Patients' perceptions of privacy and their outcomes in healthcare

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Abstract: The purpose of this study is two-fold: 1) to develop a measurement instrument of patient perceptions of privacy in the healthcare sector; 2) to empirically investigate the outcomes of privacy. Privacy is conceptualised as a multi-dimensional construct consisting of three theoretically independent dimensions: informational, physical, and psychological. A survey instrument was developed and subjected to extensive face validity assessment. The model was tested through a survey of 129 healthcare users in Canada by means of partial least squares. The instrument was found to be reliable and valid. Informational privacy is a key component of the overall privacy perceptions of healthcare users, followed by physical privacy. Psychological privacy has no effect on the overall privacy construct. Privacy has a strong effect on trust, which in turn affects the level of commitment, intentions to use the provider's services in the future, and engagement in positive word-of-mouth.

Keywords: privacy; healthcare; dimension; questionnaire; trust; commitment; word-of-mouth; WOM.

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1 Introduction

In medical practice, privacy has become an important issue since the time when the Hippocratic Oath, which has been enforcing medical ethics for centuries, originated in the 4th century BC (Moskop et al., 2005). Privacy is a basic human need, and it is central for psychological well-being (Altman, 1976). Traditionally, the concept of privacy has been used to define a variety of experiences covering personal control over self, information, living space, access to bodies and places, self-concealment, and interpersonal boundary regulation (Altman, 1975; Introna, 1997; Jourard, 1966; Leibman, 1970; Petronio, 2002; Rawnsley, 1980; Solove, 2002; Warren and Brandeis, 1890). Privacy is a universal need, and its characteristics exist in every nation (Kemp and Moore, 2007).

An increased interest in privacy in healthcare has been encouraged by changes in the patients' perceptions of their role. Currently, patients are active and well-informed participants in their healthcare, treatment and decision-making (Swan, 2009). Information technology makes it easy for patients to access any relevant healthcare information online (Anderson and Agarwal, 2011). As a result, knowledgeable patients expect that physicians provide a better quality of service (Naidu, 2009). The extant literature advocates that privacy is directly related to trust in the health service provider (Bansala et al., 2010; Dodge et al., 2012; Thom et al., 2002). Trust, in turn, has an effect on several critical outcomes, such as commitment to the doctor, word-of-mouth (WOM), and behavioural intentions (BI) to use the services of this doctor in the future.

The literature from non-medical fields presents several questionnaire-based privacy instruments. At the same time, it is regrettable that very few of them focus on privacy perceptions of patients in the healthcare sector. Even though the importance of privacy in the healthcare domain has been clearly established, no widely accepted instrument exists, and its outcomes need to be clearly established. Therefore, the purpose of this study is two-fold. The first is to develop a measurement instrument of the patients' perceptions of privacy in the healthcare sector. This study focuses on the patients' perceptions of privacy during medical appointments with their primary healthcare physicians. It approaches the conceptualisation of the privacy concept from a multi-dimensional perspective and suggests that the overall privacy construct is comprised of informational, physical, and psychological dimensions. Conceptualising privacy as a multi-dimensional construct allows defining the components that best reflect patient perceptions and narrowing down the extensive definition of privacy (Beauchamp and Childress, 2001; Solove, 2002). However, it is critical not only to measure privacy but also to understand its outcomes. Thus, the second objective is to explore how privacy affects patients' trust in their healthcare provider, which influences their commitment, WOM and future service usage intentions.

Privacy perceptions are a functional part in the evaluation of service quality. Positive patients' perceptions of privacy directly relate to patients' higher level of satisfaction with health services (Nayeri and Aghajani, 2010; Parrott et al., 1989). In this study, privacy and its outcomes were measured by surveying patients directly. There are several advantages of directly measuring the patients' perceptions of privacy by administering a questionnaire. First, a questionnaire is less expensive because administering it requires less time and minimal involvement of research personnel or medical professionals who need to distribute and collect the surveys in healthcare centres, including hospitals, clinics and doctors' offices. Second, patient surveys are easy to administer, especially, in large facilities. Third, there is no need to have complete medical records that contain all

information related to the various interpersonal aspects of care. Fourth, patient judgment could be very detailed. Patients see different things than physicians, for example, they may separate high technical aspects of care from psychosocial issues (Chang et al., 1984). Fifth, patients suggest new ways to improve their privacy. Sixth, patients' participation in privacy assessment may directly increase their trust and therefore influence their treatment compliance, continuity of care, and outcome (Blackstock et al., 2012; Rosenthal and Shannon, 1997; Van Hecke et al., 2011). Valid and reliable privacy assessment instruments may be used by the personnel of healthcare facilities to find ways to improve patients' experience. In contrast to previous investigations focusing on patients' privacy, in this study privacy is conceptualised as a multi-dimensional construct because this approach allows identifying the most important composite parts of privacy perceptions in order to make better recommendations for privacy policy-makers.

2 Theoretical background

2.1 Defining privacy

Privacy is difficult to define. Despite many previous attempts, the very notion of privacy does not have a universally accepted definition. The lack of agreement on a definition of the concept of privacy demonstrates its complexity (Malin et al., 2013). It is easy to describe privacy violations, preferences, characteristics and functions, but it is challenging to offer a simple and universal privacy definition because its meaning is contingent on culture, situation and personal preferences (Woodward et al., 2003). Privacy is a very ambiguous concept which is usually interpreted in various ways depending on the interests of the party using it.

The famous legal theorists Warren and Brandeis (1890) define privacy as the right "to be let alone." They emphasise the importance of individuals as being able to have control over their personal lives. Altman (1976) defines privacy as "selective control of access to the self or to one's group" (p.18). To isolate and keep culturally defined limits is an important function of privacy. Private aspects of personal life should be free from judgment of others that reinstates personal values, gives a sense of protection, and creates a need for solitude.

Researchers recognise that the construct of privacy as a 'single' concept can be strengthened by conceptualising it as a cluster or multi-dimensional concept (DeCew, 1997; Solove, 2002) because this approach better reflects a complicated nature of privacy (Hugl, 2010). Street and Love (2005), who investigated the patients' perceptions of privacy in palliative care settings, also confirmed the viability of analysing privacy from a multi-dimensional perspective. In a similar vein, Solove (2002) criticises a widely known 'single' definition of privacy, which includes the right to be let alone, limited access to the self, secrecy, control over personal information, personhood, and intimacy and argues that such definitions are either too narrow or too broad. Instead, Solove (2002) suggests that privacy can be better understood in relation to the practices that have to be protected. Moreover, privacy and its corresponding dimensions should be defined within a particular context, including healthcare.

Burgoon (1982), in her seminal work on interpersonal communication privacy, proposed a multi-dimensional model of privacy with four dimensions: physical, interactional, psychological, and informational. Parrott et al. (1989) applied Burgoon's

model to examine the patients' perceptions of privacy within the patient-physician relationship and supported the conceptualisation of privacy as a multi-dimensional concept.

Informational, physical, and psychological privacy dimensions are very practical and relevant for a comprehensive understanding and analysing the patients' perceptions of privacy in the context of healthcare (Ball and Daniel, 2012; Beauchamp and Childress, 2001; Britto et al., 2010; Schopp et al., 2003; Street and Love, 2005). Empirical evidence further supports these privacy dimensions in various contexts and with a variety of demographic. For example, Britto et al. (2010) studied multi-dimensional privacy aspects in healthcare that included informational, psychological, and physical privacy. Their study revealed that informational privacy is especially important for adolescents with chronic illnesses, and, therefore, it has to be protected by healthcare providers. Ball and Daniel (2012) indicated that employees express a great concern about their personal information within the workplace. Schopp et al. (2003) empirically demonstrated the significance of physical and informational privacy perceptions for nursing practice in five European countries. Therefore, this study focuses on informational, physical, and psychological dimensions of privacy.

2.2 Healthcare privacy as a multi-dimensional construct

A multi-dimensional construct is the conceptualisation of the phenomenon if it consists of two or more components, which may not correlate with one another (Wetzels et al., 2009). For instance, an increase in patient perceptions of physical privacy emerges when the physician rearranges the office to give more personal space to the visitor. At the same time, this has no effect on the level of psychological and informational privacy experienced by the patient. The same applies to changes in the levels of other constructs, which justifies the definition of a multi-dimensional construct consisting of three dimensions. Each dimension is treated as a distinct construct that forms part of overall (i.e., higher-order) privacy construct. Therefore, a multi-dimensional privacy model is used, which includes three principal dimensions: informational, physical, and psychological (Table 1).

Table 1 Second-order privacy dimensions

Dimension	*Definition*
Informational privacy	The patients' perceptions of the degree of control over their personal information. Individuals want to have the right to determine how, when and to what extent their data may be released to another person. It reflects patients' control over the collection, storage, dissemination, and use of their personal information.
	Dimensions include: information acquisition and information ownership.
Physical privacy	The patients' perceptions of the degree of physical inaccessibility to others. It includes avoiding unwanted actions from others, such as invading personal space by the physical presence, touching body parts, observing or monitoring acts, video surveillance, overhearing sounds or noise, and smelling odour.
	Dimensions include: personal space and interactional space.
Psychological privacy	The patients' perceptions of the extent to which the physician respects patients' cultural beliefs, inner thoughts, values, feelings, and religious practices and allows them to make personal decisions.
	Dimensions include: personal values and decisional autonomy.

2.3 Healthcare privacy variables

There are four types of variables that reflect privacy: control, limited exposure, relevance, and informed consent. The idea of control over personal information, body, and thoughts is critical to the concept of privacy (Altman, 1976; Dinev and Hart, 2004; Malcolm, 2005). The patients' sense of vulnerability increases and their sense of control decreases when their privacy is threatened. The lack of control over personal information may affect the ability of patients to have an open discussion with their physician that may impact their relationship with a doctor. If patients refuse to give complete information to their physicians, the physicians' ability to diagnose and treat their patients may be hindered (Malcolm, 2005).

Limited exposure refers to the degree to which a person's privacy was exposed to the third party (Brann and Mattson, 2004; Burgoon et al., 1989; Cavoukian and Garcia, 2008; Patel et al., 2001; Peekhaus, 2008; Whetten-Goldstein et al., 2001). For example, patients may feel uncomfortable or even threatened when their physicians collect, use, disseminate, and store unreasonable amounts of personal information.

Relevance refers to the patients' perceptions of the degree to which privacy invasion is directly relevant to their health concerns. When the physicians' actions are not related to the patients' health issues, patients may feel uneasy (Burgoon, 1982; Cavoukian and Garcia, 2008; Petronio, 2002; Ubel et al., 1995). For example, if a patient experiences a migraine, it is reasonable to inquire about medical history of the parents, but asking about extramarital affairs or examining private body parts may be viewed irrelevant to the problem.

Informed consent has become a common part of medical practice (Beauchamp and Childress, 2001). When physicians ask their patients to provide informed consent, patients may perceive that the physician is well-informed about their privacy and follows the required standards of practice. Therefore, these four variables (i.e., control, limited exposure, relevance, and informed consent) were adapted to develop all measurement items for the three privacy constructs described below. When some of these variables did not apply to a particular privacy dimension, they were excluded. The following sections describe privacy dimensions and measurement items.

2.4 Informational privacy

Informational privacy refers to the patients' perceptions of the degree of control over their personal information when the physician collects, uses, disseminates, and stores this information. Patients want to provide only the information directly relevant to the healthcare services, determine how the physician uses it, control how, when and under what circumstances it may be transferred to other individuals and organisations, and be assured that it is stored appropriately in both electronic and written form. There are two key dimensions of the informational privacy construct:

1 information acquisition

2 information ownership.

At the information acquisition stage, the way the physician collects health information influences the patients' perceptions of informational privacy. For example, patients expect their physician to collect a reasonable amount of information relevant to their

health concerns. The ownership stage includes the patients' perceptions of the ways the physician uses, disseminates, and stores their information. Ownership represents responsibility for shared private information.

Each dimension (i.e., information collection and information ownership) is measured with four reflective items: control, limited exposure, relevance, and informed consent. To measure the global perceptions of informational privacy, three global measures were proposed which measure both dimensions of informational privacy within a single construct (see Table 2).

Table 2 Informational privacy items

Code	*Dimension*	*Variable*	*Item*
IA1	Information collection	Control over collection	When my doctor collects my personal information, I am not worried about my privacy.
IA2		Limited amount	I am comfortable with the amount of personal information my doctor collects about me.
IA3		Relevance of collected information	My doctor *only* collects my personal information that is related to my health concerns.
IA4		Consent over collection	My doctor collects my personal information *only* with my consent.
IO1	Information ownership	Control over use	When my doctor keeps my personal information, I am not worried about my privacy.
IO2		Limited amount	I am comfortable with the amount of my personal information my doctor keeps.
IO3		Relevance of information	My doctor keeps my personal information that is *only* related to my health concerns.
IO4		Consent over use	My doctor keeps my personal information *only* with my consent.
GLPI1	Global informational privacy		Generally, I am comfortable with the way my doctor collects and keeps my personal information.
GLPI2			Overall, I feel at ease sharing my personal information with my doctor.
GLPI3			When my doctor collects and keeps my personal information, I feel that my privacy is ensured.

2.5 Physical privacy

Physical privacy refers to the patients' perceptions of the degree of their physical inaccessibility to others. It includes avoiding various unwanted actions from others, such as invading personal space by the physical presence, touching body parts, observing or monitoring acts, video surveillance, overhearing sounds or noise, and smelling odour (Burgoon et al., 1989). For example, patients may not want anybody, except for the physician, to engage in physical contact with them or monitor their intimate actions.

Personal space and interactional space are the two dimensions of physical privacy in healthcare. Personal space, also referred to as body space, is a psychological or perceptual variable. It is subjective and does not have a definitive physical boundary (Leibman, 1970). Personal space presents a set of expectations about the ways the doctor

accesses the patient's body and the immediate space around the body used by the doctor. Interactional space is the place where the patient and the doctor meet. Patients' access to the doctor's office is granted on the basis of their health concerns. Most patients perceive the physician's office as a temporary territory. However, they should feel that this space has been created especially for them, and that they have some authority over this environment. Therefore, the physical arrangement of the room, such as chairs, tables, colours, light, temperature, acoustic control and equipment, should indicate that it is the patient who controls this territory (Baillie, 2009; Hayter, 1981). The architectural features of a medical office should be used for functional and privacy purposes (Leino-Kilpi et al., 2001).

Similar to informational privacy, the same four types of variables that reflect each of the physical privacy attributes were adapted. Variables for personal space were adapted to fit the definition of the construct and changed to: control over personal space, limited physical distance, relevance of the doctor's actions, and control over personal space. With respect to interactional space, only two variables were relevant: control over physical environment and limited exposure to others. Based on the discussion above, the personal space and interactional space dimensions were operationalised. The global physical privacy construct is operationalised with two items combining the attributes of both personal and interactional space (see Table 3).

Table 3 Physical privacy items

Codes	*Dimension*	*Variable*	*Item*
PPS1	Personal space	Control over body and personal space	When I interact with my doctor, I feel a sense of control over my body and personal space.
PPS2		Limited distance	My doctor chooses appropriate physical distance during my appointments.
PPS3		Relevance of actions	My doctor *only* examines or treats parts of my body that are related to my health concerns.
PPS4		Consent over personal space use	My doctor verbally informs me every time he/she touches me.
PPI1	Interactional space	Control over physical environment	The space and furniture arrangement in my doctor's office creates a sense of privacy.
PPI2		Limited exposure	When I am in my doctor's office, my actions and conversations may not be observed or overheard by people outside.
GLPH1	Global physical privacy		When my doctor examines me and my body, I feel that my privacy is ensured.
GLPH2			I feel a sense of privacy in my doctor's office.

2.6 Psychological privacy

Psychological privacy refers to the patients' perceptions of the extent to which the physician allows them to participate in their healthcare decisions and maintain their personal and cultural values, such as inner thoughts, feelings, cultural beliefs, and religious practices. The key function of psychological privacy is to provide patients with

an opportunity to keep their values, emotions, and thoughts without being punished. When patients may behave and make choices without the risk of being judged or receiving a contradictory feedback from their physician, they have a chance to reinstate their self-image, dignity, respect, and values (Bostwick, 1976; Burgoon et al., 1989; Florin et al., 2008).

Individual values and decisional autonomy are the two dimensions of psychological privacy. Individual values refer to the patients' perceptions of whether the physician respects their personal and cultural values. Individual values are important principles influencing behaviour, motivation, and identity (Parks and Guay, 2009). When a person requires medical help and struggles with unpleasant health conditions, individual values are a significant source of strength (Haslam et al., 2009). Thus, individual values can be compared to an anchor that holds an individual in place while the illness pushes him or her deeper into the unpredictable.

Decisional autonomy concerns the patient's right to have a personal choice and to make decisions, which is important in the contemporary medical practice. It reflects the change from the paternalistic model of care to the autonomous model in which the patient's sense of self-determination plays a central role. People want to be active participants in their health decisions and make informed choices about their treatment (Guadagnoli and Ward, 1998). The autonomous person has the right to choose the treatment, accept the doctor's recommendations, decline suggestions, and act based on his or her personal and cultural values (Beauchamp and Childress, 2001). Healthcare professionals have to respect the patient's autonomous choices.

Decisional autonomy is considered part of the psychological privacy dimension. Westin (1967) argues that decisional autonomy is a critical component of privacy. Allen (1988) also views privacy as part of a decision-making process which is similar to decisional autonomy. According to Margulis (1977), psychological privacy reduces personal vulnerability and increases autonomy. These ideas also received empirical support. For example, through a study that involved 74 participants, Pedersen (1997) concluded that autonomy, defined as freedom from the expectations of others, is a distinctive function of psychological privacy. Burgoon et al. (1989) surveyed 444 respondents in order to understand what behaviours are seen as invasive to an individual's privacy. Psychological and informational privacy violations were perceived as the most invasive. Results showed that people perceived psychological privacy as a distinct dimension, and that psychological privacy plays an important role in people's relationships. Florin et al. (2008) observed that older patients also prefer to participate in clinical decision-making regarding their health, which demonstrates that decisional autonomy is critical for establishing psychological privacy.

Similar to informational and physical privacy, the same four types of variables were adapted to operationalise this construct. Variables pertaining to individual values were changed to: control over values, limited invasiveness, respect of values, and freedom of values. For decisional autonomy, three variables were relevant: control over health decisions, inclusiveness, and decisional consent. The second-order psychological privacy construct was operationalised with two items having the attributes of individual values and decisional autonomy (Table 4).

Table 4 Psychological privacy items

Codes	*Dimension*	*Variable*	*Item*
PSI1	Individual values	Control over personal and cultural values	When I interact with my doctor, I don't have to hide my personal and cultural values.
PSI2		Limited invasiveness	My doctor does not question my personal and cultural values.
PSI3		Respect	My doctor acts in a way that is respectful of my cultural norms and customs.
PSI4		Freedom of values	My doctor does not impose his/her personal and cultural values on me.
PSA1	Decisional autonomy	Control over health decisions	I am in control of my health decisions.
PSA2		Inclusiveness	My doctor considers my opinion in his/her decisions about my health.
PSA3		Decisional consent	My doctor makes decisions about my health with my consent.
GLPS1	Global psychological privacy		When I visit my doctor, I always remain true to my personal and cultural values.
GLPS2			During my interactions with my doctor, I always participate in all decisions on my health.

2.7 Global measures of privacy

In this study, three second-order privacy constructs are proposed: informational privacy, physical privacy, and psychological privacy. It is however important to develop a global measure of privacy which measures the overall perceptions of privacy (i.e., third-order construct) that does not concentrate on a particular privacy dimension. Based on the extant literature, five variables were identified. They pertain to the level of: overall privacy, privacy assurance, satisfaction with privacy, privacy protection, and a doctor's professionalism when handling privacy issues (Altman, 1976; Beauchamp and Childress, 2001; Bostwick, 1976; Burgoon, 1982; Geiderman et al., 2006; Kemp and Moore, 2007). In addition, one negatively worded (i.e., reversed) variable was proposed which reflects overall privacy (Table 5).

Table 5 Global privacy items

Codes	*Variable*	*Item*
GLP1	Overall privacy	Overall, my doctor provides an acceptable level of privacy.
GLP2	Privacy assurance	My doctor ensures my privacy very well.
GLP3	Satisfaction with privacy	I am fully satisfied with how my doctor addressed my privacy issues.
GLP4	Protected privacy	Every time I visit my doctor, I feel that my privacy is fully protected.
GLP5	Professional manner	My doctor addresses my privacy concerns in a very professional manner.
GLP6	Overall privacy – reversed item	Every time I interact with my doctor, I feel that my privacy is invaded.

2.8 Model and hypotheses

Trust in the physician is a key consequence of privacy perceptions. A patient's trust is a belief that the physician acts in the best interests of the patient and provides the necessary support, diagnosis, and treatment (Anderson and Dederick, 1990). Trust refers to positive expectations regarding the doctor's conduct, including privacy (Lewicki et al., 1998). It helps patients overcome a sense of vulnerability and become involved in health-beneficial behaviours (Kaiser et al., 2011). Trusting relationships encourage patients to ask for medical help, adhere to treatment, and attend follow-up appointments (Blackstock et al., 2012; Thom et al., 2004; Van Hecke et al., 2011). Trust influences the patient's intentions to remain with the same physician and to recommend his or her services (Hall et al., 2001). Three major outcomes of trust include commitment to the physician, positive WOM, and intentions to stay with the same physician in the future.

Commitment to the healthcare service provider is the patient's decision to maintain a relationship with a particular provider (Fullerton, 2003). Patients' trust in their physicians is a strong predictor of their commitment to their service providers (Platonova et al., 2008; Safran et al., 2001). Patients who trust their primary care providers are less likely to think about changing their care providers (Keating et al., 2002). Commitment leads to a cooperative and continuous relationship (Morgan and Hunt, 1994) and reflects a repeated use of the same service or repeated use of the same doctor.

Both trust and commitment have a direct effect on positive WOM, which occurs when patients recommend the services of their physician to others. Positive WOM has a strong effect on the long-term success of service providers, whereas negative WOM leads to complaining and may hurt the physician's reputation and practice (Gelb and Johnson, 1995). WOM leads to action; a person is likely to become a patient of the doctor after receiving positive feedback from others. Recommendations from friends and relatives are crucial for the initial decision whether to see a particular doctor first time. WOM is the most commonly used information source for primary care physician selection (Tu and Lauer, 2009).

Trust in the healthcare provider has a significant influence on patients' BI to use the provider's services in the future. The theory of reasoned action suggests that behaviour is a direct result of BI (Ajzen and Fishbein, 1980). BI are a measure of the strength of one's intentions to perform a particular behaviour (Fishbein and Ajzen, 1975). In this study, it is hypothesised that BI are one of the key outcomes of patients' trust in their provider because evidence suggests that privacy perceptions indirectly affect BI through trust (Zhou, 2008).

Based on the literature presented above and the multi-dimensional conceptualisation of privacy, the following model was developed (Figure 1). It demonstrates that the overall privacy (third-order construct) is comprised of three dimensions: informational privacy, physical privacy, and psychological privacy (second-order constructs). These constructs in turn consist of two dimensions each: information acquisition and information ownership (informational privacy), personal space and interactional space (physical privacy), and personal values and decisional autonomy (psychological privacy), which are first-order constructs. Overall privacy has a positive direct effect on trust in the primary healthcare provider. Trust influences three dependent variables: commitment to the physician, WOM, and intentions to use this physician's services in the future. Commitment also has a positive effect on WOM. The following hypotheses are suggested:

H1 Informational privacy is an important dimension of overall privacy perceptions of healthcare service clients.

H1a Information acquisition is an important dimension of informational privacy perceptions of healthcare service clients.

H1b Information ownership is an important dimension of informational privacy perceptions of healthcare service clients.

H2 Physical privacy is an important dimension of overall privacy perceptions of healthcare service clients.

H2a Personal space is an important dimension of physical privacy perceptions of healthcare service clients.

H2b Interactional space is an important dimension of physical privacy perceptions of healthcare service clients.

H3 Psychological privacy is an important dimension of overall privacy perceptions of healthcare service clients.

H3a Personal values are an important dimension of psychological privacy perceptions of healthcare service clients.

H3b Decisional autonomy is an important dimension of psychological privacy perceptions of healthcare service clients.

H4 Overall privacy perceptions of healthcare service clients have a positive direct effect on their trust in healthcare service providers.

H5 Trust of healthcare service clients in their service providers has a positive direct effect on their commitment to these service providers.

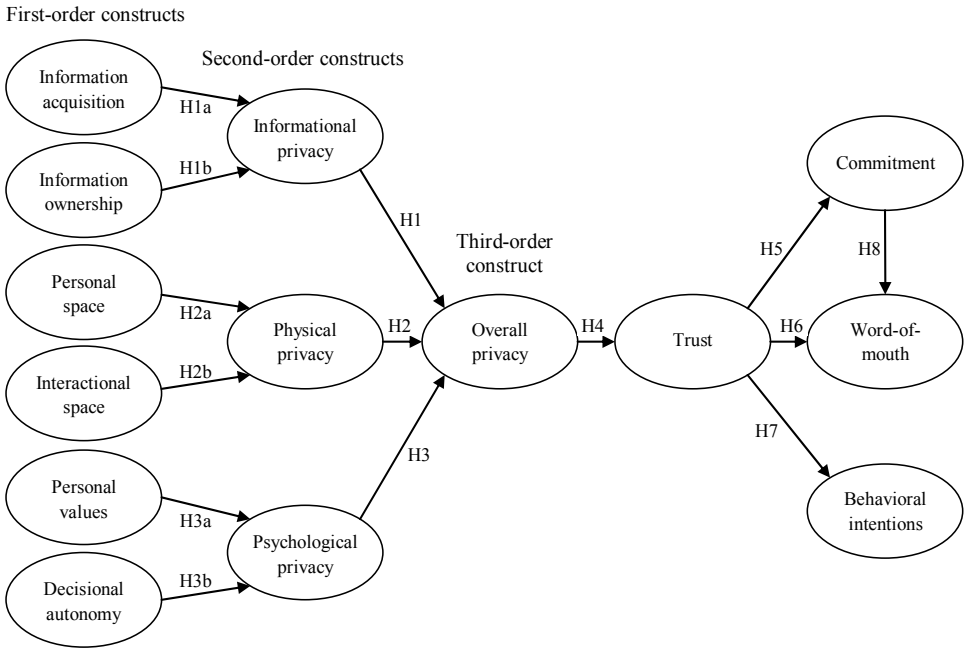
H6 Trust of healthcare service clients in their service providers has a positive direct effect on their positive communication of these providers' services to other people (WOM).

H7 Trust of healthcare service clients in their service providers has a positive direct effect on their intention to use the services of these providers in the future.

H8 Commitment of healthcare service clients to their service providers has a positive direct effect on their positive communication of these providers' services to other people (WOM).

To test the suggested model, a survey of 129 healthcare users in Canada was conducted.

Figure 1 The model



3 Methodology

In order to measure all privacy constructs, the questions developed in the previous section were utilised. The draft privacy instrument was subjected to extensive face validity assessment by consulting a group of ten experts, including university faculty members and healthcare professionals. At least three rounds of revisions with each expert were done until they all agreed that all questions were clear, unambiguous, and relevant. All other scales were adapted from the previously established instruments that prior research found to be reliable and valid. Trust items were adapted from Anderson and Dederick (1990). To measure patient commitment, items created by Torres et al. (2009), and Morgan and Hunt (1994) were used. Positive WOM was measured by adapting the scale of Zeithaml et al. (1996). BI to use the provider's services in the future were adapted from Davis (1989). Data on a number of demographic variables were collected. The respondents were asked to answer all questions with respect to their family doctor (i.e., their family physician). If they did not have a family doctor on the day the survey was administered, they answered these questions with respect to the doctor they visited most frequently in the past.

The questionnaire was administered to 129 individuals, such as faculty, staff and students of a Canadian university, as well as researchers' acquaintances. Participation was optional, and no incentives were offered. Only those individuals who were actually using healthcare services in Canada were allowed to participate.

Table 6 Matrix of cross-loadings and discriminant validity assessment

		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
1	PPS	*0.810*													
2	PPI	0.432	*0.917*												
3	PSI	0.660	0.456	*0.890*											
4	PSA	0.587	0.326	0.619	*0.861*										
5	IA	0.524	0.409	0.551	0.451	*0.838*									
6	IO	0.483	0.310	0.507	0.491	0.835	*0.848*								
7	GLPH	0.618	0.682	0.545	0.521	0.531	0.493	*0.907*							
8	GLPS	0.499	0.138	0.464	0.729	0.324	0.359	0.437	*0.905*						
9	GLPI	0.561	0.370	0.454	0.469	0.735	0.791	0.546	0.271	*0.899*					
10	GLP	0.631	0.616	0.677	0.542	0.699	0.712	0.693	0.354	0.750	*0.878*				
11	Trust	0.451	0.419	0.521	0.643	0.419	0.439	0.430	0.501	0.467	0.580	*0.813*			
12	Comm	0.436	0.387	0.428	0.493	0.384	0.434	0.434	0.333	0.436	0.569	0.801	*0.870*		
13	WOM	0.468	0.442	0.460	0.586	0.393	0.437	0.457	0.407	0.473	0.643	0.758	0.822	*0.993*	
14	BI	0.671	0.392	0.554	0.537	0.456	0.421	0.545	0.470	0.474	0.624	0.602	0.699	0.724	*0.991*

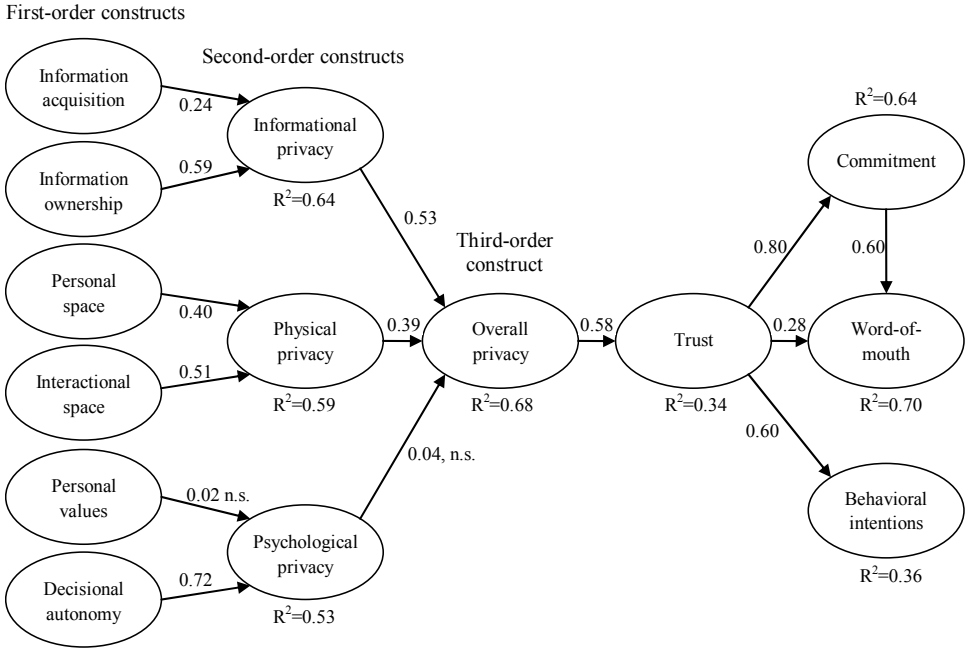
4 Results

There were 69% and 31% of female and male respondents, respectively. They were 34 years old on average, ranging from 18 to 81 years old. Out of them, 12% had a college diploma, 17% – a secondary/high school diploma, and 68% – a university degree. Partial least squares (PLS) was chosen as a statistical technique to analyse the model. It is a second generation structural equation modelling technique, which is suitable for measuring higher-order constructs used in the current study (Wetzels et al., 2009). SmartPLS was employed as a PLS software package.

All constructs were reliable and valid. Cronbach's alphas exceeded the value of 0.7. Standard errors were very low, and corrected item-to-total correlations were over 0.5 (Nunnally and Bernstein, 1994). The internal consistency and average variance extracted (AVE) values exceeded the suggested threshold of 0.7 and 0.5, respectively (Fornell and Larcker, 1981). The matrix of loadings and cross-loadings (Table 6) was constructed to test the discriminant validity of the measures, where the value on the diagonal represents the square root of AVE. Since the square root of AVE exceeded inter-construct correlations, discriminant validity was assured.

The bootstrapping procedure with 350 re-samples was employed to test the structural model. Twelve hypotheses were supported and two rejected (Figure 2). The model also demonstrated high explanatory power. The R-squared values, which refer to the percentage of variance captured by all independent constructs, were high in all cases.

Figure 2 The structural model (all relationships are significant at $p < 0.001$ unless indicated otherwise)



Because the psychological privacy dimension did not exhibit a statistically significant effect on overall privacy, the psychological privacy construct was excluded from the

model, and the model was re-estimated. This had no effect on the strength and significance level of the remaining structural relationships that confirmed that psychological privacy is not an important factor within the proposed model.

5 Discussion

The purpose of this study is two-fold. The first is to design an instrument to measure the degree of privacy perceptions of healthcare clients. The second objective is to develop and empirically test a model explicating the effect of privacy on critical healthcare outcomes. Relevant literature in the field of social work, psychology, management, and sociology was reviewed. A survey instrument was designed, and a theoretical model was developed and tested.

5.1 Theoretical contribution

In this study, it was hypothesised that the overall privacy construct in the healthcare domain (i.e., third-order construct) consists of three distinct second-order constructs: informational privacy, physical privacy, and psychological privacy.

An empirical assessment of the developed privacy scale demonstrates that the instrument is reliable and valid. Therefore, these constructs may be used in the proposed model to study the effect of privacy on several outcomes. The overall effect of these three independent components on overall privacy is very high because they explain 68% of the variance in the overall privacy construct. However, the findings reveal only a partial support for the proposed relationships.

First, informational privacy is a key component of the overall privacy perceptions of healthcare users ($\beta = 0.53$). It demonstrates that informational privacy is a key factor by which healthcare patients judge whether their overall privacy is assured. Informational privacy, in turn, consists of two theoretically independent yet highly correlated components: information acquisition and information ownership, which together explain 64% variance in the informational privacy construct. Information ownership is more important for patients ($\beta = 0.59$) than information acquisition ($\beta = 0.24$), which may be explained theoretically. Patients understand that they have to provide their personal information in order to receive healthcare services, and they have little control over the process. However, when their personal information is owned by the doctor, patients become more concerned about how this information may be used, which reduces the effect of the information acquisition construct on informational privacy.

Second, physical privacy has a moderate effect on the overall privacy construct ($\beta = 0.39$). Even though physical privacy is still important, patients are more tolerant to physical privacy violations when they see their doctor. They expect to give up some of their physical privacy in return for getting the best possible care. They feel mentally prepared to give up their physical privacy well in advance, for example, when they book a medical appointment. The physical privacy construct consists of two components: interactional space and personal space. Interactional space is more important than personal space; the strength of the relationship between these constructs and the physical privacy construct is $\beta = 0.51$ and $\beta = 0.40$, respectively. This demonstrates that patients expect their doctor to be in the very proximity to them during the visit. At the same time,

they want to feel very comfortable and be in control over the immediate office space. They want to believe that the physical environment in the doctor's office was designed in a way to protect their privacy, and they have some authority over it.

Third, psychological privacy has no effect on the overall privacy construct (β = 0.04, not significant). Psychological privacy consists of two components: personal values and decisional autonomy. Personal values have no effect on the overall psychological privacy (β = 0.02, not significant). In contrast, decisional autonomy strongly influences psychological privacy (β = 0.72). There are several reasons why psychological privacy was not significant in this study. It is possible that patients are ready to give up some of their personal values when they see their doctors, but they want to feel in control over their health decisions. Decisional autonomy may be a sufficient indicator of psychological privacy for most patients. Patients who have control over their health decisions feel that their psychological privacy is respected. Privacy is a 'fundamental expression of patient autonomy' [Riddick, (2001), p.4]. Thus, the definition of psychological privacy needs to be narrower in scope and include only decisional autonomy.

It is also possible that psychological privacy is short-lived, and many people forget about it over time. Even though their psychological privacy was infringed when they interacted with their doctor, the salience of this experience gradually attenuates. For example, observable improvements in their health may override the memories of psychological privacy violation. In contrast, because patients' medical records may be kept indefinitely, patients will always be concerned about their informational privacy. Patients' perceptions of risk or uncertainty may influence their memory and the ways they perceive their informational privacy (Anderson and Agarwal, 2011). Over time, informational privacy will be as important as it was during a medial appointment because patients have no control over their personal records, and the negative consequences of privacy breaches may be very dramatic. This principle, however, may not apply to psychological privacy.

Fourth, consistent with the literature, privacy has a strong positive effect on the patient's level of trust in his or her doctor (β = 0.58). The presence of this theoretically justified link further confirms the validity of the privacy construct because each construct should not only meet the reliability and validity requirements, but also predict other dependent variables, especially the ones justified by the literature. If, for example, the link between privacy and trust was not observed, this would question the validity of the suggested privacy measurement instrument.

Fifth, trust influences three critical outcomes: commitment to the current service provider, positive WOM, and intentions to use the services of this doctor in the future. The link between trust and commitment was the strongest of all three relationships (β = 0.80). To build a network of committed patients, doctors should first establish a high degree of trust, which may be achieved by assuring the patients' informational and physical privacy. Trust also has a very strong positive impact on WOM. The relationship between trust and WOM is partially mediated by commitment. The total effect of trust on WOM is β = 0.76 (i.e., 0.80 * 0.60 + 0.28). The fact that commitment serves as a partial mediator of the trust – WOM relationship is not surprising. It demonstrates that in order to assure the promotion of their services through WOM, doctors should both instil trust in their patients and make their patients very committed. Trust also exhibits a strong impact on the patients' intentions to use the services of their doctor in the future (β = 0.60). Therefore, trust is a key requirement to ensure future visits of the patients.

Overall, it was concluded that, consistent with the theory in reference disciplines, trust is a key antecedent of the three parsimonious outcomes that are of interest to health service providers. The model behaves as expected that demonstrates the rigor of the utilised methodology and provides further assurance in the validity of the developed privacy measurement instrument.

5.2 Practical contribution

In addition to offering insights to improve the state of theory, it is important to generate a set of practical recommendations that may be utilised by various stakeholders, particularly by doctors, healthcare administrators, and policy-makers. Doctors should be aware that informational privacy is a key component of the overall privacy perceptions of their patients. They should know that, from the patient's perspective, the information ownership stage is more important than the information acquisition phase. Therefore, they should pay special attention to the information ownership stage. For this, they need to discover the best information protection approaches. They may also create internal policies and provide privacy training to their office assistants and nurses who also collect and use people's private information. When patients visit the doctor's office first time, they are frequently asked to complete a form specifying the doctor's privacy policy. It may be critical to ensure that the patients have been clearly explained every detail of this policy. The policy should also be written in simple language, avoid ambiguity, and exclude complicated legal terms. After the information was collected, it is important to occasionally remind the patients how their private information is used.

Doctors and medical office personnel should also establish a high level of privacy related to the interactional space. Their key objective should be to allow patients to develop a feeling of authority over the space. Wall colours, chairs, tables, room temperature, and necessary equipment should be selected and positioned appropriately to make patients feel like home. Sound isolation measures should be used to demonstrate the boundaries of the interactional space. Personal space is a less significant yet important component of the overall perceptions of physical privacy. Doctors need to follow the principles and norms to show their patients that their personal space is respected and protected during the visit. At the same time, patients are ready to give up some of their physical privacy to receive the best treatment possible. Medical professionals may also want to administer the privacy instrument developed in the present study to their patients to monitor their level of privacy perceptions. The best approach is to conduct a longitudinal investigation. This instrument may be administered to all patients yearly when they are routinely waiting for their appointment in the doctor's office. If, for example, a decrease in the privacy scores of specific constructs is observed for some patients, appropriate action must be taken.

Policy-makers in hospitals and government agencies should also be aware that informational privacy and, to a lower extent, physical privacy are the key factors by which patients judge whether their overall privacy is assured. Therefore, they should develop privacy policies for the protection of patients' personal information. Especially, they need to emphasise the importance of the information ownership phase in the doctor-patient relationship. After this, they may focus on other privacy policies. They may also require hospitals, medical centres, and healthcare professionals to regularly conduct patient privacy surveys and report the results to the authorities.

All stakeholders should be aware that in order for patients to commit to a particular healthcare service provider, to engage in positive WOM, and to stay with this provider in the future, a high level of trust should be developed. Therefore, they should focus their attention on various trust development approaches. As demonstrated in the present study, privacy is a very important factor affecting patient trust.

5.3 Limitations and future research directions

Despite its contribution, this study has several limitations that may be addressed in future research. First, the results are based on self-report measures. It may be argued that self-reports could be different from the measures of actual behaviour. For example, even though respondents strongly agree that they will be using the services of their physician in the future, this verbal statement does not prevent them from switching to another provider later. To address this limitation, future research may rely on more objective measures. For instance, an experiment may be conducted to monitor the switching behaviours of the patients involved in the study.

Second, the survey asked respondents about their past experience. Because some time had passed since a person visited his or her physician, a recall of the experience might have been incomplete. To avoid the confounding effect of recall bias, future scholars may survey individuals immediately after they visit their doctor. Third, this study was done by using a cross-sectional survey method. It is possible that a longitudinal design may reveal a slightly different perspective. Fourth, the subjects who are physically located in only one city were surveyed. Therefore, future research should ensure the generalisability of this project's findings by replicating this study in other cities and provinces of Canada, as well as other countries.

Fifth, this study was conducted by using a non-probability sampling method. In the obtained sample, 68% of the respondents had a university degree, compared to 56% in the province where the questionnaire was administered (Statistics Canada, 2012). The median age of the respondents in this study (29 years) is lower than that of the Canadian population (39.9 years) (Statistics Canada, 2011). Thus, the sample may represent a university population (i.e., faculty, staff, and students), but not the Canadian population in general. On the one hand, the findings may not be fully generalisable. On the other hand, non-probability sampling is a practical choice to test a new model because researchers are interested in the psychometric properties of a new research instrument and the performance of a proposed model rather than in sample characteristics. Nevertheless, future research should address this limitation.

Sixths, even though all R-squared values of the dependent constructs are very high, there may be other variables that also influence the proposed relationship. For example, in this study privacy explained only 34% of variance in the trust construct. Therefore, future researchers should identify other antecedents of trust and include them in the proposed model. However, despite the limitations above, this investigation has made a significant contribution to the state of theory and practice.

6 Conclusions

Patient privacy is an extremely important issue in the healthcare domain. At the same time, it is still an emerging line of research. In this study, it is theoretically proposed and

empirically confirmed that it is best to approach the conceptual definition and measurement of the patients' perceptions of privacy from a multi-dimensional perspective. It is concluded that informational privacy is the major factor impacting the patients' formation of privacy perceptions, followed by physical privacy. In contrast to prior expectations, psychological privacy has no effect on the overall privacy construct.

The predictive power of the privacy construct is demonstrated within a theoretically developed nomological network. It is concluded that privacy has a strong, positive effect on trust. Trust, in turn, influences three important outcome variables, such as commitment, WOM, and future service usage intentions. It is also observed that patient commitment partially mediates the relationship between trust and WOM. Based on the findings, a number of theoretical and practical implications are proposed, which may be of interest to various stakeholders, including doctors, healthcare administrators, and government policy-makers.

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