

Research Article

The Relationship Between the Reported Experience When Using Technology and the Reported Experience When Using Non-Technological Means

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The use of technology and social media is significantly changing society and influencing people's behavior in various areas. This study examined the relationship between the reported experience when using technology and the reported experience when using non-technological means. In three experiments, participants were asked to rate on a five-point scale the correctness of sentences describing the experience of using technology and the experience of using non-technological means. The first experiment identified a negative relationship between the reported experience of shopping online and the reported experience of shopping in a physical store. These findings suggest that the experience of shopping online is fundamentally distinct from that of shopping in a physical store. In the second experiment, a relationship was identified between the reported experience of using technological tools in a large organization and the reported experience of using technology in other environments. These findings indicate that the experience of using technology remains consistent, irrespective of the environment in which it is applied. In the third experiment, a relationship was identified between the reported experience of receiving public transportation services through traditional methods and the reported experience of receiving such services through technological means. These findings suggest that the experience of using public transportation remains consistent, regardless of the type of means used.

In conclusion, the experience of receiving a service remains consistent, whether it is delivered through technological or non-technological means, as long as it is provided within a specific organization or location. For instance, this consistency can be observed in services offered on public transportation or within an organization. The experience of using technological tools remains consistent, regardless of the environment in which they are applied—for instance, whether these tools are utilized within or

outside the organization. The service experience differs when delivered through technological means compared to traditional methods, especially when the service is provided in separate locations. For instance, shopping, working, or studying from home using technology offers a distinct experience compared to receiving these services in physical settings such as offices, stores, or classrooms.

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Introduction

The use of technology and social media is profoundly transforming society and shaping people's behavior across multiple domains. This study explores the relationship between the reported experience when using technology and the reported experience when using non-technological means. For example, the relationship between the reported experiences of receiving digital services and those of receiving non-technological services was examined. This research examines and compares users' emotions in different scenarios: situations where technology is utilized versus those where it is absent.

There are numerous examples showcasing the diverse impacts of technology on society and human behavior. One notable example is the significant development in the use of digital tools for service delivery, which has transformed the way businesses engage with their customers. At the same time, the Internet and social networks have profoundly transformed users' communication patterns and behavior, creating both new opportunities and significant challenges. Furthermore, technological advancements have significantly enhanced the quality of life for individuals with special needs by providing innovative and advanced accessibility solutions. Moreover, the integration of technology into fields such as education, healthcare, and employment has become a major research topic in recent years, highlighting its enormous potential to change the face of society. In conclusion, there is no doubt that technological innovations have a broad and significant impact on society and the modern lifestyle.

Applying technology to improve service delivery

Technological advancements in recent years have enabled organizations to integrate self-service systems (SST) into their operational processes. These systems enhance service quality by boosting the speed and efficiency of various processes, while simultaneously contributing to a better customer shopping experience. Nevertheless, the implementation of such technologies can, in certain cases, negatively

impact the shopping experience, depending on the manner of their integration and customer responses^[1].

As an example of self-service systems, many companies offer self-service systems, such as automated payment machines, as an alternative to traditional payment methods. However, it is important to note that some customers may prefer not to use these systems, even when they are readily available. This reluctance is likely due to a lack of awareness about the benefits of such systems or insufficient familiarity with how to operate them^[1]. Accordingly, companies may need to provide customers with the option to access a service provider in-store if they prefer not to use self-service systems. Following on from these points, it was recommended to further investigate technology-based self-service systems through studies employing a quantitative approach and exploring diverse cultural contexts. This recommendation stems from the limitations inherent in studies relying solely on interview^[1].

Modern technology is also transforming the production and marketing of products, paving the way for innovative business models. One notable example is Product-Service Systems, where products are no longer sold in the traditional sense but are instead offered as a service^[2]. In addition, advanced technologies, such as 3D body scanning, enable product customization—for instance, in the production of custom-fit jeans^[2]. Another example is 'Halfway Products,' which offer customized solutions tailored to specific consumer needs. These examples illustrate how integrating technology enables innovative and unique marketing approaches adapted to the modern era.

As technology continues to evolve, many services have transitioned to online platforms, highlighting the need for a deeper understanding of online consumer behavior. Recent studies have been focusing on the key factors that shape consumers' willingness to purchase digital content. This understanding is crucial for both academics and industry professionals, as it offers valuable theoretical and practical insights into online purchasing behaviors. The study by Wang and colleagues^[3] highlights the importance of the issue and offers significant implications for understanding online content purchasing behaviors.

Many suppliers also choose to sell their products exclusively online, without maintaining a presence in physical stores^[4]. This approach enables them to significantly reduce operating costs. Even as suppliers continue to sell products in physical stores, they can minimize the inventory displayed in each location, as customers now have access to the full product selection online. Moreover, the Internet allows customers to directly contact suppliers and express their specific requirements. In some cases, customers can even design the product themselves using dedicated online interfaces^[4].

Recently, companies have also begun using mobile applications that provide location-based services. These apps enable customers to access real-time information directly on their mobile devices, revolutionizing the way services are consumed. However, it is important to remember that application developers need to invest in designing intuitive and accessible user interfaces to ensure an optimal user experience for a wide range of users^[5]. In this regard, exploring the psychological mechanisms that drive consumers to engage with these applications would be particularly insightful^[5].

Another example of utilizing technology and the Internet to deliver services is online gambling platforms, which enable customers to combine various elements to craft a personalized experience. In addition to interactions with service providers that allow online gambling, there are many other activities related to gambling, both online and offline^[6]. Analyzing and categorizing these activities can offer marketers critical insights into the role that service providers play in the lives of customers and businesses^[6].

In a 2009 study aimed at identifying activities associated with online gambling, researchers conducted 20 open-ended telephone interviews with individuals who engage in online gambling. The interviews aimed to identify additional gambling-related activities that respondents engaged in, beyond those offered by the service provider. Following the interviews, the identified list of activities was presented to a group of five experts in the field of online gambling who were actively involved in the project. The purpose of this stage was to design and develop survey items that are appropriate and relevant. In April 2010, a survey was distributed to a randomly selected sample of online gambling customers from Finland and Sweden, drawn from the service provider's database. Interviews with online gambling customers revealed nine distinct types of repetitive activities in the context of gambling. Providing a detailed analysis of these activities can offer deeper insights into online gambling behaviors.

Exploring the use of social media in everyday life

The use of social media (social networks) is profoundly transforming society and shaping people's behavior across various domains, including interpersonal communication, information consumption, and decision-making. While social media offers significant benefits, its usage also comes with notable challenges and implications, both positive and negative^[7]. Nevertheless, the influence of social media continues to raise critical questions, particularly about its role in shaping social and cultural behaviors. Existing studies in this field often raise more questions than they answer, highlighting the need to revisit

current knowledge and address the gaps within it. To tackle these challenges effectively, it is essential to develop a comprehensive conceptual framework that captures the intricate dynamics of social media usage and its far-reaching impacts^[7].

Companies and organizations can use social networks to communicate various messages to the public and to receive feedback or messages from them^[8]. Like other online groups, Company Social Networks (CSN) are socio-technical systems that integrate social dynamics with a technical infrastructure. Research indicates that people join companies' social networking communities (commonly referred to as 'brand communities') driven by a desire to access information, as well as for social or material benefits.^[9] However, studies have shown that not everyone who joins these communities is necessarily a fan of the brand. Furthermore, the most active participants in community activities are often those motivated by a need for information. Sometimes, the decision to join a company's social network is driven by the desire to take part in competitions^[9].

Social media platforms enable hosting multiple brand communities (company's social networks) simultaneously, and serve as a cornerstone in the marketing strategies of many companies. Participation in online brand communities offers unique opportunities for interaction that are not achievable in offline brand communities^[10]. In recent years, numerous studies have been published examining the characteristics of brand communities and the ways in which their members engage. The volume of research in this field has been growing at a remarkable pace^[10].

Numerous studies have explored the motivations behind participation in brand communities and their influence on consumer behavior. One of the key challenges in online brand communities is fostering trust among participants, a challenge exacerbated by the absence of face-to-face interaction^[10]. Future research should address two key questions: first, how trust influences the level of participation in brand communities; and second, what the long-term implications of such participation are for these communities. In addition, the possibility of negative effects on the brand as a result of community participation, which could affect its image and credibility over time, should be examined^[10].

Finally, here are some examples of studies dealing with social and perceptual influences and social networks: In a study by Carr et al.^[11], the researchers found that students rated pictures of their peers more positively when it was implied that they belonged to the same university, demonstrating how group affiliation fosters positive bias. Milyavskaya et al.^[12] found that students' impressions of lecturers were more positive when the lecturers appeared in the picture with another person, suggesting the

importance of social context in perception. Finally, Maier et al.^[13] demonstrated that job candidates wearing red shirts were perceived less favorably, emphasizing the significant role of visual cues in shaping social judgment.

Assistive technology and support for people with disabilities

People with disabilities utilize assistive technology to enhance their quality of life and accomplish tasks that were once beyond their reach. For instance, individuals who are blind or visually impaired can now use computers and browse the Internet with the help of advanced technologies. These tools not only enable them to perform daily activities more effectively but also significantly enhance their overall quality of life and increase their satisfaction with various aspects of everyday living^[14].

People with disabilities, often considered vulnerable consumers, may sometimes require intermediaries to assist them in searching for information on the Internet. These intermediaries play a crucial role by identifying relevant information and conveying only what is essential to the person with the disability^[15]. This raises the following questions: How can technology serve as an intermediary for vulnerable consumers? What are the implications for service outcomes when technology acts as the intermediary^[15]?

Online support groups can positively influence individual and societal well-being by providing people with disabilities (or special needs) access to supportive resources that enhance their quality of life and overall well-being^[16].

Learning in the technological age

Technology is increasingly utilized as a powerful tool to enhance and streamline learning processes. Notable examples include online learning platforms and virtual reality applications, both of which enable personalized and highly engaging educational experiences. Research suggests that online learning is likely to become the primary mode of education for students in the future^[17]. In this context, the Technology Acceptance Model (TAM) is often used to examine how students and teachers adopt new technologies in teaching and learning processes^[17]. A new study found a negative correlation between learners' attitudes toward the online learning environment and their attitudes toward the traditional learning environment^[18].

Studies have also explored the effectiveness of training and coaching through the use of virtual reality^[19]. Studies have shown that safety training conducted through virtual reality is more effective than traditional methods, such as presentations and slides. Research indicates that the learning experience in a virtual reality environment is more engaging, leading to better knowledge retention over a longer period of time^[20]. In addition, the effectiveness of training is closely tied to the quality of the simulated scenes that depict potential risks and accidents, emphasizing the need for a high-quality and precise virtual learning environment^[20].

Artificial intelligence adoption

In recent years, artificial intelligence (AI) has been extensively researched, with a particular focus on its adoption by organization. Scholars have employed various approaches to study this phenomenon, one of the earliest being the Technology Acceptance Model (TAM). This model focuses on key factors such as perceived ease of use and perceived usefulness to understand technology adoption behavior. However, recent studies highlight the importance of adopting more innovative approaches that consider socio-technical factors in the process of integrating artificial intelligence. These studies demonstrate that the adoption of AI technologies significantly impacts employee motivation, task performance efficiency, and even transforms the nature of roles and jobs within the organization. Therefore, a comprehensive socio-technical approach is required for a deeper understanding of the implications of adopting AI in organizational environments^[21].

Further technological developments

Technological advancements in science can influence how scientists perceive and understand the world. For example, significant developments in the field of neuroimaging constitute an important technological breakthrough in brain research. Neuroimaging refers to the ability to directly examine the structure and function of the brain. These technologies, such as functional MRI enable researchers to observe brain activity in real time, providing valuable insights into its diverse functions. For instance, neuroimaging techniques can be employed to investigate how the brain generates and retains memories, as well as how it processes linguistic information. This advance has revolutionized our understanding of the brain, allowing us to examine both its anatomical structure and physiological function with unprecedented precision^[22].

Virtual reality as a metaphor to explain reality

Another example of the impact of technological development is the use of virtual reality as a metaphor to explain reality, highlighting their similarities in several aspects^{[23][24]}. This perspective has also been explored in other studies^[25], which propose employing computer-related terminology to describe aspects of reality. Below are several illustrative examples.

In virtual reality, as in reality, there is a limit to our ability to measure or experience extremely small units. Similar to pixels in virtual reality, in reality there is a lower limit to the size of units that can be measured or experienced. When space (and time) is measured or observed, it is discovered that there is a minimum value, and they behave as discrete units rather than as a continuum.

In virtual reality, the image of an object at a specific location is generated only when it is observed. Similarly, according to this view of reality, probabilities for parameter values (such as the position of a particle) can be predicted, but they do not have a defined value prior to measurement. One significant advantage of this lack of predetermination is resource efficiency—akin to saving computational resources—since the system does not need to assign fixed values to parameters until the moment of measurement. During observation, parameter values are finally determined (such as the location of an object, for example), but they may then return to an “undefined value” state until the next measurement.

In reality, the parameter values of two entangled particles are determined instantaneously and definitively upon the measurement of one of them. This phenomenon occurs even when the particles are far apart in terms of spatial distances. When a parameter of one particle is measured, the value of the corresponding parameter in the other particle is definitively determined (similar to a computer definition).

The current study

This study explores the relationship between individuals' reported experiences during technology use and their reported experiences in non-technology contexts. The study explored, among other aspects, the relationship between the experiences reported during online shopping and those reported during shopping in physical stores. In addition, the relationship between the reported experience of using technological tools in large organizations and the reported experience of using such tools in other contexts was examined. The relationship between the reported experience of receiving public

transportation services without the use of technology and the reported experience of receiving such services with the aid of technological means was also examined.

Method

Participants, Instruments and Procedure

Three groups of volunteers participated in the study. **Group 1:** The first experiment included 25 female participants, ranging in age from 18 to 47 years (mean age = 28.4, standard deviation (SD) = 9.38). Participants were presented with questions designed to examine their experiences while shopping online and in physical stores. A similar questionnaire had been used in previous study^[26].

As part of the study, participants were asked to rate the correctness of sentences describing the online shopping experience on a five-point scale of 1 (strongly disagree) to 5 (strongly agree). Examples of the sentences included: "Shopping online saves me time traveling to shopping centers," "I enjoy shopping online," and "It is easy for me to find items when purchasing products online."

Similarly, regarding the in-store shopping experience, participants were presented with sentences such as: "When I buy products in the store, it is pleasant to receive the product immediately," "It is easy to buy products in the store," "You can get to the store easily and in a short time," "I enjoy interacting with other customers when shopping in the store," and "I enjoy interacting with service providers when shopping in the store".

Group 2: The second group consisted of 40 participants aged between 20 and 52 years. The age distribution was as follows: 9 participants were aged 20-24, 2 were aged 25-30, 6 were aged 31-35, 5 were aged 36-40, and 18 were aged 41-52. This group included 24 women. The study explored participants' experiences with technology usage within a large organization (Digital services) and their experiences of using technology in other contexts and environments (Digitization).

Participants were asked to rate the accuracy of the following statements on a five-point scale: "Using everyday digital technology is convenient," "Technology improves the sharing and transfer of information between people," "Digital systems assist in daily decision-making," "I am able to adapt to new technological changes", "The use of technology improves learning and training", "Technology contributes to productivity at work or in school," "The impact of technology on my personal life is positive," "My personal information is well secured with digital technology," "Technology has improved

interpersonal relationships in society," "Moving to the use of technology allows flexibility in personal time management."

Regarding the experience of using digital technology in the organization, participants were presented with sentences such as: "The use of digital technology in an organization enhances human resource management," "Digital technology in the field of human resource management in an organization enables faster response to changing situations," "The use of digital technology in an organization facilitates focused and accurate management of employee information," "Digital technology helps minimize human errors in human resource management," "The use of digital technology in an organization ensures robust information security."

Group 3: Fifty-three participants took part in the third experiment. The age of participants ranged from 18 to 67 years ($M = 46.98$, $SD = 14.64$). The group included 32 women. This group of participants was presented with sentences examining the experience of receiving services on public transportation through non-technological means. Additionally, they were presented with sentences exploring the experience of receiving services on public transportation through technological means.

Participants were asked to rate the correctness of several statements on a scale of 1 (strongly disagree) to 5 (strongly agree). The statements focused on various aspects of public transportation services, including comfort, safety, cleanliness, and overall satisfaction. Specifically, participants were presented with the following statement: "Traveling by public transportation is comfortable in terms of seats, space, and the general atmosphere," "Traveling on public transportation is calm and pleasant in terms of noise, crowding, and travel conditions," "Public transportation service always runs on schedule," "I am satisfied with the service provided by the drivers and staff on public transportation," "I am satisfied with the cleanliness of the bus stops," "I feel safe using public transportation at night," "I am satisfied with the behavior of other passengers while traveling on public transportation."

Regarding the service provided through technological means in public transportation, participants were presented with sentences such as: "The use of digital technology reduces waiting times on public transportation," "Digital technology simplifies the planning of public transportation routes," "Digital technology enhances the travel experience in public transportation (e.g., by providing internet access, entertainment, or interesting information)," "The use of digital technology facilitates navigation in unfamiliar or foreign transportation systems (e.g., when traveling in a foreign city)," "Digital technology helps me save money when using public transportation (e.g., through discounts and reduced fares)."

Results

Group 1: This experiment focused on examining the relationships between participants' reports. Specifically, it analyzed the correlations between the average reports of shopping experiences when using technological means (online shopping) and the average reports of shopping experiences in physical stores (in-store shopping). The reliability of the measure assessing the shopping experience using technological means, as indicated by Cronbach's Alpha, was 0.769. Similarly, the reliability of the measure evaluating the in-store shopping experience was 0.848. Table 1 presents the relationships between the various variables.

Variables	1	2	3	4
1. Online shopping				
2. In-store shopping	-.376			
3. Salary	.037	.282		
4. Age	-.053	.461*	.587**	

Table 1. The Relationships between the Variables

****.** Correlation is significant at the 0.01 level (2-tailed).

*****. Correlation is significant at the 0.05 level (2-tailed).

A regression analysis was conducted to examine the relationships between the indices. The regression model was found to be non-significant, explaining only 4.9% of the variance (adjusted $R^2 = .049$), $F(3, 21) = 1.417$, $p = .266$. Table 2 provides a detailed summary of the regression analysis results.

The findings presented in Table 2 indicate a negative, yet non-significant, correlation between the experience index for shopping through technological means and the experience index for in-store shopping.

Variables	B	Std. Error	Beta	T	Sig.
In-store shopping	-.304	.152	-.448	-2.000	.059
Age	.005	.014	.088	.331	.744
Salary	1.333E-5	.000	.112	.455	.654

Table 2. The relationships between the experience index when shopping via technological means (dependent variable) and the experience index when shopping in a store, age, and salary.

Group 2: The second experiment explored the relationships between participants' self-reported experiences while using technological tools in various situations. In particular, the relationships between average reports of the experience while using technological means in a large organization (Digital service) and average reports of the experience while using technological means in other places and situations (Digitization) were examined. The reliability of the measure assessing the experience within the organization was high (Cronbach's Alpha = 0.892), whereas the reliability of the measure assessing the experience in other settings was moderate (Cronbach's Alpha = 0.759). Table 3 illustrates the relationships between the various variables, offering deeper insights into the connections reflected in the participants' reports.

Variables	1	2	3	4
1. Digital service				
2. Digitization	.611**			
3. Seniority	.034	.169		
4. Age	-.034	.186	.923***	

Table 3. The Relationships between the Variables

****.** Correlation is significant at the 0.01 level (2-tailed).

*****. Correlation is significant at the 0.05 level (2-tailed).

A regression analysis was conducted to examine the relationships between the indices. The regression model was found to be significant and accounted for 36.5% of the variance (adjusted $R^2 = .365$), $F(4, 35) = 6.616$, $p < .05$. Table 4 displays the detailed results of the regression analysis.

The findings in Table 4 indicate a relationship between reports on the experience of using technological tools within the organization (Digital Service) and reports on the experience of using technological tools in general (Digitization).

Variables	B	Std. Error	Beta	T	Sig.
Digitization	.802	.167	.631	4.812	<.001
Seniority	.170	.136	.421	1.251	.219
Age	-.214	.147	-.510	-1.454	.155
Sex	.098	.189	.074	.517	.608

Table 4. Relationships between the reported experience while using technological means (Digital service) in the organization (dependent variable) and the reported experience when using technological means (Digitization), seniority (in the organization), age, and sex.

Group 3: Experiment 3 explored the relationships between participants' reported experiences while receiving public transportation services. The study compared the average reported experiences of participants when using technological means (Digital service) versus when not using technological means (Non-Digital service). The reliability of the measure assessing the experience of receiving the service through technological means was very high (Cronbach's Alpha = 0.921). In contrast, the reliability of the measure assessing the experience of receiving the service without technological means was relatively low (Cronbach's Alpha = 0.676). Table 5 illustrates the relationships between the various indices, enabling a deeper understanding of the differences and impacts among the types of services examined.

Variables	1	2	3	4
1. Digital service				
2. Non-Digital service	.328*			
3. Number of children	-.621**	-.138		
4. Age	-.635**	-.237	.715***	

Table 5. The Relationships between the Variables

****.** Correlation is significant at the 0.01 level (2-tailed).

***.** Correlation is significant at the 0.05 level (2-tailed).

A regression analysis was conducted to examine the relationships between the indices. The regression model was found to be significant and accounted for 46.3% of the variance (adjusted $R^2 = .463$), $F(4, 48) = 12.200$, $p < .001$. Table 6 provides a detailed summary of the regression analysis results.

The findings in Table 6 indicate a relationship between the reported experience of receiving a service provided through technological means in public transportation and the reported experience of receiving a service provided through non-technological means, as well as age, gender and number of children.

Variables	B	Std. Error	Beta	T	Sig.
Non-Digital service	.373	.188	.209	1.982	.053
Age	-.020	.010	-.311	-2.055	.045
Number of children	-.127	.051	-.365	-2.498	.016
Sex	.150	.201	.078	.745	.460

Table 6. The relationship between the experience reported while receiving the service provided on public transportation using technological means (dependent variable) and the experience reported while receiving the service when not using technological means (Non-Digital service), age, number of children, and gender.

Discussion

The first experiment identified a negative correlation between the reported experience of shopping online and the reported experience of shopping in physical stores. In addition, it was found that as participants' age increases, they tend to report a more positive experience when shopping in physical stores. These findings suggest that the online shopping experience is fundamentally different from the in-store experience. Older individuals tend to prefer shopping in physical stores, possibly because it provides a greater sense of control and the opportunity for tangible interaction with products.

In the second experiment, a correlation was identified between the reported experience of using technological tools in a large organization and the reported experience of using technology in other contexts. These findings suggest that the experience of using technology remains consistent, irrespective of the environment in which it is employed.

In the third experiment, a correlation was identified between the reported experience of receiving public transportation services through traditional methods and the experience reported when using technological means. These findings suggest that the experience of using public transportation remains consistent, regardless of the method employed.

In summary, the experience of receiving a service through technology differs from the experience of receiving it without the use of technology. These findings stem from the first experiment, which, as previously mentioned, revealed a negative correlation between the reported experience of shopping

online and the reported experience of shopping in physical stores. A previous study reported similar findings, demonstrating a negative relationship between the reported experience of learning and working at home and the reported experience of learning and working in the office or classroom^[24].

The findings from the second experiment indicate that the experience of using technology is consistent across different situations. A correlation was observed between the reported experience of using technological tools in a large organization and the experience reported when using them in other contexts. This result aligns with previous research, which demonstrated a comparable relationship between the experience of receiving services through technological means within an organization and the use of technology in other environments^[24].

The experience of receiving the service remains unchanged, regardless of whether technology is involved or not. These findings are derived from the third experiment, which identified a correlation between the experience reported when using public transportation services through non-technological means and the experience reported when using technologically facilitated services in public transportation. Similar results were observed in a previous study, which demonstrated a relationship between the reported experience of receiving services in an organization through non-technological methods and the experience reported when services were provided through technological means^[24].

Conclusions

The experience of receiving the service does not differ whether it is provided through technological means or non-technological means, as long as the service is delivered within a specific organization or location. For instance, this applies to services received in public transportation systems or within organizational setting.

The experience of using technology remains consistent, regardless of whether it occurs in separate environments—for instance, within or outside the organization.

The experience of receiving a service—or engaging in any activity—differs significantly when delivered through technological means compared to traditional, non-technological methods. This distinction becomes particularly noticeable when the activity takes place in different locations. For instance, shopping, working, or studying from home using technology offers a markedly different experience compared to receiving these services in physical settings such as an office, store, or classroom.

Statements and Declarations

Data availability

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Funding

No funds, grants, or other support was received. The authors have no relevant financial or non-financial interests to disclose.

Conflicts of interest

The authors have no competing interests to declare that are relevant to the content of this article.

Ethical statements

There is an approval from a research ethics committee of Hadassah Academic College.

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Declarations

Funding: No specific funding was received for this work.

Potential competing interests: No potential competing interests to declare.