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THE IMPACT OF SELF-EFFICACY AND SOCIAL IMPACT ON THE ACCEPTANCE OF TELECONSULTATIONS BY GENERAL PRACTITIONERS DURING THE COVID-19 PANDEMIC IN POLAND

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Purpose: During the Covid-19 pandemic, Polish Primary healthcare centres (PHCs) switched to remote medical care provided in the form of teleconsultation to ensure the safety of their patients. The present study was conducted to better understand the factors influencing the general practitioners' (GPs) acceptance of the telemedicine system in Poland. We used the behavioural intentions of GPs to use the teleconsultation system, which is the main factor from the technology acceptance model (TAM) and analysed the impact of the social impact and self-efficacy on this factor.
Design/methodology/approach: The analysis used survey data from 361 GPs across Poland in 2021, which were analysed using structural equation modelling.
Findings: The results indicate that Polish GPs reported a positive perception and high acceptance of the telemedicine system during the Covid-19 pandemic. The social impact and self-efficacy are determinants of the behavioural intention to use the teleconsultation system by GPs in Poland.
Originality/value: The study contributes to empirical knowledge by identifying the vital predictive factors affecting the behavioural intention to use the teleconsultation system by GPs.

Keywords: telemedicine acceptance, primary health care, behavioural intention, social impact, self-efficacy.

Category of the paper: Research paper.

1. Introduction

In the last few years, information and communication technologies (ICT) have brought about huge changes in the traditional environment of healthcare (Mullett, Evans, Christenson, & Dean, 2001; Sharifi et al., 2013). Following the outbreak of the COVID-19 pandemic, many people stopped going to healthcare facilities for fear of their health. In such a situation, ICT systems have become one of the solutions that help patients in contact with GPs in non-emergency situations (Alexandra, Handayani, & Azzahro, 2021). The ICT systems can help eliminate or minimise common problems such as difficult access to medical services, rising costs and poor quality of healthcare (Esmaeilzadeh, Sambasivan, Kumar, 2010; Jin, Chen, 2015; Rho, Choi, Lee, 2014).

Telemedicine became the distinguishing beneficiary of the development of ICT services in healthcare. According to the World Health Organization, telemedicine is defined as the provision of remote health services by professionals using information and communication technologies (WHO, 2020). Telemedicine services enable healthcare workers to monitor, diagnose and offer treatment over long distances, as well as an increasingly promising solution to improve also chronic diseases (Adenuga, Iahad, Miskon, 2017; Kamal, Shafiq, Kakria, 2020).

Telemedicine can be viewed as a set of communication methods that enable medical data, images, and sounds to be transferred between GPs and other healthcare professionals. This means that telemedicine emphasises the use of ICT to deliver clinical services to patients at a distance, such as videoconferencing with specialists, remote medical diagnosis, and digital transmission of medical imaging data. It refers to the remote exchange of data between the patient (usually at home) and health professionals (in the monitoring centre) to help solve the patient's health problem (Hendy, Barlow, 2012). The most popular form of telemedicine is teleconsultation, which can take the form of a phone call or a video call. During the interview, the patient presents his problem to the GP and asks questions, just like during a normal visit. The GP remotely assesses the patient's health and provides answers to the questions. If necessary, he can also issue an e-prescription or sick leave via the Internet. A GP may also decide that a problem or symptom the patient has addressed requires personal contact with a healthcare professional. In this case, the patient is informed and instructed about the next steps to be taken.

The use of telemedicine, which can facilitate the assessment of self-reported symptoms, can improve effective symptom management in medical care and provide the means to overcome identified barriers to home care, improving the patient's care experience (Johnston, Kidd, Wengstrom, Kearney, 2012). The other benefits of telemedicine are: providing health services to patients in conditions of limited social mobility, reducing the time needed to make a diagnosis and improving the continuity of care (Picot, 2009).

Despite its recognised benefits, telemedicine will only be a useful health service when people start using it. Therefore, an important role is played by the general attitude of GPs to the acceptance of telemedicine services. In order to favour the adoption of telemedicine services among GPs, initially, it is very important to analyse the factors influencing their perception of telemedicine (Kamal et al., 2020). Assessment of the factors influencing the acceptance of ICT technology is essential to addressing the problem of under-utilisation and exploiting the benefits of ICT investments, especially in the case of the most advanced technologies (Lancelot Miltgen, Popovič, Oliveira, 2013). The user's acceptance is also one of the basic criteria for the success of using the telemedicine system in healthcare entities.

One of the most well-established and solid foundations for testing the acceptance of using ICT is the Technology Acceptance Model (TAM). This model is at the forefront of the key theoretical approaches used to understand the social and technological mechanisms to accept different forms of ICT (Carter, Bélanger, 2005; Lai, 2017; Taherdoost, 2018; Tsai, 2014). The technology acceptance in this model is explained by the mental state of an individual concerning his voluntary or deliberate use of a particular technology (Davis, 1989). Over the past few decades, the TAM model has become the dominant model for explaining technology acceptance by assessing beliefs, attitudes and intentions towards technology and its actual adoption.

The original model TAM treated behavioural intention (BI) as a direct measure of technology acceptance. BI is defined as an individual's goal or plan to perform a certain behaviour (Hill, Fishbein, Ajzen, 1977) or as the degree to which a person has formulated conscious plans to perform or not perform a particular future behaviour (Ahlan, Ahmad, 2015). BI is also understood as the intent of specific behaviour and reflects a feeling of favouritism, or a lack of it, towards the use of technology (Taylor, Todd, 1995).

According to the basic TAM model, the BI of an individual to use a system is determined by two technical factors: perceived usefulness (PU - the degree to which the user believes that using a particular system will improve his/her performance at work) and perceived ease of use (PEU - the degree to which the person believes that using the system will reduce physical or mental exertion) (Kassim, Jailani, Hairuddin, Zamzuri, 2012). In order to better explain the acceptance of new technology, the extended and modified TAM models take into account various external variables (system and user characteristics). The TAM model assumes the mediating role of PU and PEU in the relationship between external variables and system acceptance (Davis, Bagozzi, Warshaw, 1989). Our study assumed that external variables could directly determine the BI. The variables PU and PEU were omitted in our model due to the argument that they should not be a predictor of intentions in the situation of an already implemented telemedicine system (Ahlan, Ahmad, 2015). Among external factors, a special role should be played by personal characteristics (Venkatesh, Davis, 1996), social capital factors (Tsai, 2014), and organisational features (Amoako-Gyampah, Salam, 2004).

The acceptance of technology is increasingly analysed in the context of social impact (SI), which explains the social aspect concerning an individual's effort to adapt to social expectations. SI is defined as the degree of influence on an individual of the fact that people in the environment (who are trusted and respected) consider that the person should be using the new system (Venkatesh, Viaswanath, Davis, Fred, 2000) or as the extent to which an individual believes that others, especially friends and acquaintances, believe the system and this prompts the individual to use it (Gagnon et al., 2010). It is important to investigate the impact of this factor on the acceptance of telemedicine services because people are often dependent on each other in a social and economic context. SI is a key element of social capital theory.

ICT acceptance research also uses self-efficacy (SE), which relates to people's judgments about their ability to perform actions and the feeling of effectiveness from carrying them out. This can affect users' acceptance of the technology. In the literature, SE is also defined as people's judgments about their ability to use the telemedicine system effectively (Compeau, Higgins, 1995; Rahimpour, Lovell, Celler, McCormick, 2008). SE is a key element of social cognitive theory (SCT) that provides a theoretical framework for analysing human motivation thought, and performance in various activities (Bandura, 2002; Shu, Tu, Wang, 2011).

Therefore, the aim of this study is to use selected dimensions of the TAM model (including the social capital theory and social cognitive theory) to study the acceptance of the telemedicine system by GPs in the provision of basic health services during the Covid-19 pandemic in Poland. For the purposes of the study, a theoretical behavioural model was developed using constructs from the previously published telemedicine literature: (1) BI (TAM), (2) SE (social cognitive theory), and (3) SI (social capital theory). We wanted to understand the direct relationship between these key factors and check if SE and SI influence the BI of GPs to use telemedicine systems. Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) were used to investigate the psychometric properties of the questionnaires and validate the proposed model and hypotheses. The insights from these findings can be used to further implement telemedicine systems in primary health care in Poland.

The remainder of the article is structured as follows. Section 2 describes the research background for determining the factors influencing respondents' intention to use the telemedicine system, highlights the development of research hypotheses and presents the research methodology. The results obtained from the data analysis are presented in section 3. Section 4 presents the discussion in light of the data analysis taking into account the study's limitations. Conclusions and recommendations resulting from the research results are presented in section 5.

2. Methods

In order to comprehensively examine the mechanism shaping the BI of GPs to use the telemedicine system, we developed the research model that assumes a direct impact of SE and SI on the BI of GPs to use the telemedicine system. Two primary variables of the TAM model are excluded from the model: PU and PEU. The proposed theoretical model is shown in Fig. 1. The developed research model consists of 2 factors related to exogenous variables (SE, SI), one endogenous factor (BI) and ten indicators.

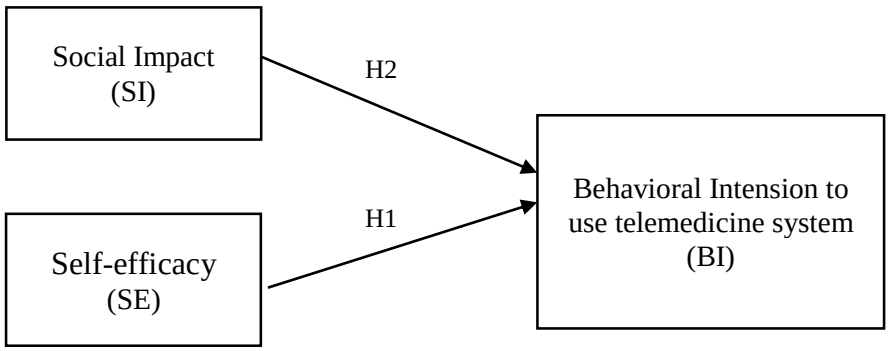

Figure 1. Theoretical model.

According to TAM, acceptance of an ICT system can be measured by the BI (Davis, Bagozzi, Warshaw, 1992). The user acceptance of ICT is tested in a model regarding the intention to use telemedicine systems rather than the actual use. This is due to difficulties in interpreting the multidimensional aspects of "actual use" (DeLone, McLean, 2014). In addition, BI to use the system has a positive, significant impact on the actual use and is a reasonable indicator of future use of the system (Jackson, Chow, Leitch, 1997). Due to the strong causal relationship between BI and actual use, using BI as a dependent variable in a model is not a serious limitation (Mathieson, 1991). Actual use can be replaced by an intention to use when the technology is still under development, with a limited number of users and the purpose of the research is to predict future use (Williams, Slade, Dwivedi, 2015). In Poland, telemedicine systems are still at an early stage of development, with limited technology adoption and use. Therefore, in this study, we considered BI to be the measure of acceptance of the telemedicine system. In the context of this study, the BI to use the system is the purpose or plan for the use of telemedicine services by the GPs.

In our study, we assumed that a factor influencing BI might be self-efficacy (SE). According to the social cognitive theory, SE is the main determinant of the performance of tasks by an individual. From an empirical point of view regarding the acceptance of technology, it was found that SE is an important determinant of users' perception of such technologies (Venkatesh, Davis, 1996). It has also been suggested that SE should be key to accepting telemedicine systems.

In our study, the SE was determined based on an assessment of the effectiveness of using the telemedicine system by GPs. Earlier studies that showed a high level of intention to use the telemedicine system also showed a low level of confidence in the use of the system by its users (Rahimpour et al., 2008). Therefore, it was recognised that SE could be of key importance to the intention of using the system by GPs and should be incorporated into the developed TAM.

The users ' acceptance of a new technology may also depend on the SI (Baptista, Oliveira, 2015; Lu, Yao, Yu, 2005). When adopting ICT in healthcare, this is usually attributed to the degree to which people feel that GPs should be prevented or encouraged to use the telemedicine system. This influence may emerge from colleagues or superiors. The use of telemedicine systems in the work environment is visible to colleagues and superiors, and the opinion of these people may also encourage users to use the ICT systems. Therefore, it is very important to examine the impact of this factor on the acceptance of telemedicine systems by GPs. SI is the influence someone has on a potential user on the use of technological innovations (Holden, Karsh, 2010; Venkatesh, Viaswanath, Davis, Fred, 2000). It refers to the social pressure (from people who influence individuals, such as supervisors and colleagues) that they feel about engaging in a certain behaviour (Deng, Zheng, Lu, Zeng, Liu, 2021). In the context of this research, we define SI as an attribute that encourages or prevents the use of telemedicine systems.

Table 1.
Construct definition with variables

Construct	Definitions	Variables	Bibliography
Behavioural intention to use telemedicine system (BI)	The degree to which a GP has formulated conscious plans for using a telemedicine system	BI1 - If possible, I intend to use the telemedicine system in the future. BI2 - The use of a telemedicine system would make it easier for me to contact the patient and diagnose him. BI3 - I am happy to use the telemedicine system to agree on the diagnosis with other physicians BI4 - Remote monitoring of the patient's health would improve the efficiency of the telemedicine system.	(Adams, Nelson, Todd, 1992; Chau, Hu, 2002; Davis, 1989; Davis et al., 1989; Gagnon et al., 2003; Rho et al., 2014; Venkatesh, 2000)
Self-efficacy (SE)	The physician's perception of the possibility of effective use of telemedicine systems	SE1 - I have never had an emergency while using the telemedicine system, even though I cannot see any patients. SE 2 - When using the telemedicine system, I can assess the health of patients as well as during a normal visit to the office. SE 3 - Teleconsultations are as safe for the patient as visits to physicians.	(Compeau, Higgins, 1995; Hung, Ku, Chien, 2012; Rahimpour et al., 2008; Rho et al., 2014; Venkatesh, 2000; Venkatesh, Davis, 1996)
Social Impact (SI)	The degree or extent to which the GPs believe that others, especially his/her colleagues and supervisors, believe that he/she should use the new telemedicine system	BI1 - People I respect think I should be using the telemedicine system. BI2 - People who influence my work believe that I should use the telemedicine system. BI3 - My colleagues believe that it is worth using the telemedicine system.	(Q. Deng et al., 2021; Fishbein, Ajzen, 1975; Yu, Li, Gagnon, 2009)

Source: Authors' research.

For GPs, telemedicine systems represent technology that is both new and innovative. In this study, we intend to see if GPs will demonstrate greater BI to use telemedicine services in the context of increased peer pressure and if they recognise that telemedicine services are safe and effective for patients. SE and SI can be the main factors affecting the acceptance of the new telemedicine system, as it has previously been reported that greater SE leads to greater use of the system (Venkatesh & Davis, 1996). Until now, the TAM model was the basis for analysing the impact of SE and SI on PU and PEU. These dependencies were based on theoretical arguments and empirically tested. The conducted research shows that these factors have a significant positive effect on PU and PEU (Agarwal, Sambamurthy, Stair, 2000; Mathieson, 1991; Ong, Lai, Wang, 2004; Venkatesh, Davis, 1996; Wu, Chen, Lin, 2007).

Moreover, they can influence BI through PU and PEU (Hsu, Wang, Chiu, 2009; Shih, 2007; Thong et al., 2002). The direct relationships between SE and BI and between SI and BI have not yet been empirically confirmed. Therefore, two hypotheses have been proposed.

H1: SE has a positive effect on the BI of GPs to use the telemedicine system.

H2: BI to use the telemedicine system depends on the SI.

The questionnaire consisted of two parts. Part A contained questions about the factors presented in the research model. Part B was a record containing the basic characteristics of participants and medical entities, including information on the gender of the study participants, their experience in using the telemedicine system, the kinds of telemedicine systems, and the legal form of the subject. A five-point Likert scale was used from 1 (strongly disagree) to 5 (strongly agree).

The study was performed using the technique of personal interviews using the paper version of the questionnaire (PAPI) and online, using a website, by sending links to the indicated e-mail addresses (CAWI). The sample for the study among GPs was selected randomly, and the BISNODE database was used, containing contact details of primary healthcare entities throughout Poland. During the research, contact was made with 5503 primary healthcare centres. As a result of the contract, the following were obtained: 1,003 categorical refusals to participate in the study, 587 consents to participate in the study, of which 216 PHC failed to complete the questionnaire despite their consent. In total, 361 interviews with GPs in 361 primary healthcare centres were conducted. The survey was conducted on August 26 - September 14, 2021. Participation in the study was voluntary, and confidentiality and anonymity were ensured.

We first removed cases with missing values before analysing the data in our data research process. Second, we tested the assumptions underlying the use of SEM. Our sample size (n = 361) was considered reasonable and large enough to partially compensate for possible model misspecification and complexity.

Data analysis followed the two-step approach recommended in the literature (Anderson, Gerbing, 1988). First, we performed an Explanatory Factor Analysis (EFA) to evaluate the measurement model for reliability, discriminant validity, and scale convergence. In the second

step, we conducted pathway analysis to empirically test the research. The collected data were analysed with the SPSS 16 software. SEM using AMOS 7 was used to analyse the causal relationships between the model parameters. In all tests, p values less than 0.05 were interpreted as statistically significant.

3. Results

The analysis was performed using the statistical package SPSS v. 27, IBM AMOS v. 27 and Microsoft Excel 365. The surveys were carried out by an external company on behalf of the Warsaw University of Technology and were delivered in Excel format. The data were entered into a database of the SPSS program. The research covered several areas, but three were selected for this analysis: BI, SE and SI. 361 GPs participated in the survey, one from each randomly selected clinic out of more than 25,000 in Poland. The sample of clinics was representative. Descriptive statistics of survey responses are presented in Table 2. The distribution of variables is presented in Figure 2.

The majority of GPs have a positive view of teleconsultations. 83% intend to provide teleconsultations in the future, 75% say that teleconsultations will make it easier for them to contact patients, 73% consider teleconsultations to be a good tool for consulting other physicians, 79% consider the possibility of monitoring patients' health remotely as an opportunity to increase the efficiency of the healthcare system. Slightly more than half of the GPs rate teleconsultations as similar to in-person visits, and about a quarter say the two types of visits are different. When providing teleconsultations, 52% of GPs have not experienced emergencies, while 23% have. 59% believe they are equally able to diagnose patients during in-person consultation and teleconsultations, and 34% hold the opposite view. 69% believe that teleconsultation is equivalent to an in-person visit, and 25% of GPs hold the opposite view. Approximately 60% of GPs confirm the SI on their teleconsultations. More than 20% see no such connection.

Table 2.
Descriptive statistics of survey variables

Variable	Mean	Std. Deviation	Variance	Skewness	Kurtosis
BI1	4.22	0.894	0.799	-1.195	1.260
BI2	3.99	1.005	1.011	-0.967	0.457
BI3	3.87	1.118	1.249	-0.972	0.223
BI4	4.06	0.939	0.882	-1.038	0.786
SI1	3.67	0.986	0.973	-0.447	-0.167
SI2	3.74	0.971	0.943	-0.446	-0.359
SI3	3.91	0.949	0.901	-0.670	-0.137
SE1	3.58	1.216	1.478	-0.586	-0.718
SE2	3.32	1.252	1.569	-0.396	-1.104
SE3	3.56	1.151	1.325	-0.729	-0.520

Note. BI - behavioural intention variables, SI - social impact variables, SE - self-efficacy variables.

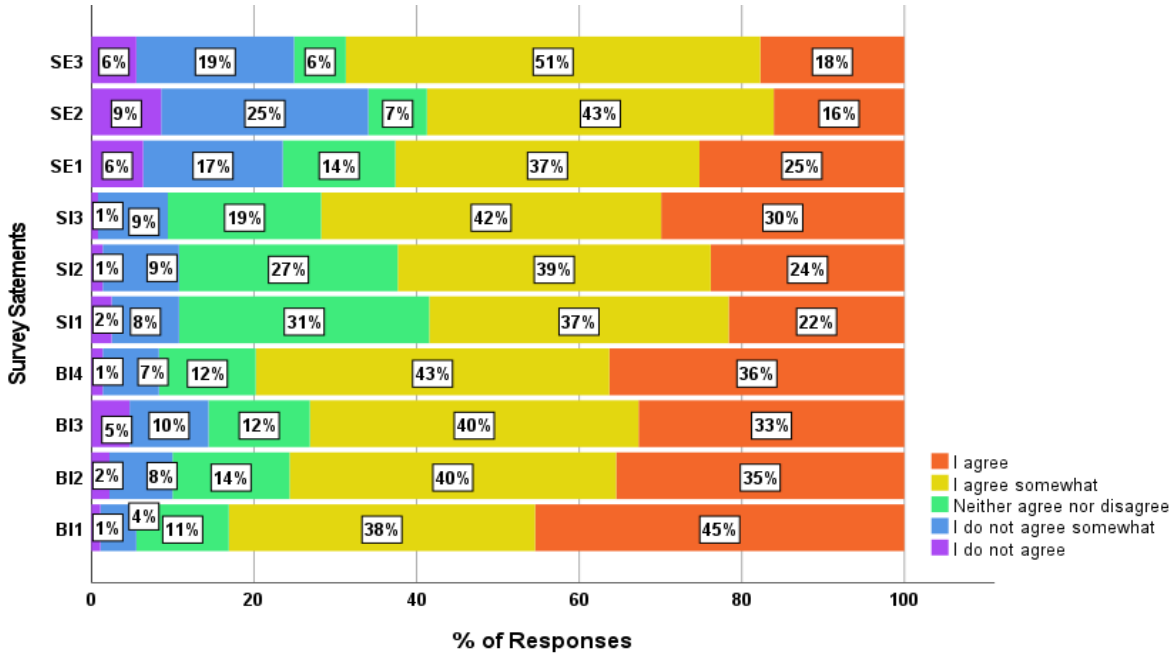

Figure 2. Distribution of survey responses.

3.1. Factor analysis

3.1.1. Exploratory factor analysis

Exploratory Factor Analysis (EFA) was conducted based on 361 observations. All ten variables BI1, BI2, BI3, BI4, SI1, SI2, SI3, SE1, SE2, SE4 were included in the analysis. Principal Component Analysis (PCA) and Varimax rotation with Kaiser Normalization was used to extract three components. Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) equalled 0.857 > 0.6. KMO value considered as correct is 0.6. Bartlett's Test of Sphericity was significant ($\chi 2 = 1522{,}4$; df = 45, $p < .001$). Probability p should be smaller than 0.05, which indicates that the values are correct and the sample size is sufficient for factor analysis. PCA retained three factors with eigenvalues greater than 1. The total variance explained by EFA model was equal to 70,4% (Table 3), which should be greater than 50% (Tabachnick, Fidell, 2018). For all ten variables, factor loadings range from 0.654 to 0.881 and are greater than the recommended 0.5 cut-off point (Horn, John, 1965). Reliability analysis showed that the extracted model was acceptable since Cronbach's Alpha coefficients for BI dimension (0.810) and SI dimension (0.853), and SE (0.762) dimension were greater than 0.6 (Zhang, Xiang, 2019). Those values (Table 4) allowed further factor analysis (Hair Jr., Black, Babin, Anderson, 2013; Williams, Onsman, Brown, 2010).

Table 3.
Total variance explained in the EFA model

Compo-nent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	total	% of variance	cumulative %	total	% of variance	cumulative %	total	% of variance	cumulative %
1	4.486	44.863	44.863	4.486	44.863	44.863	2.579	25.792	25.792
2	1.457	14.565	59.428	1.457	14.565	59.428	2.402	24.016	49.807
3	1.095	10.951	70.379	1.095	10.951	70.379	2.057	20.572	70.379
4	0.582	5.820	76.199						
5	0.549	5.493	81.692						
6	0.469	4.689	86.382						
7	0.404	4.045	90.427						
8	0.361	3.614	94.041						
9	0.317	3.173	97.214						
10	0.279	2.786	100.000						

Note. Extraction Method: Principal Component Analysis with Varimax rotation.

Table 4.
Rotated Component Matrix

Variable	Component		
	BI	SI	SE
SE1			0.758
SE2			0.808
SE3			0.784
BI1	0.724		
BI2	0.799		
BI3	0.654		
BI4	0.800		
SI1		0.792	
SI2		0.830	
SI3		0.871	

Note. Extraction Method: Principal Component Analysis with Varimax rotation. Rotation converged in 5 iterations.

3.1.2. Confirmatory factor analysis

Confirmatory Factor Analysis (CFA) confirmed the EFA model with ten variables. A standardised solution is presented in Figure 3. Convergent validity was confirmed. The model's strength of relationships of factor variables is supported by Average Variances Extracted (AVE), which has to be greater than 0.5 (Table 4). This was confirmed by Composite Reliability indexes (CR), which should be higher than 0.7 (Table 4), which means that the model's convergent validity is confirmed.

Discriminant validity of the model is also confirmed using the Fornell Larker criterion since the square root of AVE for each factor is higher than the correlation between factors (Table 4).

Considering the above results, model reliability and validity can be confirmed.

Model fit measures indicate that the model is correct. CMIN = 85.3; DF = 32. CMIN/DF = 2.67 (>1; <3), CFI = 0.954 (>0.95); SRMR = 0.053 (<0.08); RMSEA = 0.068 (<0.05 - acceptable); p-close = 0.044 (>0.01, <0.05; acceptable) (Hair et al., 2018).

Table 5.
CFA model validity measures

Variable	CR	AVE	$\sqrt{AVE}$	BI	SI	SE
				correlations		
BI	0.816	0.526	**0.726**	1		
SI	0.853	0.659	**0.812**	0.624	1	
SE	0.774	0.538	**0.733**	0.608	0.404	1

Note. P-value < 0.0001, model is significant.

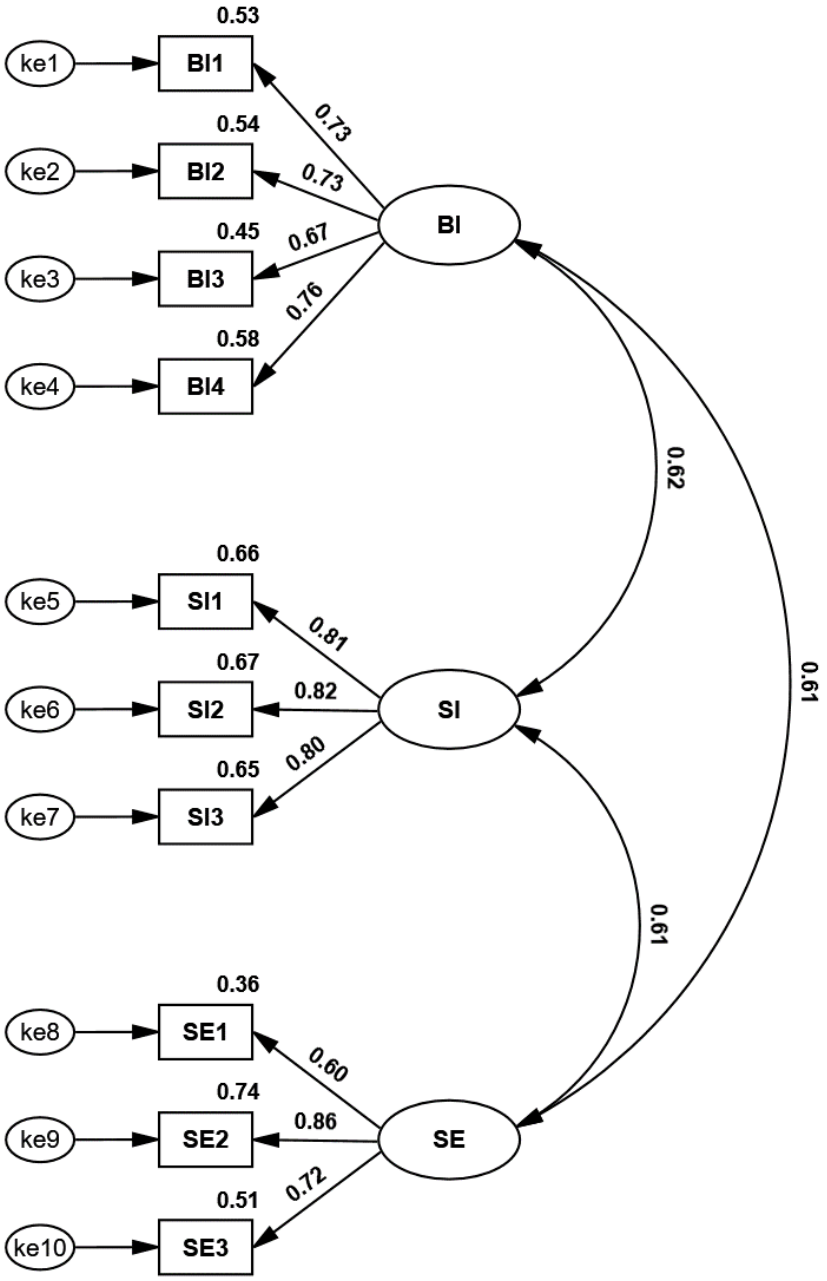

Figure 3. Confirmatory Factor Analysis model, standardised values.

3.2. Structural model

Besides the CFA model, a structural model was also calculated. Three dimensions were calculated based on the CFA model: BI, SI and SE. The following null hypotheses were developed to guide the research:

Null Hypotheses 1: SE does not affect BI.

Null Hypotheses 2: SI does not affect BI.

Hypothesis testing is done by analysing the significance of path coefficients. If the path coefficient's p-value is < 0.05 (5%), then the null hypothesis can be rejected, meaning that independent variables have a significant effect on the dependent variable.

The structural model was calculated in IBM SPSS AMOS v. 27.0 (Figure 4). Standardised path loadings are presented in Table 6.

Both null hypotheses were rejected in favour of the alternative hypotheses H1 and H2. There was a significant influence of SI and SE factors on BI factor. The structural coefficients on the path between model variables are presented in Figure 4 and Table 6. The structural model explains 67% of the BI variance. The effect of factors SI and SE on the factor BI is significant; standardised path coefficients equal 0.49 and 0.47. It should also be noted that the variables SI and SE are correlated, with a Pearson's correlation coefficient of 0.47.

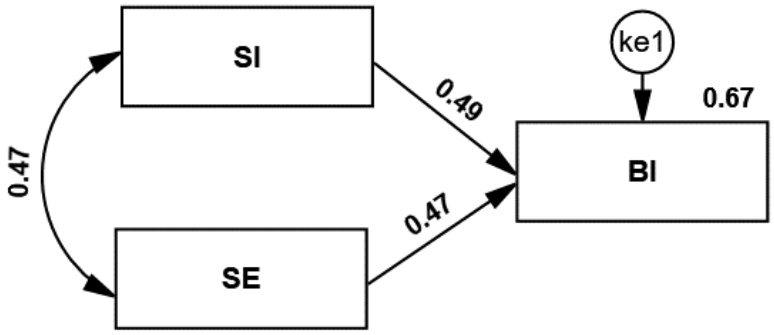

Figure 4. Structural model, standardised values.

Table 5.
Structural model measures

Hypothesis	Path	Standardised path estimate	SE	CR	P-value	Hypothesis status
H2	SI to BI	.487	.034	14.180	<0.0001	confirmed
H1	SE to BI	.467	.034	13.602	<0.0001	confirmed

Note. Standardised estimates.

4. Discussion

The research objective of this study was to determine selected dimensions of the TAM model (including the social capital theory and social cognitive theory) influencing the intention to use telemedicine systems among GPs during the Covid-19 pandemic in Poland.

The results strongly support the proposed behavioural model and provide a comprehensive understanding of the relationship between social influence, self-efficacy, and behavioural intention to use the system. Based on the results of the SEM analysis, we confirmed the fit of empirical data and the reliability of the proposed model. The results show that both hypotheses proposed in the model have been confirmed.

The results of this study suggest that self-efficacy directly impacts the behavioural intention of GPs to use the system. GPs with a higher sense of self-efficacy are likely more motivated to use the telemedicine system at a primary health care clinic. Self-efficacy is a solid construct to understand the acceptance of different technologies by different users, as confirmed by other studies (Alqudah, Al-Emran, Shaalan, 2021; Garavand, Aslani, Nadri, Abedini, Dehghan, 2022). For example, the self-efficacy factor turned out to be the dominant determinant of the acceptance of telemedicine services by physicians in South Korea, who had very little contact with new technologies found in telemedicine. Physicians' attitudes turned out to be a big obstacle to the successful implementation of the telemedicine service (Rho et al., 2014).

Self-efficacy depends to a large extent on the system's reliability, which also, in other studies, proved to have a significant impact on the behavioural intentions of using the telemedicine system, but from the patient perspective. Reliability studies found that the higher the reliability of a telemedicine system, the greater the willingness of users to use it (Lin, 2017). The results of a study conducted in Indonesia (Handayani, Meigasari, Pinem, Hidayanto, Ayuningtyas, 2018) prove that the reliability of the telemedicine system in terms of service delivery is one of the success factors in the development of mobile health applications (Alexandra et al., 2021).

Therefore, successful implementation of a telemedicine system requires more than just installation. Training that can improve end-user self-efficacy can therefore be a recipe for improving system acceptance (Venkatesh, Davis, 1996). The role of telemedicine systems specialists may be crucial, as they should provide real-time support to users (e.g. via remote call centres) when they encounter any obstacles during their operational processes. This can maximise GP's acceptance of the telemedicine systems and promote their effective dissemination (Rahimpour et al., 2008).

However, most of the research on the analysed constructs concerns the indirect influence of SE on BI through factors such as PU, PEU and perceived credibility (Ong et al., 2004; Tsai, 2014). Our study is the first one that analyses the direct impact of SE on BI among GPs.

Social impact also proved to be an influential determinant of intention to use telemedicine systems, which is consistent with the results of previous studies (Alexandra et al., 2021; Baudier, Kondrateva, Ammi, Chang, Schiavone, 2021; Deng, Hong, Ren, Zhang, Xiang, 2018; Jin, Chen, 2015; Kamal et al., 2020). It turned out that the use of the telemedicine system often concerns physicians who perceive the expectations of their colleagues and superiors (Deng et al., 2021; Guo, Guo, Fang, Vogel, 2017; Guo, Guo, Zhang, Vogel, 2017).

In contrast, other studies have found that social impact does not significantly affect behavioural intention to use the system (Alexandra et al., 2021; Lestari, Rofianto, 2020). Other studies on the effects of SE on BI found that social impact had a direct impact on the compulsory but not voluntary use of the telemedicine system (Garavand, Samadbeik, Nadri, Rahimi, Asadi, 2019; Venkatesh, Viaswanath, Davis, Fred, 2000).

Our results demonstrated the important role that other GPs play in expanding the use of technology. GPs will be more likely to use telemedicine services if their colleagues and supervisors find them effective in improving healthcare conditions. This means that strategies for introducing telemedicine in a primary care setting should ensure the acceptance of more experienced health care professionals, especially managers, from the outset, as they have a better understanding of the benefits

Health care managers should build a better, innovative and motivating environment where using innovative technologies is an acceptable and even encouraged way of patient care. Secondly, to extend the use of telemedicine technologies, senior GPs who influence other GPs should also be mobilised through, for example, consultation sessions and exchanges of experiences between mentors and trainees. The collaborative efforts mentioned above will help GPs develop social norms and beliefs about technology efficiency and attract more GPs to use telemedicine systems of ICT. To this end, the whole working environment must be involved in the discourse on telemedicine services, which can lead to more positive perceptions and greater acceptance. In addition, telemedicine service providers should focus on providing various incentives to PHC clinic managers that will encourage them to use technology in their facilities.

While the results of this study were quite valuable, there are several limitations to generalising it. First, the behavioural intention was used as the dependent variable instead of actual use in this study. Future studies that incorporate the actual use of telemedicine in the research model would allow a more comprehensive exploration of the integrative model in explaining or predicting the acceptance of telemedicine by GPs. Second, the conclusions and implications come from a single study of telemedicine consultations in Poland. Therefore, be careful when generalising our findings. Third, the responses were voluntary and, therefore, inevitably subject to auto selection errors. It is possible that users of these entities who used telemedicine systems responded more often. Fourth, this study focused on GPs, even though many other professions are related to the healthcare system. Fifth, we only examined teleconsultation services among the various telemedicine services available. As more advanced telemedicine services are not yet fully developed in Poland, it was difficult to conduct a study

on more advanced telemedicine services. As telemedicine services in Poland mature, further research may concern specific telemedicine services. Further research is also needed to investigate other significant factors preceding the intention to use telemedicine services by different providers and patients. For example, future research may consider psychological factors not covered in this paper to further understand user perspectives on telemedicine systems.

This study is expected to be useful to primary health care institutions wishing to develop their telemedicine systems by providing information on factors influencing users' interest in adopting such teleconsultation applications. The results of this study indicate several aspects that primary healthcare providers as telemedicine users need to consider. Using this knowledge, primary health care providers are expected to be able to improve and develop these systems so that they can provide better health services to patients by looking for additional variables to improve the ability to predict BI more accurately.

5. Summary

This study combined two key elements, one from social capital theory and the second from social cognitive theory, with the widely used ICT acceptance model (TAM) to develop the model to understand the factors influencing the behavioural intention of GPs to use the telemedicine system in PHCs. Its empirical validity and reliability were tested using survey data obtained from GPs working in selected healthcare facilities in Poland. The findings indicate that GPs generally reported a positive perception of the telemedicine system. The results show that the social impact factors and the sense of self-efficacy significantly influenced the intention of GPs to use the system.

Our research makes an important contribution to technology acceptance research as it shows that self-efficacy and social impact are important social mechanisms influencing behavioural intention. In particular, the cognitive dimension of social impact directly influences the behavioural intention of GPs to use telemedicine. It means that in PHC, there is a huge role of the professional environment - especially superiors, which must be involved in the process of convincing their employees to telemedicine services. To ensure the successful introduction of new ICT for health in a primary healthcare facility, a positive environment should be created with the support of facility managers.

It has also been found that an appropriate level of user acceptance of a system is the result of an appropriate level of self-efficacy in using it. In building a sense of self-efficacy, the stability of telemedicine systems and belief in their security are important. Understanding these problems should help medical entities improve the telemedicine implementation processes.

Currently, many healthcare entities do not use the existing technical possibilities to implement high-quality telemedicine systems. The research carried out is therefore important in telemedicine initiatives, as it increases the knowledge of the role and the acceptance of telemedicine systems by their users.

This study is the first of its kind conducted in the primary healthcare setting in Poland. Its value lies in the evidence it provides to various policymakers and patient care managers to help design appropriate strategies to improve the use of telemedicine systems in primary care settings.

This research also contributes to developing theories related to management sciences by broadening the knowledge of the factors influencing the acceptance of health technologies. Due to the limited availability of medical services caused by the Covid-19 pandemic, the ongoing scientific discourse on the use of technology in primary care has become more intense and important.

It also provides basic metrics against which the results of future acceptance and use of ICT can be compared during and after the introduction of the telemedicine system to primary healthcare facilities. Such assessments are necessary for the continuous improvement of the quality of information management in healthcare organisations in general and healthcare facilities in particular. The strengths of this study are random sample selection and size, reliable survey instruments, approach to data collection and adherence to strict ethical guidelines.

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