2001) and the heart of any hospitality business. Indeed, numerous empirical studies in the hospitality literature have reported the positive effect of social interactions on customer experience and satisfaction (Chen et al., 2020; Chen et al., 2016; Huang and Hsu, 2010; Srivastava and Kaul, 2014).

As healthcare technologies become increasingly innovative, various types of connected devices have been developed in order to provide high-quality healthcare services (Etemad-Sajadi and Dos Santos, 2019). It is increasingly important for healthcare service providers to use connected devices because such devices can help to record patients' health-related data while enhancing communication between the healthcare provider and the service recipient. Even though people-to-people interaction is still an essential part of the customer experience, connected devices are affecting the customer experience and satisfaction (Kvedar et al., 2014). Considering that one of the main factors predicting service recipients' satisfaction is the interpersonal care of healthcare service providers such as noticing, sharing, active listening, companioning, and comforting (Batbaatar et al., 2017), the question this research aims to answer is whether the presence of such devices and perceived assurance affect the satisfaction of the service recipient.

To this end, our study explores the effect of social presence by machines vs. humans and service assurance by machines vs. humans on customer satisfaction. Social presence refers to the sense of being present with others in a social context, even if that context is mediated by technology or other barriers (Short et al., 1976; Munoz et al., 2021). In the context of healthcare, social presence can help to create a sense of personal connection and empathy between patients and providers, which can lead to better patient outcomes and greater patient satisfaction. The notion of assurance is also crucial in the health industry because it helps to build trust and confidence between patients and

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https://doi.org/10.1016/j.ijhm.2023.103492
Received 17 October 2022; Received in revised form 26 March 2023; Accepted 1 April 2023
Available online 5 April 2023

healthcare providers. Assurance refers to the degree to which patients feel confident in the knowledge, skills, and abilities of their healthcare providers, as well as in the safety and quality of the care they receive (Parasuraman et al., 1988). When patients feel assured, they are more likely to have confidence in their caregivers, follow treatment recommendations, and have positive health outcomes (e.g., Pearson and Raeke, 2000).

The current research focuses on homecare services for elderly people. There is evidence that elderly people prefer to live in their homes for as long as possible instead of relocating to hospitals or nursing homes (Townsend et al., 2011). The homecare they can benefit from is less costly and more satisfying for patients and their families (Montalto, 2002). As a result, improving existing homecare and finding new ways of providing high-quality care is a priority for governments and healthcare providers alike.

Numerous innovations ranging from telemedicine and home monitoring devices can aid the elderly to remain in their homes longer, given that they fulfill services vital to elderly people's lives. This study defines machines as healthcare technologies, such as assistive alarms, that use sensors measuring vital signs, telecare (which helps healthcare professionals provide care without requiring them to be physically present), fall management systems, sensors, geo trackers, bed safety monitors, etc.

Considering the increasing pressure on medical care organizations to improve the quality of their services (Drain, 2021), our research contributes to this field by examining the factors that lead to customer satisfaction in the healthcare industry. By improving satisfaction with quality services, caregivers will further improve the recipient's recovery and/or well-being. In addition, we advance the literature on the role of machines in the healthcare sector, which is becoming increasingly important.

2. Literature review

2.1. Social presence

The concept of social presence is based on communication theory, which stresses the quality of mediated communication (Lu et al., 2016) and emphasizes the significance of the "other" and their interactions with each other on the given channel (Short et al., 1976; Munoz et al., 2021). Social presence broadly refers to the ‘‘sense of being with another’’ (Biocca et al., 2003; Heeter, 1992). Social presence theory (Short et al., 1976) concerns how people use various media to create a sense of connectedness and intimacy. According to this theory, the sense of being connected with another person has an impact on the quality of a relationship. Stated differently, the greater an individual's ability to generate social presence, the more likely they are to establish meaningful and satisfying relationships with others. Social presence, which can evoke a sense of human contact (Yoo and Alavi, 2001), can be created through multimedia elements of the interface such as sociable pictures or personalized greetings (Hassanein et al., 2009).

Previous research showed the importance of being able to establish a sense of presence in online communications and highlighted how this could lead to a more satisfying connection with others (e.g., Sung and Mayer, 2012; Gunawardena, 1995; Kreijns et al., 2021). In addition, several scholars demonstrated that perception of social presence can affect user trust in the context of virtual interactions and digital interfaces (Hassanein and Head, 2007; Heerink et al., 2009; Etemad-Sajadi and Santos, 2019). For example, Gunawardena and Zittle (1997) found that social presence is a significant predictor of learners' satisfaction within a computer-mediated format of communication. Similarly, Richardson and Swan (2003) found that overall perceived learning was predicted by the perceived social presence in online courses. In addition, Munoz et al. (2021) showed that perceived social presence was an important factor in enhancing the learning environment for online hospitality courses during COVID-19. On the other hand, Pinquart and Sörensen (2001) found that the quality of social interactions was more effective in relieving older adults' loneliness than the number of interactions.

Several scholars in the tourism and hospitality field have conducted research into the role of social presence in various contexts and discovered that it is an integral part of ensuring quality service and effectively managing service failure and establishing trust between customers and service providers. For instance, Ye et al. (2019) investigated the impact of social presence on customer trust and purchase intention in peer-to-peer (P2P) accommodation sharing. Their study found that social presence improves customer trust and purchase intention via both utilitarian and hedonic engagement. Weber et al. (2016) investigated how acculturation, social distinctiveness, and social presence impacted consumers' responses to service failure. On the other hand, Ying et al. (2022) focused on the moderating role of social presence between the level of telepresence in virtual reality commercials and tourists' visit intentions. The findings of their study indicated that virtual reality commercials with higher telepresence elicited stronger revisit intention, and this effect was even more pronounced in contexts with lower levels of social presence. Hew et al. (2018) discovered that social presence, perceived mobility, system and service quality, collectively, have a direct and indirect effect on tourists' perceived usefulness and perceived enjoyment, leading to an increase in their mobile social tourism shopping intentions.

While social presence is an important construct in online group learning and service delivery, to date, research concerning the role of social presence in the healthcare context has been lacking. The concept of social presence can be applied to situations where the other person is physically present, but also to communications in which the presence of the other person is just assumed (de Vries, 2006), as would be the case when a patient interacts with a healthcare service provider through a connected device. The notion of social presence is essential in the health industry because it can help to create a sense of connection between patients, their families, and healthcare providers. Pavlou et al. (2007) argued that social presence can reduce the perceived social distance between two parties in digital exchanges, consequently leading to a decrease in perceived uncertainty and an increase in trust. Further, research suggests that social presence can increase affective values such as enjoyment and social connection while improving customer trust (e.g., Cyr et al., 2007; Kim et al., 2013; Ye et al., 2019). Therefore, when the elderly feel a sense of social presence, they will be increasingly satisfied with the health service provider. This research seeks to explore whether there are any discrepancies in the impact of social presence when mediated by machines versus humans.

2.2. Service assurance

The hospitality industry has long recognized the importance of measuring service quality and identifying key factors for customer satisfaction. Indeed, the academic literature in the field of hospitality has extensively studied the relationship between service quality and customer satisfaction (e.g., Oh, 1999; Oh and Kim, 2017; Nunkoo et al., 2020; Shi et al., 2014). While a number of studies have sought to identify the key element in measuring service quality (e.g., Sasser et al., 1978; Grönroos, 1984), the five dimensions of service quality (i.e., reliability, responsiveness, assurance, empathy, and tangibles) are widely accepted for measuring service quality in academic research.

Of the five dimensions of service quality, assurance is particularly important in the health industry. Assurance is defined as the competence, knowledge, and courtesy displayed by service providers and their ability to inspire trust and confidence (Parasuraman et al., 1988). Ensuring trust and confidence in healthcare providers is imperative for the effective functioning of the health industry. To achieve this, assurance is essential in making patients feel safe and secure in the capabilities and level of care they are receiving. Service provider skills can influence service quality assessment and thus customer satisfaction (Agyapong et al., 2018; Mohamed and Azizan, 2015). For example,

employing an experienced professional team, providing patient assistance in a courteous manner, and fulfilling promised services may have a positive impact on overall patient satisfaction. Thus, the relationship between a customer and the service provider has important implications for the customer's evaluation of the quality and effectiveness of the service and thus on overall satisfaction and loyalty (Schneider et al., 1998; Webber and Klimoski, 2004; Webber et al., 2012).

Previous studies found that being able to inspire trust and confidence is particularly important in uncertain and risky environments (Berry and Parasuraman, 1991; Grabner-Kräuter and Kaluscha, 2003; Wang et al., 2014). The inherent nature of tourism and hospitality services such as intangibility, the fact that consumers often decide or pay for the service before actually experiencing it, as well as the potential risk that the service may not meet the customer's expectations, underscores the importance of adopting assurance as a key variable (Wang et al., 2014; Zillifro and Morais, 2004).

The health industry is another environment characterized by high risk and uncertainty. Assurance is very crucial in healthcare delivery because patients must trust the healthcare providers for them to comply with their treatment (Pearson and Raeke, 2000; Prakash and Das, 2020). Since patients do not have the competencies to evaluate the service's technical quality, assurance is based on the interaction between provider and patient (Donabedian, 1980; Vinagre and Neves, 2008). Findings from extant research have shown that the assurance of the physician and the nursing and auxiliary staff is an important predictor of patient satisfaction (Vinagre and Neves, 2008).

Assurance is shown to be an important condition for human-social (Mayer et al., 1995) as well as human-technology interactions (Li et al., 2008) and plays a critical role in the acceptance of a person or an entity such as technology (McKnight et al., 2002; Lankton et al., 2015). Having confidence in technology is essential for increasing its usage (Gefen et al., 2003; Kim, 2012), and thus the more a robot is viewed as trustworthy, the higher the likelihood of adoption (Wirtz et al., 2018). At the same time, research shows that perceptions of assurance differ when the service is provided by a human care provider versus a machine one (Prentice and Nguyen, 2020). Indeed, humans outperform robots in building trust (Lu et al., 2020). For example, research shows that based on the ratings of both AI and employee assurance, customers rate the latter higher, and additionally, only the employee assurance service is significantly related to customer engagement (Prentice and Nguyen, 2020). Therefore, the current study examines whether service assurance by humans (vs. machines) will positively impact patient satisfaction with the homecare service.

3. Data and Methodology

The concept of 'social presence' was assessed with items adapted from Gefen et al. (2003), and 'service assurance' was assessed with items adapted from Cyr et al. (2005), Gefen et al. (2003), Gefen and Straub (2004), Steele et al. (2009), and Parasuraman et al. (1988). In the current study, social presence and service assurance by a human and a machine were measured separately. Response options for each item ranged from 1 (strongly disagree) to 7 (strongly agree). Table 1 presents the measurement items.

The questionnaire was sent to the clients of healthcare service companies providing healthcare services to elderly people at home in Western Switzerland by post with a return stamped envelope. Some 134 questionnaires were received. Out of these 134 responses, only 88 responses were used for data analysis because the others reported that they did not use connected devices. On average, the number of visits from the homecare company was equal to 4.8 per week. About 30.6% of respondents are male whereas 69.4% were female. The average age of the respondents was 82.9% and 65.7% were living alone.

Structural equation modeling (SEM) was adopted to analyze the model as it contains several latent variables. Partial least squares (PLS) is used as it does not require a large sample (Hair et al., 2012; Peng and Lai, 2012). Data analysis was done with SmartPLS 3.0. A bootstrapping method (300 sub-samples) was employed to test the significant level of regression path coefficients by using the blindfolding approach, i.e., cross-validated communality and redundancy (Hair et al., 2011). The Stone-Geisser Q^2 for customer satisfaction is equal to 0.409. Q^2 measures the extent to which observed values are reconstructed by the model and its parameter estimates (Chin, 1998). The technique represents a synthesis of function fitting and cross-validation (Henseler et al., 2009). If it is negative, the model has no predictive relevance; values around 0.15 indicate a medium predictive relevance, and around 0.35 a high predictive relevance (Henseler et al., 2009; Hair et al., 2012). In this model, the independent variables are therefore good predictors of usefulness and intention to accept.

Table 1
Questionnaire items.

Constructs		Items
Social Presence	Human (SPH)	1. SPH1: Employees take time to communicate with me in order to better understand my personal needs. 2. SPH2: The communication between the care service company and me is good. 3. SPH3: The frequency of visits of the care service company suits me well. 4. SPH4: The length of visits from the employees suits me well.
	Machine (SPM)	1. SPM1: The technology used makes me feel connected with the external world. 2. SMP2: There is a sense of human contact through the use of this connected technology.
Service Assurance	Human (SAH)	1. SAH1: I trust employees of the home care service company. 2. SAH2: I feel safe in my interaction with employees of the home care service company. 3. SAH3: The employees of the home care service company have knowledge to answer my questions.
	Machine (SAM)	1. SAM1: I trust the reliability of information delivered by this system. 2. SAM2: I trust this technology to keep personal information secure. 3. SAM3: The technology used looks trustworthy. 4. SAM4: With this technology, I feel less anxious.
Customer Satisfaction (CS)		1. CS1: Overall, I am satisfied with the service provided by the home care service company. 2. CS2: The service provided by the home care service company increases my quality of life.

All latent variables have a composite reliability higher than 0.8, confirming that the scale reliabilities have adequate and stable measurement properties. Convergent and discriminant validity are components of a larger measurement concept known as construct validity (Straub et al., 2004). Convergent validity is shown when each measurement item is strongly correlated with its construct. It is usually satisfied by retaining variables whose loadings are high, indicating that they share sufficient variance with their related construct. Discriminant validity is satisfied when each measurement item is weakly correlated with all other constructs except with the one with which it is theoretically associated (Gefen and Straub, 2005). With PLS, convergent and discriminant validities can be confirmed if the Average Variance Extracted (AVE) of each construct is greater than the correlations of each construct with other constructs. This indicates that the construct is distinct from other constructs and has good internal consistency. Moreover, each item should load more highly on its assigned construct than on the other constructs (Gefen et al., 2000; Straub et al., 2004). Table 2 shows the intercorrelation of the research constructs. The diagonal of this matrix represents the square root of the average variance extracted. For adequate discriminant validity, the diagonal elements should be significantly larger than the correlation of the specific construct with any of the other constructs and should be at least 0.5 (Fornell and Larcker, 1981). In this study, discriminant validity is confirmed and sufficient to support the model.

Table 2
Reliability and discriminant validity.

Constructs	Composite reliability	1	2	3	4	5
1. Service Assurance by Human	0.95	0.93				
2. Social Presence by Human	0.88	0.73	0.80			
3. Service Assurance by Machine	0.89	0.43	0.32	0.82		
4. Social Presence by Machine	0.80	0.17	0.29	0.69	0.81	
5. Customer Satisfaction	0.88	0.73	0.77	0.36	0.25	0.89

Note: Diagonal: (Average Variance Extracted)$^{1/2}$ = $(\Sigma\lambda_i^2/n)^{1/2}$.

4. Results

Fig. 1 presents the results of the PLS analysis and the values of different path coefficients. Our model explains 64.8% of the variable customer satisfaction. The analysis found that 'social presence by human' impacts positively customer satisfaction ($\gamma = 0.494$). The impact of 'service assurance by human' on customer satisfaction is also validated ($\gamma = 0.341$). As far as the two other relationships are concerned, neither 'social presence by machine' nor 'service assurance by machine' has a significant effect on customer satisfaction (respectively $\gamma = 0.031$ and $\gamma = 0.039$).

When we focus on the age of respondents, one can claim that it impacts the perception of the social presence through the use of health-connected technology. In other words, the older people are, the more they feel a social connection with the external world thanks to the device ($\gamma = 0.260$). At the same time, the older they are, the less they appreciate the overall satisfaction with the healthcare service ($\gamma = -0.132$). We also observed that women appreciated human social presence more than men, but this trend was not statistically significant (P-value higher than 0.05). Finally, we found no significant effects of the fact that people live alone (or with other people) on customer satisfaction.

5. Conclusion

The current research illustrates the importance of perceived service assurance levels as well as social presence delivered by humans for homecare services. Despite the importance of social presence and service assurance, research has not yet explored whether these two constructs have the same effect on perceived service quality when provided by machines instead of humans. This study fills this gap by studying the impact of social presence and assurance by machines vs. humans on customer satisfaction in the context of healthcare services.

Although technology can be used to ensure the safety of elderly people who reside in their homes, the present findings demonstrate that the utilization of connected devices does not lead to a considerable increase in customer satisfaction with the healthcare service provider. Surely, connected devices for healthcare services will evolve in the future as they still are key elements in facilitating the elderly's strong desire to keep living in their own homes for as long as possible. However, whether they could replace a human presence remains an open question. Therefore, we recommend that healthcare service companies continue to work on improving social presence and service assurance by, for example keeping the same caregiver for the same client and ensuring that the caregiver and the patient are a good match. Indeed, a centralized customer relationship management (CRM) system with these data can be useful in tracking and monitoring the level of satisfaction of each senior with the profile of each employee to make sure that the 'right' caregiver is matched with a new client (based on data analysis from past experiences). Another recommendation would be to systematically communicate to seniors and their family the way in which devices are used when it comes to being connected with the external world (i.e., family and healthcare companies). The message that seniors want to hear is that these devices will not replace the physical presence of a human being but will make them feel safer. In conclusion, the way in which services are provided to elderly people must be adequate and appropriate in order to increase the perceptions of social presence and service assurance.

The healthcare industry can learn from the hospitality industry in several ways. One key area where the hospitality industry excels is in creating a welcoming and personalized experience for each guest. The experience starts at the stage of pre-arrival. This involves taking the time

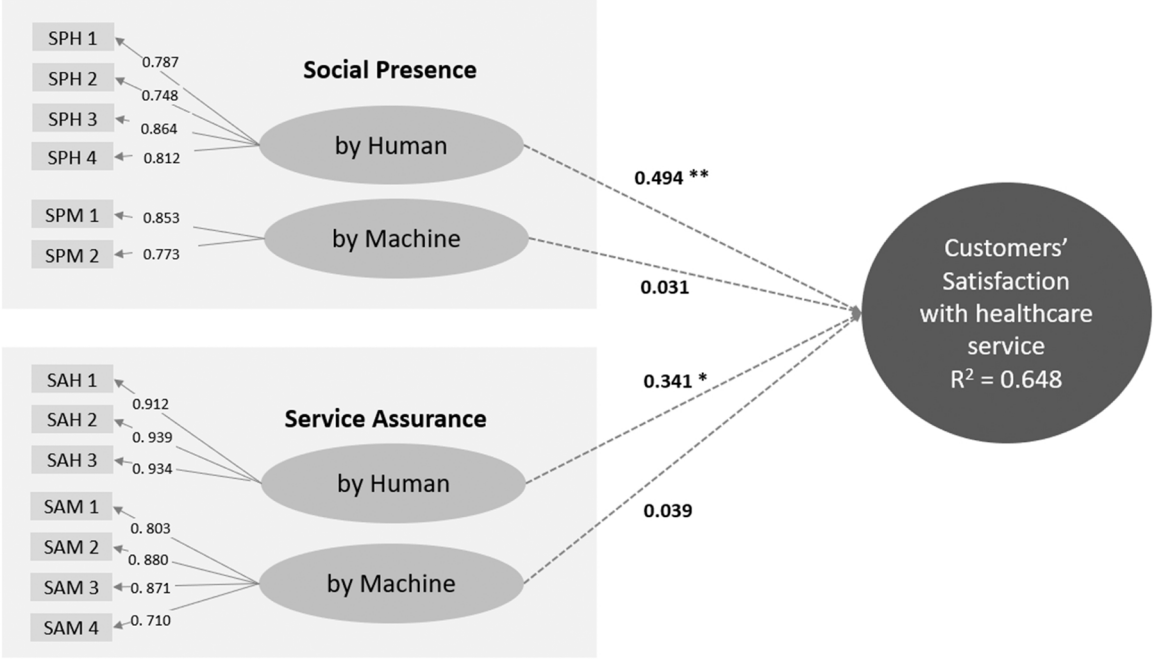

Fig. 1. Results of the PLS analysis. Note: * , * * Significant at 0.05 and 0.01 levels, respectively.

to understand the needs and preferences of each guest, and then tailoring the experience to meet those needs. In the healthcare industry, providers can apply similar principles by taking the time to get to know each patient and their unique needs and preferences. This can help to create a more personalized and patient-oriented approach to care, which can lead to better outcomes and greater patient satisfaction.

The challenge is to create this connection with the patient at each step of the experience (pre-during-after). Of course, the major issue is often the lack of time and employees/resources for personalizing the patient experience. Therefore, technology can play an important role in collecting data for a better follow-up with the patient. In the hospitality industry, technology is often used to streamline processes and to make the guest experience more convenient and efficient. Similarly, in healthcare, connected technology can be used to improve the patient experience by providing more convenient and accessible care, such as telemedicine or online appointment scheduling. By adopting some of the same principles and practices used in the hospitality industry, health-related fields can create a more patient-oriented and responsive approach to care.

One way that healthcare providers can build assurance is by providing clear and transparent communication about the care they provide. This includes explaining the rationale behind treatment decisions, discussing the potential risks and benefits of different treatment options, and addressing any concerns or questions that patients may have. Healthcare providers have to place a high value on ensuring that their patients feel safe and well-cared for at each step of the process (pre-during-after). They have to create a welcoming and supportive environment, identify the emotions of the patient, and, finally, ensure patients are happy with the care they are receiving.

There are also several ethical issues to consider in using health-connected technologies. Indeed, in the future, we are likely to see more and more new technologies linked to artificial intelligence on the market (robots, virtual assistants, predictive maintenance, etc.). We have to consider for each device or "machine" the following aspects: i) level of autonomy (to what extent can a machine make decisions without human control?), ii) responsibility (if the machine takes over human tasks, who is responsible for these tasks?), iii) trust and safety (can the machine be trusted?), iv) social cues (how can a social connection be made with a machine?), v) privacy and data protection (which data are collected, how are they stored, and who has access to them?), and vi) human replacement (keeping the right level of touch-points: machine-human versus human-human) (Etemad-Sajadi et al., 2022). These elements are crucial, especially in the healthcare industry.

This study has several limitations. First, the sample used in the analysis covers a population benefiting from different connected health devices and some seniors use several devices simultaneously. It was therefore difficult to distinguish and interpret the added value of each one separately (for example, assistive alarm vs. telecare vs. sensors, etc.). In future research, it would be beneficial to identify which sets of connected devices contribute the most to a positive feeling of social presence and service assurance. Second, we did not study the effect of seniors' acceptance of new technology, which we also believe would provide important insights and thus should be investigated in further research. Third, the current study is limited to a population with a similar culture. Further research may try to understand if the perception of connected devices among seniors differs depending on their cultural and psychological characteristics. Further, given the age of our sample (82.9 years old on average), collecting data from this demographic was difficult, resulting in a relatively small sample size. To achieve a more comprehensive understanding, it will be important to increase the sample size and explore further research avenues that facilitate data collection from this age group.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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