ORIGINAL ARTICLE

Health and Social Care in the community

WILEY

Determinants of the intention to speak up about medical error in primary healthcare settings in Chile

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Abstract

Medical error frequently occurs in ambulatory care, and healthcare professionals may encounter situations in which they need to speak up to ensure better practice. This study aims to investigate the factors that influenced the intention to speak up about medical errors among healthcare professionals in primary care settings. Data were generated through a national cross-sectional survey of primary healthcare centres in the Republic of Chile. A research instrument was designed using the constructs of the theory of planned behaviour and was analysed using the structural equation model technique. In total, 203 healthcare professionals were recruited between March and May 2020. The model showed that the intention to speak up was directly and positively influenced by attitudes towards speaking up and perceived control (standard deviation [SD] = 0.284 and 0.576, respectively). Subjective norms indirectly and negatively influenced the intention to speak up through attitudes towards speaking up and perceived control (total effect SD = −0.303). The exploratory construct of willingness to change self-behaviour positively influenced the attitude towards behaviour. The intention to speak up strongly influenced the speaking up behaviour (total effect SD = 0.631). The proposed model explained 40% of the variance in behaviour. Based on this model, it was concluded that the intention to speak up strongly influenced the speaking up behaviour and predicted it by 40%. Factors that modify the intention to speak up are expected to influence the occurrence of this behaviour. This knowledge will inform strategies to enhance communication among healthcare professionals, improve speaking up behaviour and improve patient care.

KEYWORDS
healthcare providers, medical error, patient care, patient safety, primary healthcare, speaking up, theory of planned behaviour

1 | INTRODUCTION

Medical error has been defined as an actual or severe potential lapse in the standard of care provided to a patient, or harm caused to a patient through the performance of a health service or by a healthcare professional (Lester & Tritter, 2001). It has also been defined as an act of omission or commission in planning or execution that contributes or could contribute to an undesired result (Grober & Bohnen, 2005).

Although they can be considered as undesirable events by practitioners, the clinical occurrence of medical errors is frequent, both in hospitalised settings and in ambulatory care (Khoo et al., 2012;

Leape et al., 1991). The World Health Organization (Jha, 2008) has estimated that millions of people suffer injuries that are directly attributable to medical care, many of which are preventable. Furthermore, the frequency based on reported errors could be a significant underestimate (Krizek, 2000) due to limited speaking up behaviour (Poorolajal et al., 2015).

1.1 | Speaking up is essential for patient safety

Recognising events that constitute a potentially preventable lapse in the standard of care provided to a patient should become an integral part of healthcare systems (Jacobson et al., 2003). On this basis, frontline staff (e.g., nurses and other healthcare professionals) are well-positioned to observe the early signs of unsafe conditions in care delivery and to report them to the appropriate authorities (Edmonson, 2003).

Schwappach et al. (2019) defined 'speaking up' as assertive communication of concerns regarding quality of care and patient safety by a team member through information, questions or opinions in situations where a healthcare professional has neglected, forgotten, or even ignored clinical rules designed to avoid harm to the patient. Effective face-to-face communication between healthcare professionals or other staff members involved in the care of a patient is key to protecting their safety and improving healthcare quality (Daker-White et al., 2015). Moreover, the transparent disclosure of errors is a shared professional responsibility and an ethical duty (Dwyer & Faber-Langendoen, 2018; Gallagher et al., 2013).

1.2 | Factors that have been associated with speaking up behaviour

Several factors have been associated with avoiding speaking up. Remaining silent—that is, not voicing safety concerns (Schwappach & Gehring, 2014a)—can be caused by a fear of the emotional reactions of the professional involved, an avoidance of delivering bad news, and normative and social pressures such as disproportionate gradients of authority, the power hierarchy, or excessive professional courtesy (Kim et al., 2020; Okuyama et al., 2014; Schwappach & Niederhauser, 2019). Also, electronic systems can compromise patient safety by minimising opportunities for face-to-face communication (Daker-White et al., 2015).

Recently, Okuyama et al. (2014) proposed a model of the factors that influence speaking up in a hospital setting. They classified the factors that had been associated with speaking up as follows: (1) the motivation to speak up, such as the perceived risk for patients, and the ambiguity or clarity of the clinical situation; (2) contextual factors, such as hospital administrative support, interdisciplinary policy making, teamwork and relationships between team members, and attitudes of leaders/superiors; (3) individual factors, such as job satisfaction, responsibility towards patients, professional responsibility, confidence based on experience, communication skills

> **What is known about this topic**
> - Medical errors frequently occur in clinical practice, in both hospital and ambulatory care settings.
> - Speaking up in a hospital setting is influenced by general contextual and individual factors, perceived safety and efficacy, and tactics and targets.
>
> **What this paper adds**
> - Speaking up about medical errors in primary care is affected by a positive attitude towards this behaviour, perceived control, and individuals' willingness to change.
> - Speaking up about medical error in primary care is influenced by negative subjective norms.
> - The influence of the factors described provides information that can be used to generate strategies that favour speaking up.

and educational background; (4) the perceived efficacy of speaking up, such as a lack of impact and personal control; (5) the perceived safety of speaking up, such as a fear of the responses of others and concerns over appearing incompetent; and (6) tactics and targets, such as collecting facts, showing positive intent and calling attention to the person who has spoken up (Okuyama et al., 2014). While this list provides a useful insight into the multiple factors that may be involved in behaviour, further research is required to investigate their relative importance.

In primary care, there is a lack of models to explain the factors that influence speaking up. Knowledge of the determining factors and their impact is essential for developing potential strategies that favour speaking up about any error in this setting.

1.3 | Application of the theory of planned behaviour to explain speaking up

Behavioural change theories are useful in guiding the selection of factors and developing interventions (Michie & Prestwich, 2010; Painter et al., 2008). Among these, the theory of planned behaviour (TPB; Ajzen, 1985, 1991), an extension of the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), has been commonly used for explaining health-related behaviour. The TPB has been widely applied with respect to patient quality and safety worldwide including the prediction of patient-safety behaviours by nurses and physicians (Javadi et al., 2013; Wakefield et al., 2010), pharmacists' intentions to report medication incidents (Williams et al., 2015), and physicians' intentions to participate in raising a patient safety issue (Rich et al., 2020).

The TPB model explains what influences an individual to follow or execute a particular behaviour. According to the TPB, intention is an adequate predictor of behaviour. Three conceptually independent

determinants influence the intention to follow a behaviour, which is a central factor of the theory.

The first predictor of intention, attitude towards behaviour, refers to then positive or negative beliefs that an individual has (Ajzen, 1991). Each belief links the behaviour to a particular outcome or to the cost incurred by performing it. This therefore includes some factors that have previously been referred to as motivational (Okuyama et al., 2014).

The second predictor is subjective norms, which is a social factor that refers to the influence of essential referent individuals or institutions when approving or disapproving a particular behaviour (Ajzen, 1991). This determinant brings together factors that have been previously classified as contextual factors and the perceived safety of speaking up (Okuyama et al., 2014).

The third determinant, perceived control, refers to the extent of the inferred behavioural control, which equates to the assumed ease or difficulty of performing the behaviour (Ajzen, 1991). According to this description, this determinant brings together some factors that have been classified individually, such as communicational skills, and the perceived efficacy of speaking up (Okuyama et al., 2014).

Finally, intention represents the individual's motivation, through conscious decisions or plans, to execute the desired behaviour. This determinant includes some factors previously referred to as tactics and targets (Okuyama et al., 2014). Generally, a more definite intention determines a higher probability that a behaviour will be effectively executed. Behaviour is also directly influenced by perceived control. These constructs collectively represent the actual control that an individual has over any behaviour (Ajzen, 1991).

Given the nature of these constructs, as well as the fact that intention is determined by three determining variables, the proximal determinants of attitude towards behaviour, subjective norms, and perceived control are themselves determined by other variables.

1.4 | The present study

This study aims to determine the factors that influenced healthcare professionals in speaking up about errors detected in patients' medical care in the Chilean primary care setting by applying the TPB using a structural equation model. The following research hypotheses were tested (Figure 1): (H1) attitude towards speaking up has a direct and positive effect on intention to speak up; (H2) subjective norms have a direct and negative effect on intention to speak up; (H3) perceived control has a direct and positive effect on intention to speak up; (H4) perceived control has a direct and positive effect on speaking up behaviour; and (H5) intention to speak up has a direct and positive effect on speaking up behaviour. Additionally, the authors added a sixth hypothesis to explore the willingness of healthcare practitioners to correct their own behaviour when a mistake had been made as follows: (H6) willingness to change self-behaviour has a direct and positive effect on attitude towards speaking up.

2 | METHODS

2.1 | Study design

This multicentre cross-sectional survey was analysed using structural equation modelling, and followed the recommendations of *The Strengthening the Reporting of Observational Studies in Epidemiology* by von Elm et al. (2007).

2.2 | Participants

The Republic of Chile has public and private healthcare systems. The public system services nearly 80% of the country's population (Bass, 2012). Primary care is the responsibility of the municipalities at the commune level, which is the smallest administrative subdivision (Bass, 2012). Currently, Chile has 346 communes and 16 regions (Utreras, 2014). The primary care network is composed of 1973 primary care centres (589 family health centres, 218 community family health centres, and 1166 rural health posts (García-Huidobro et al., 2018).

We conducted a nationwide survey in Chile. The inclusion criteria were all healthcare professionals working in primary care at the time of the application of the survey, including physicians, nurses, physical therapists, occupational therapists, dieticians, midwives, pharmaceutical chemists, psychologists and medical technologists. A sample of 203 healthcare professionals, from urban and rural primary-care facilities, responded to the survey. The minimum recommended sample size for this methodology is 10 participants per variable considered (Wolf et al., 2013); the
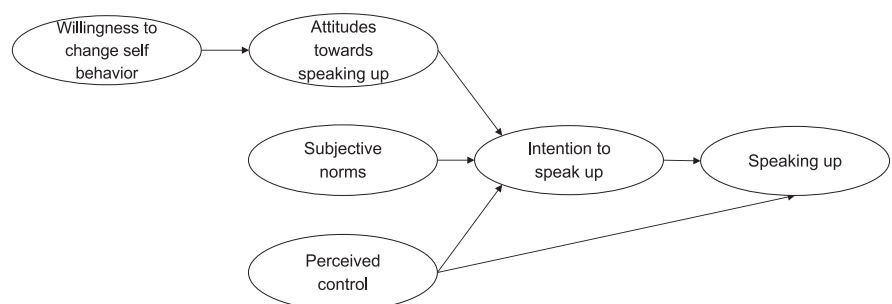

FIGURE 1 Hypothesis model.
H1: hypothesis 1; H2: hypothesis 2;
H3: hypothesis 3; H4: hypothesis 4;
H5: hypothesis 5; H6: hypothesis 6.
Hypotheses 1 to 5 are based on the
theory of planned behaviour. Hypothesis
6 corresponds to an exploratory construct

present study had 18 variables. The survey and informed consent forms were simultaneously provided to healthcare professionals in 98 primary-care centres from 78 communes across 14 regions of Chile.

Participation in the study was voluntary and anonymous. All the participants completed an informed consent form immediately before completing the survey. Additionally, the data were analysed as a group, and the names of the communes were not mentioned. The study was approved by the Research Ethics Committee of the Faculty of Engineering and Basic Sciences of the Diego Portales University.

2.3 | Procedures

To the best of our knowledge, there are no published instruments for measuring speaking up based on the TPB. Thus, it was necessary for us to create questions to develop the model.

An exploratory determinant, willingness to change self-behaviour, was added to the TPB variables, under the assumption that the importance of an individual changing self-behaviour about patient safety may affect his or her tendency to speak up.

The survey design was directed by an expert in statistics and modelling with structural equations, with extensive previous experience in the use of TPB. The survey was reviewed by two additional experts: first, a sociologist and statistician who is an expert in the analysis of quantitative and qualitative information in civil society organisations and the public sector; and second, a physician, who is the Director of Quality at the University of Chile Clinical Hospital, and an expert in patient safety and quality of care. These experts suggested improvements to the survey in terms of understanding questions and decreasing the potential social bias. The name and affiliations of these experts are detailed in the acknowledgements.

A pilot survey was then carried out with 20 healthcare professionals working in primary care to ensure adequate understanding of the instrument. The pilot data were included in the final sample.

Thereafter, the surveys, informed consent forms and information sheets were delivered to the 346 communes across Chile between March and May 2020 online using Google Forms®. All the surveys were self-administered using whichever electronic device that the participants considered most convenient.

Informed written consent was obtained from every participant. The confidentiality and anonymity of the research, as well as the participants' right to quit at any time, were emphasised. The participants' identity was protected in relation to their employers as the names of the former were not recorded and the latter did not have access to the survey responses. Given the nature of the study, participants could respond according to what was socially acceptable (i.e., according to their social desirability bias). We attempted to minimise this potential bias by emphasising anonymity and stating on the consent form that the survey had no correct or incorrect answers.

3 | MEASURES

3.1 | Sociodemographic characteristics

The instrument's first section contained questions designed to conduct a demographic characterisation of the participants. This section included questions on age, gender, profession, workplace, time spent in the workplace and years of experience.

3.2 | Model constructs

The questions used for developing the model were designed according to the TPB and referred to the following constructs: attitudes towards speaking up (10 items); subjective norms (nine items), perceived control (seven items); intention to speak up (four items); and speaking up behaviour (five items). Five questions were added for the exploratory construct of willingness to change self-behaviour, to explore its relationship with attitudes towards speaking up.

Measurements were made using a Likert scale ranging from 1 to 7 points for the first three abovementioned constructs, and from 1 to 5 points for the last two constructs. The full survey is presented in the Appendix S1.

3.3 | Data analysis

The data were coded and IBM-SPSS (version 23.0) for Windows was initially used for descriptive analyses of the variables including age, gender, profession, health-centre area (urban or rural), time practising the job and time practising in the current health centre.

Next, to examine the influence of the proposed constructs on the intention to speak up, SmartPLS was used to apply partial least square structural equation modelling (PLS-SEM). The PLS-SEM approach was developed to reflect the theoretical and empirical conditions of social sciences and behaviour. These mathematical and statistical procedures are rigorous and robust. However, the mathematical model is flexible in the sense that it does not establish rigorous premises about data distribution, measurement scale and sample size (Martínez & Fierro, 2018). This approach is appropriate for predicting the latent dependent variables of the model by maximising the explained variance. The main advantages of this approach are that it allows the exploration of possible relationships between constructs, does not require samples with normal distribution, and can be used in small samples (Beran & Violato, 2010; Violato & Hecker, 2007). After considering these advantages, the PLS-SEM was adopted due to it being considered the most appropriate method for this study.

3.4 | PLS-SEM analysis

The PLS-SEM analysis was carried out according to the following three steps (Figure 2), as explained by Hair et al. (2013): assessment
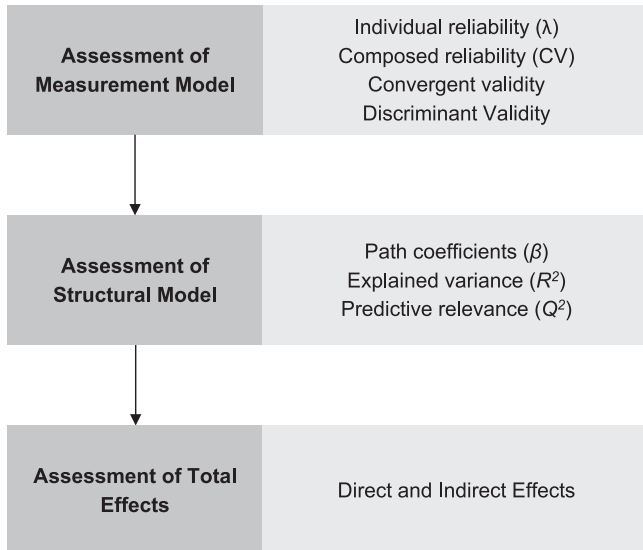
FIGURE 2 Summary of the process for the partial least square structural equation modelling

of measurement model, assessment of structural model and assessment of total effects.

In the first step of this methodology—the assessment of measurement model—the hypothesis model to be tested was built (Figure 1). The measurement model described how the observable variables explained each construct.

The reliability of the constructs or latent variables was used to determine the consistency of their indicators. The reflective variables for each construct were required to have a load larger than 0.707, implying that the individual reliability of the observable variables included in the constructs was verified.

Internal consistency showed the reliability of the construct. The SmartPLS software provided the composed reliability index (CR) and the Cronbach's alpha statistic. The former was more appropriate for PLS because it does not assume the same weight for all the indicators. Values of CR must be lower, not higher, than 0.7 to satisfy internal consistency (Chin, 1998).

Convergent validity indicates when a set of items represent a single underlying construct that is validated through the average variance extracted (AVE) indicator. This determines whether the selected items explain the variance of the construct—that is, it provides the amount of the variance concerning explained by the measurement error. A value of AVE equal to or higher than 0.5 is required. These values ensure that the construct shares approximately 50% of the variance (λ^2) of the observable variable. Finally, according to the Fornell–Larcker discriminant validity criterion, it must be proved that the constructs measure different concepts (Hair et al., 2013).

The second step of the methodology was the assessment of structural model. To achieve appropriate interpretation and to draw conclusions from the model, it was necessary to determine the path coefficients (β), the explained variance (R^2), the predictive relevance (Q^2) and the total effect on the endogenous constructs. Initially, the t

value of the relationship between the constructs was studied to determine whether there was a statistically significant relationship. For this purpose, an equivalent of the t-Student statistic was estimated using a resampling approach based on the bootstrapping technique (Hair et al., 2013). If the absolute value of the t statistic was larger than 1.96, then the relationship was considered statistically significant for 95% at this level. Consequently, the hypotheses stated in the conceptual model were supported by the data.

The path coefficients or standardised weights of the regression measure the strength of the relationship between the constructs, or the hypotheses of causal relationships. A predictor variable must explain at least 1.5% of the variable to be predicted for this relationship to be statistically significant (Chin, 1998).

Next, to evaluate the predictive relevance of the model, the Blindfolding approach employing the predictive relevance index was adopted. In addition, the explained variance value referred to the size of the variance, which was explained by the dependent constructs. The acceptance threshold for this indicator was 0.1, with lower numbers implying a low predictive power (Tenenhaus et al., 2005).

The final step considered in the methodology was the assessment of total effects. These were calculated from the sum of the direct and indirect effects on the target construct. Indirect effects were calculated from the multiplication of the effects that filled or linked the studied construct with the objective construct (Henseler et al., 2016; Tenenhaus et al., 2005).

4 | RESULTS

4.1 | Sociodemographic characteristics

The survey was answered by 203 healthcare professionals, representing 98 primary healthcare establishments. Most (78) were family healthcare centres. Sample size estimation was not possible due to the nature of the method used, which was based on an invitation to communes and not to individual healthcare professionals. However, it complied with the minimum sample size, being at least 10 times higher than the number of free parameters (i.e., $N:q \geqslant 10$; Hoogland & Boomsma, 1998).

Regarding the characteristics of the healthcare professionals participating in the study, 63% were women. The mean age was 33.6 years ($SD = 7.7$). Overall, 42% (86) were physicians and 58% (117) were non-medical professionals (nurses, physical therapists, occupational therapists, dieticians, midwives, pharmaceutical chemists, psychologists and medical technologists). Table 1 shows the sociodemographic characteristics of the study population.

In the online administration of the surveys, Google Forms® was adjusted to alert the participants about incomplete questionnaires before their submission, and it was not possible for them to be submitted. Regarding manual administration, the authors carefully verified that each survey was answered in its entirety during its administration. Therefore, there were no missing data in any questionnaire.

TABLE 1 Sociodemographic characteristics of the study population

Participant characteristics	n (% or SD)
Age	
Mean	33.5 (7.7)
26–40	172 (84.7)
41–70	31 (15.3)
Gender	
Female	129 (63.5)
Male	74 (36.5)
Profession	
Physician	84 (41.4)
Non-physician	119 (58.6)
Nurse	30 (14.8)
Physiotherapist	31 (15.3)
Midwife	19 (9.4)
Dietician	16 (7.6)
Pharmacist	8 (3.9)
Occupational therapist	7 (3.4)
Psychologist	6 (3)
Medical technologist	2 (1)
Time practising the profession	
<10 years	133 (65.5)
10 years	70 (34.5)
Time practicing in current health centre	
<10 years	170 (83.7)
10 years	33 (16.3)
Health-centre area	
Urban	148 (68.9)
Rural	55 (31.1)

Abbreviations: SD, standard deviation.

4.2 | Results from the PLS-SEM approach

The results obtained from the PLS-SEM analysis are presented according to three steps followed in the study: Results of the assessment of measurement model, Results of the assessment of structural model and Results the assessment of total effects.

4.3 | Results of the assessment of measurement model

The measurement model generated by the data describes how the observable variables explain each construct. Table 2 describes the questions that were considered statistically significant and adequate to measure each construct. The rest of the variables not included in the model were not statistically significant to reflect the constructs. The results presented in Figure 3 show excellent psychometric properties implying that the estimation of the constructs and the validity and reliability conditions were satisfied. The CR and convergent validity corresponding to the AVE were all verified (Table 3). Hypotheses H1, H3, H5 and H6 were verified. H2 and H4 were rejected. The subjective norms did not directly influence the intention to speak up; however, they did indirectly and negatively have effects through the attitudes towards speaking up and perceived control (Figure 3).

4.4 | Results of the assessment of structural model

The bootstrapping technique results show that the t values of the regression coefficients between the latent variables were highly significant at a 95% confidence level (Table 4). The predictive relevance results imply that the model's predictive relevance was satisfied (Table 5). The model overall explained 40% of speaking up behaviour and 46% of the intention to speak up behaviour.

4.5 | Results of the assessment of total effects

Table 6 shows the total effect of each construct on the intention to speak up. Perceived control was the construct with the most significant positive impact on intention to speak up. The interpretation of each construct's total effect on the intention to speak up (measured in terms of SD) was as follows: if the construct of perceived control was increased by one unit, then the intention to speak up increased by 0.576 SD; likewise, if the attitudes towards speaking up was increased by one unit, the intention increased by 0.284 SD. Notably, the subjective norms had a negative and significant impact on the intention to speak up.

5 | DISCUSSION

Regarding the proposed model, it was found that both the attitudes towards speaking up by the healthcare professionals and the perceived control positively influenced the intention to speak up. On the contrary, subjective norms, related to the perception of adverse impact on the work environment, had an indirect and negative impact on intention through attitudes towards speaking up and perceived control.

The subjective norms influencing perceived control were concordant with a previous study demonstrating that an educational intervention, including encouragement of senior nurses and medical staff (i.e., impacting on subjective norms) and self-identification of personal obstacles, could increase nurses' perception of their ability to speak up (i.e., their perceived control) (Sayre et al., 2012).

The proposed model explained a significant variance in both the intention to speak up and the behaviour.

Regarding strategies to increase speaking, previous studies have focused on the ideas that the development of communication skills

TABLE 2 Constructs and measurements in the theoretical model

Constructs	Variables	Description of statements
Attitudes towards speaking up	Q12	Making a doctor understand that he/she has made a mistake is part of my professional job
	Q13	Communication of errors between professionals strengthens the performance of the health team
Willingness to change self behaviour	Q1	I am open or willing to receive criticism to improve my health practices
	Q4	I am willing to reverse a mistake that I have made in my clinical practice if other professionals report it to me
	Q5	I am willing to reverse a mistake that I have made in my clinical practice if I realise that I have made it
Subjective norms	Q19	I think the director of the health centre would not support me in talking to a doctor about his/her error
	Q20	If I talk about medical error, it may prejudice me in my workplace
	Q21	If I disclose a medical error, it will harm the work environment or climate
	Q22	It is frowned upon in the work environment that the acting physician is questioned
	Q23	I think that talking about medical error would harm my relationship with that professional
Perceived control	Q28	In my health centre, medical errors are often discussed to improve practices
	Q31	I actively participate in the instances of discussion of clinical cases
Intention to speak up	Q32	I will request a meeting with the attending physician to discuss the mistake he/she made
	Q33	I will take advantage of the meeting instances that exist in our health centre to communicate my opinion on clinical practices
	Q34	I explore the willingness of the treating physician to receive feedback on their clinical practice
Speaking up	Q36	I have spoken to the treating doctor directly about a mistake he/she has made
	Q37	I have suggested alternative approach to the attending physician that seemed most suitable for the patient
	Q40	I have mentioned specific concerns about patient safety

does not affect the behaviour of speaking up (O'Connor et al., 2013) or confidence in questioning someone in authority (Kent et al., 2015). The results of our model, suggest that strategies focused on intention may have a more significant impact in improving speaking up behaviour.

At the primary-care level, it is important to reinforce the idea that the detection and notification of medical errors is part of the work of healthcare professionals and strengthens teamwork. In this sense, this study supports the strategy of in-service training to encourage healthcare professionals to speak up. Along these lines, previous studies have shown how nurses' perceptions of collaboration can be increased, potentially leading to enhanced patient outcomes and a safer patient care environment (Sayre et al., 2012).

Additionally, it is relevant that healthcare centres have spaces for talking about medical errors and discussing clinical cases. At the undergraduate medical education level, our study provides evidence to support the idea of recognising and accepting the occurrence of medical errors. In this regard, other studies have emphasised the need to adapt the curriculum of the faculty to address patient safety as a relevant topic (Schwappach et al., 2019). The factors that determine the intention described by this study could be addressed at the level of medical education, especially in instances of multi-professional education.

5.1 | Limitations and strengths

Our study had several limitations. Although the sample size was adequate to achieve statistical significance according to the number of variables, it was relatively small. It will be necessary to expand the participation of healthcare professionals to generalise the results in the context of primary care in Chile. Furthermore, concerning the instrument, despite being an anonymous questionnaire, the subjects could feel pressured to give socially desirable answers.

Concerning the proposed model, since the TPB was used as a framework, it was assumed that the behaviour was dependent on the individual who executed it. However, it remains crucial to explore factors that while not reliant on the individual or not modifiable might impact behaviour and explain the variance not captured by the proposed model. Additionally, the construct of subjective norms depended on the cultural and personal values of those who
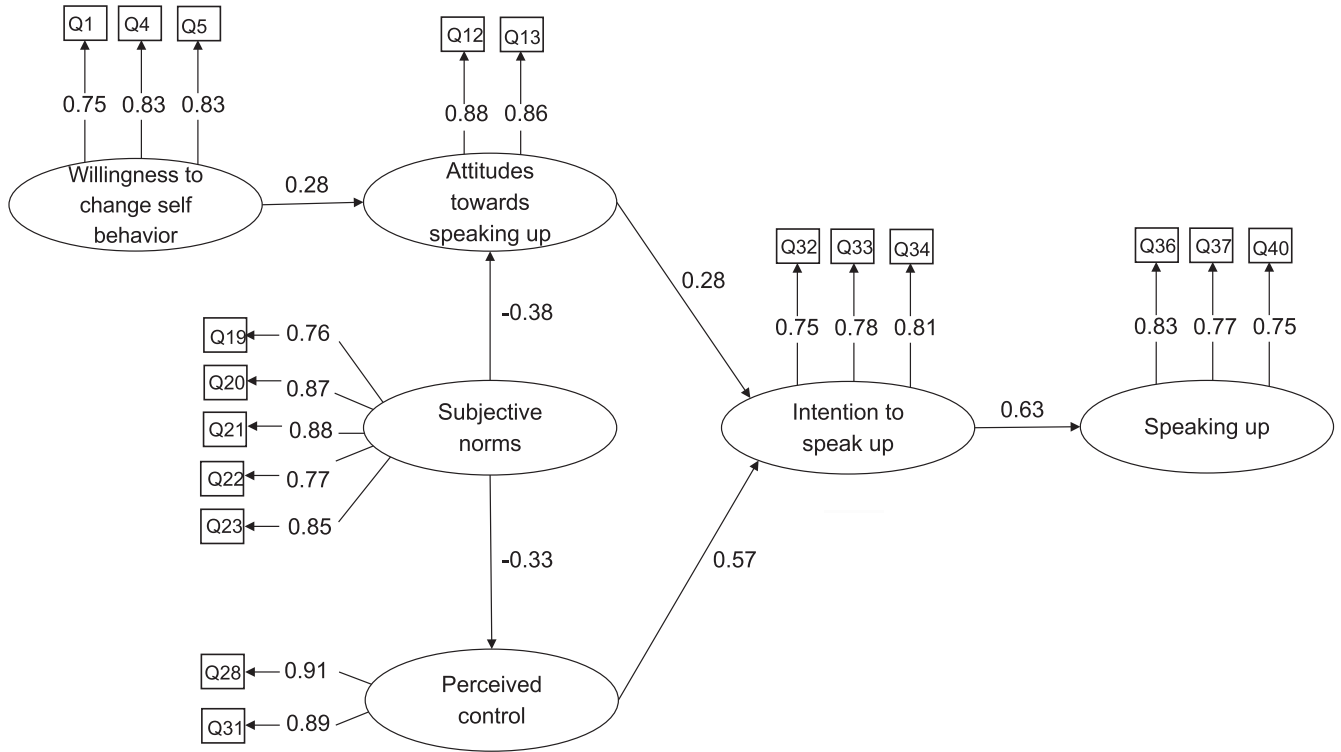
FIGURE 3 Measurement model. The measurement model generated by the data describes how the observable variables explain each construct. The results show good psychometric properties implying that the estimation of the constructs and the validity and reliability conditions are satisfied

TABLE 3 Composed reliability and average variance extracted constructs of the measurement model

Constructs	CR	AVE
Attitudes towards speaking up	0.863	0.760
Willingness to change self-behaviour	0.852	0.658
Subjective norms	0.919	0.696
Perceived control	0.749	0.600
Intention to speak up	0.827	0.615
Speaking up	0.832	0.623

Abbreviations: AVE, average variance extracted; CR, composed reliability.

TABLE 4 Path coefficients and bootstrapping results

Relationship between constructs	Standardized β values	t statistics
Attitude→intention	0.283	4.372
Willingness to change self-behaviour→attitude	0.297	5.032
Perceived control→intention	0.575	10.732
Subjective norms→attitude	−0.385	6.524
Subjective norms→perceived control	−0.341	4.560
Intention→speaking up	–	15.658

Abbreviation: β, path coefficients.

TABLE 5 Predictive relevance and explained variance by the model

Construct	Q^2	R^2
Intention	0.264	0.460
Speaking up	0.233	0.400

Abbreviations: Q^2, predictive relevance; R^2, explained variance.

TABLE 6 Total effects

Construct	Total effect on the construct intention	Total effect on the construct of speaking up
Attitudes towards speaking up	0.284	0.179
Subjective norms	0.576	0.364
Perceived control	−0.303	−0.191

participated, so this aspect could have generated variation in the impact on behaviour depending on where the study was applied.

The strengths of this study include the fact that a diverse sample of primary health centres in Chile was included, with participants from 14 of the country's 16 regions, and various types of primary health centre were represented. The distribution of centres located in rural and urban areas was considered similar to the reality of the country.

6 | FUTURE RESEARCH

It would be enriching to investigate those factors that are not reliant on the individual or are not modifiable but could impact speaking up behaviour. In particular, it would be of interest to carry out a multi-group analysis of whether there are gender differences, as there is conflicting evidence in the current literature (Martinez et al., 2017; Schwappach & Gehring, 2014b).

We deem it essential to investigate whether there are behavioural differences according to profession, age or level of education, especially in highly hierarchical health settings such as Chile. In this context, systematic differences in scores were found between professional groups (e.g., nurses, physicians and psychologists) (Schwappach & Niederhauser, 2019); among medical students, residents and physicians (Schwappach & Niederhauser, 2019; Samuel et al., 2012; and with age (Martinez et al., 2017).

Future lines of research should include the exploration of the factors that influence behaviour in private and hospital environments, as well as in rural versus urban contexts. It will be enlightening to address and compare the findings.

7 | CONCLUSION

Medical error is frequent in ambulatory care. In the event of an error, a significant percentage of healthcare professionals may have no intention of discussing it, owing to the influence of several factors. Among these, attitude towards behaviour, perceived control, subjective norms and willingness to change self-behaviour should be considered.

To our knowledge, this is the first study that investigates the influence of different factors on speaking up behaviour in a primary care setting, additionally this is the first study that assesses the relative importance of influencing speaking-up behaviour.

CONFLICT OF INTEREST

All the authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTIONS

NOL, SPA, COG, RCM, SAC and IS were involved in study design, data collection, drafting and re-drafting of the article. SAC was involved in data analysis of the article.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

How to cite this article: Ortiz-López, N., Ponce-Arancibia, S., Olea-Gangas, C., Chacano-Muñoz, R., Arancibia-Carvajal, S., & Solis, I. (2021). Determinants of the intention to speak up about medical error in primary healthcare settings in Chile. *Health & Social Care in the Community*, 00, 1–10. https://doi.org/10.1111/hsc.13527