

ORIGINAL ARTICLE

Role of interaction for caller satisfaction in telenursing—A cross-sectional survey study

Marie Mattisson RN, PhD student¹  | Sussanne Börjeson RN, Professor¹ |
Kristofer Årestedt RN, Professor^{2,3} | Malou Lindberg RN, Ass. Professor^{1,4}

¹Department of Health, Medicine and Caring Sciences (HMV), Linköping University, Linköping, Sweden

²Faculty of Health and Life Sciences, Linnaeus University, Kalmar, Sweden

³The Research Section, Kalmar, Sweden

⁴1177 Medical Advisory Service, Region Östergötland, Linköping, Sweden

Correspondence

Marie Mattisson, Department of Health, Medicine and Caring Sciences (HMV), Linköping University, Campus Norrköping, SE-602 21 Norrköping, Sweden.
Email: marie.mattisson@liu.se

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Abstract

Aims and objectives: The aim of this study was to explore caller satisfaction with interaction, and the association to overall satisfaction with calls.

Background: In the era of expanding healthcare at distance, the telephone remains a common tool for the provision of nursing care. Interaction between telenurse and caller in telenursing is vital for safety, satisfaction and adherence reasons. Few studies have quantitatively explored interaction in calls and how it relates to overall satisfaction with calls.

Design: Cross-sectional survey study with a deductive approach.

Methods: A total of 466 callers to the Swedish Medical Advisory Service completed the Telenursing Interaction and Satisfaction Questionnaire. Satisfaction with four theoretically defined components of interaction were compared using repeated measures ANOVA. Associations between satisfaction with interaction and overall satisfaction with calls were evaluated with ordinal logistic regression models with and without adjustment for age, sex, health status, waiting time, time for call, main result of the call and expectations. The study followed the STROBE checklist.

Results: Callers were most satisfied with affective support, followed by professional-technical competence, health information and decisional control—in that order. A summated score of satisfaction with interaction was positively and significantly associated with overall satisfaction with calls before and after adjustment for waiting time, main result of call and variables related to the individual caller.

Conclusions: Caller satisfaction with interaction is generally high but can be improved, especially regarding decisional control. Satisfaction with interaction is important for overall satisfaction with calls.

Relevance to clinical practice: This study provides support for professionals at all levels in telenursing organisations to pay attention to interactional matters. The development of best practice for telenurses needs to consider all four components of interaction to enhance satisfaction with calls.

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KEYWORDS

communication, e-health, interaction, nurse–patient relation, nursing care, patient satisfaction, telenursing, telephone nursing

1 | INTRODUCTION

The provision of healthcare at distance, both synchronous and asynchronous, has been expanding globally for decades. Although the development of new technology is ongoing, the telephone remains a commonly used technical device for provision of healthcare at distance. Telephone services are offered worldwide by professionals of different levels in the healthcare organisation (Wheeler et al., 2015). Further, it is performed in different settings and for different purposes such as triage and subsequent referral, monitoring of chronic conditions, promotion of self-care or follow-up after medical procedures (Souza-Junior et al., 2016). The provision of healthcare over the phone requires specific communication strategies that differ from face-to-face encounters, and the workforce must develop skills and competences to deal with the specific challenges deriving from the distant setting (Roberts & Osborn-Jenkins, 2021).

In telenursing, where no visual input is available, all communication is handled through verbal interaction. The bulk of studies that comprehensively explore interaction in telephone consultations is still small, leading to uncertainties regarding development of best practices for telenurses. Also, most studies are performed with qualitative designs to describe or explore the topic (Kaminsky et al., 2017). Interaction in telenursing therefore needs further exploration with quantitative approaches.

1.1 | Background

In telenursing, registered nurses deliver nursing care over the phone. Basic nursing activities such as assessment of needs and situation of the caller, teaching, providing support and reassurance, collaboration in problem-solving and choice of care plan should be performed during encounters (Greenberg, 2009). Telenurses ideally tailor interactions to fit the individual needs of each caller (Cox, 1982).

Telenursing differs from face-to-face nursing in fundamental ways. In telenursing, all interactions between telenurse and caller are carried out without elements that in face-to-face settings are considered both necessary and indispensable. For instance, the reading of body language and posture for checking on general condition and reactions to the situation is not possible (Barbosa & Silva, 2017; Roberts & Osborn-Jenkins, 2021). Physical examination procedures are constricted to procedures that the caller can perform on his/her own, if necessary, with verbal guidance from the telenurse (Lopriore et al., 2019). Decision support systems may guide telenurses in decisions concerning medical matters but may also hinder good communication (Holmström et al., 2019; Murdoch et al., 2015). Whatever happens after the call relies on the caller's appraisal of the remote and time-limited encounter. Overcoming these challenges without

What does this paper contribute to the wider global community?

- Among four theoretically anchored components of interaction, callers were most satisfied with affective support given by the telenurse followed by nurse's professional/technical competence and health information. Callers were least satisfied with decisional control.
- An increase in any of the four components of interaction was positively associated with an increase in overall satisfaction with the call, also after adjustment for other variables.
- The Telenursing Interaction and Satisfaction Scale (TISS) is a feasible tool for exploring satisfaction with interaction in four comprehensible components.

losses in safety and effectivity places high demands on telenurses to understand and adapt to the special features of the situation (Barbosa & Silva, 2017; van Houwelingen et al., 2016). Despite these challenges, evaluations indicate that there are no major differences between telenursing and face-to-face encounters in terms of satisfaction rates and safety (Lake et al., 2017).

The importance of caller satisfaction in telenursing cannot be underestimated. The association between satisfaction with calls and adherence to recommended care regimen is positive and strong (Gustafsson, 2016; Purc-Stephenson & Thrasher, 2012; Williams et al., 2012). A satisfied caller will more likely pursue healthcare actions in line with the healthcare plan (Gustafsson, 2016), whereas dissatisfaction may result in disengagement, worsening of symptoms or ineffective use of healthcare resources. Despite the importance and long history of research on patient satisfaction, the concept has no globally accepted definition within a healthcare context (Batbaatar et al., 2015). Existing definitions include evaluations of how well healthcare services fulfil expectations that the patient may have (Batbaatar et al., 2015). It is further described in terms of congruence between delivered healthcare and patient needs, desires and expectations including both cognitive and affective components (Eriksen, 1995). Caller satisfaction in telenursing would by these definitions result in a caller who receive healthcare in line with expectations, perceived needs and desires, including both cognitive and affective aspects in accordance with appraisal of the situation.

Although a global definition of patient satisfaction is not at hand, much is known about factors that contribute to the concept. These factors refer either to the healthcare provider or to the healthcare seeker (Batbaatar et al., 2017). Known factors within telenursing are

higher age (Gustafsson, 2016) and good health status of the caller (Moscatto et al., 2007). Also, fulfilment of expectations relates to higher satisfaction rates (Moscatto et al., 2007). Among factors related to the provider of phone calls, short waiting times and the main result of the call being an appointment rather than watchful waiting, is associated to higher satisfaction (Gustafsson, 2016; Zinger et al., 2019). A recurring and essential determinant within healthcare in general is how patients perceive the relation with the healthcare personnel. This component includes factors such as caring, active listening, inviting in participation and providing hope (Batbaatar et al., 2017), factors that also emerge in a telenursing context. Callers appreciate that nurses stay calm and composed during calls (Gustafsson et al., 2020), and nurses who perform active listening in a friendly and respectful manner (Ström et al., 2009). Fulfilment of expectations of nurses' active listening skills, clarity in advice and collaboration on decisions also contributes to satisfaction (Moscatto et al., 2007).

In sum, caller satisfaction is of utmost importance in telenursing, and interaction with the telenurse is believed to be one essential determinant of overall satisfaction with calls. Interaction deals with how the professional nurse and help-seeking caller interact in a mutual relationship (Evans, 2016). Ideally, and in line with person-centred care, both parties learn from each other (Byrne et al., 2020), indicating that interaction is not merely a matter of communication skills of the telenurse, but is also heavily dependent on callers' contributions (Yliluoma & Palonen, 2020). Within nursing research, the two concepts of interaction and communication are sometimes, and incorrectly, used synonymously. Interaction is considered to be a broader umbrella concept under which communication is found (Fleischer et al., 2009), and therefore, the study of interaction needs to include a wide perspective.

We have not been able to identify any study that systematically explores caller satisfaction with interaction in telenursing, nor have we found any study that examines how different components of interaction are associated with overall satisfaction with calls. With greater knowledge of this area, interventions for telenurses can be developed focusing on areas with the greatest needs and/or the greatest impact on caller satisfaction.

2 | AIM

The aim of this study was to explore caller satisfaction with interaction, and the association to overall satisfaction with calls.

3 | METHODS

3.1 | Ethical considerations

The study follows principles of the Declaration of Helsinki. Ethics approval was obtained from the Regional Ethics Board in Linköping, Sweden (No. 2015/298-31). All callers who agreed to participate in the study received a letter with information about the purpose of

the study, and a form for written consent. Callers were also informed that they could withdraw from participation at any time.

3.2 | Study design and setting

The study followed the Strengthening the reporting of observational studies in epidemiology checklist (File S1). This cross-sectional survey study was performed among callers to the National Medical Advisory Service in southeastern Sweden, a service available around the clock, for the entire population. It receives approximately 4.5 million calls per year (Inera, 2020). Calls are handled by registered nurses who work according to a nursing process similar to the one described by Greenberg (2009), but including five steps: opening the call, listening, analysing, motivating, closing. Telenurses working in this service regularly listen to and analyse their own communication competence according to the Telenursing Self-Assessment Tool (Johnson et al., 2015).

The purpose of the service, according to Swedish authorities, is to triage medical conditions and to provide support for health-promoting actions. Outcomes are either self-care advice (including watchful waiting and/or monitoring call), appointment with a GP (when time of call is out-of-hours), redirection to emergency department by ambulance or other transportation, or advice to see another healthcare provider. In case an ambulance is required immediately, calls can be forwarded to 112.

3.3 | Procedure

Data were collected during five weeks in September–October 2017. During this period, 27,543 incoming calls were registered at the National Medical Health Advisory Service in Östergötland, a region in the southeast part of Sweden. Among incoming calls, interaction between caller and telenurse occurred in 19,494 cases. Remaining calls were ended by the caller before forwarded to a telenurse. In the beginning of each call, before being forwarded to a telenurse but after a general welcome message, callers were briefly informed about the study and voluntary participation. This message included information on inclusion criteria; age of 18 years or older and a call concerning a health-related problem of the caller him-/herself. Callers were instructed to press a certain key for consent to participate. To those who chose to participate, a questionnaire was sent by post within seven days of the call. Participants also received written information about the study, a form for written consent to participate and a franked envelope. In total, 1400 questionnaires were consecutively distributed. Two months after the sampling period, 665 questionnaires (47.5%) were returned. Among these, 4 had been sent to the wrong address. In addition, 39 did not contain any information at all because a conversation with the telenurse never occurred (i.e. hung up before connected), leaving a sample of 622 (44.4%) questionnaires of which all followed the inclusion criteria. Of these, 156 were excluded due to missing data on one or more of the

25 items related to interaction, leaving a sample of 466 callers (33%) to include in the present study (Figure 1).

3.4 | The questionnaire

The questionnaire used for data collection in this study was the Telenursing Interaction and Satisfaction Questionnaire (TISQ). All parts of the TISQ have been content validated in a Swedish telenursing context using a two-step process; cognitive interviews with callers and professionals' ratings of relevance according to the Content Validity Index (CVI). Content validity was found to be good, and test-retest validity of separate items was moderate to good (Mattisson et al., 2019). The 60 item TISQ is developed to explore caller satisfaction in telenursing and is structured according to subheadings in the Interaction Model of Client Health Behaviour (IMCHB) by Cox (1982): Client singularity, Client-Profession Interaction and Health outcome, see Table 1. In the TISQ, client singularity is examined by 23 items on demographics, previous experiences of healthcare, motivation, cognitive and affective response to the healthcare situation. Twenty items cover interaction, and ten items cover health outcome in terms of satisfaction. The remaining seven items in the TISQ concern descriptives of the call, such as time for call, whether the call was carried out in Swedish or another language, and experience of waiting time before contact with the telenurse. One of the ten items on Health outcome, 'Finally, how satisfied were you as a whole with the current call to the advisory service?', was in this study used as a single measure of overall satisfaction with the call.

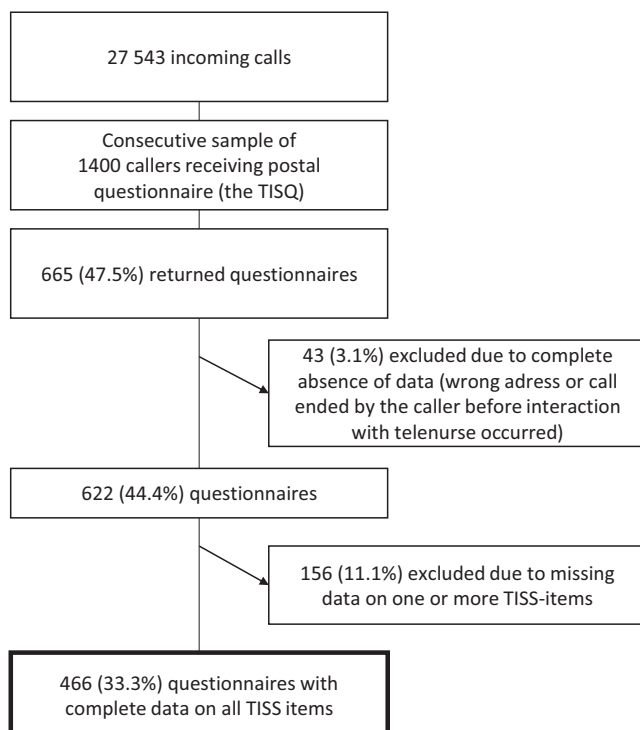


FIGURE 1 Data collection procedure

This item has five response options ranging from 'Very satisfied' (1) to 'Very dissatisfied' (5) (Mattisson et al., 2019).

A total of 25 items in the TISQ focus on interaction between caller and telenurse. These items form a measuring scale for the measurement of satisfaction with interaction, the Telenursing Interaction and Satisfaction Scale (TISS). The TISS has shown good measurement properties in terms of factorial validity, construct validity, internal consistency, scale reliability and test-retest reliability (Mattisson et al., submitted). All items in the TISS are divided into four comprehensible sub-scales in line with the four components of interaction in the IMCHB: health information (8 items), affective support (9 items), decisional control (3 items) and professional-technical competencies of the nurse (5 items), see Table 2. Health information deals with the exchange of information on symptoms, potential threats of the situation, what symptoms might represent and what could be done to deal with the situation. Affective support incorporates the client's level of emotional arousal and the nurse's response. Decisional control deals with the client's participation in decision-making and finally, professional-technical competencies deal with the nurse's skills and knowledge. Twenty of the items in the TISS are rated from 'Yes, completely' (1) to 'No, not at all' (4) and five items are rated from 'Very satisfied' (1) to 'Very dissatisfied' (5).

Before the scale scores of the TISS can be calculated, all 25 item scores need to be reversed so that high scores reflect higher degrees of satisfaction. The scale scores are computed by adding up the responses and then transforming the total into a 0 to 10 scale using the following formula: $(\text{raw scale score} - \text{lowest possible score}) / \text{possible score range} \times 10$. Higher scores reflect higher satisfaction with interaction. According to Mattisson et al. (submitted), scores can be calculated either as a total scale score reflecting satisfaction with interaction based on all 25 items, or as sub-scale scores reflecting satisfaction with the four separate components of interaction according to the IMCHB (Cox, 1982). The internal consistency estimated with ordinal alpha was 0.82 for Decisional control, 0.92 for Health information, 0.95 for Professional-technical competencies, 0.96 for Affective support and 0.97 for TISS total scale (Mattisson et al., submitted).

3.5 | Data analysis

The sample was described with absolute and relative frequencies. The degree of satisfaction was described with means and standard deviations. Repeated measures ANOVA were used to compare the four components of satisfaction with interaction with each other, and the post-hoc test used Bonferroni corrected p -values, set at $p \leq .008$.

The associations between satisfaction with interaction and overall satisfaction with the call were explored with a series of ordinal logistic regression analyses (proportional odds model): one regression model was conducted for each component of interaction in the TISS, and one model for the TISS total scale score. The outcome variable in all logistic regression models was the item about overall satisfaction with the

TABLE 1 Structure of items in the Telenursing Interaction and Satisfaction Questionnaire (TISQ), and items used in the analysis of this study

Subheadings in the Telenursing Interaction and Satisfaction Questionnaire (TISQ) according to the Interaction Model of Client Health Behavior	Number of items in the TISQ	Items used in the analyses of this study
Client singularity—background variables		
Demographic characteristics	7	Age ^b , Sex ^b , Health status ^b
Previous healthcare experiences	11	
Environmental resources	1	
Client singularity—dynamic variables		
Intrinsic motivation	2	
Cognitive appraisal	1	
Affective response	1	
Client-profession interaction		
Health information	7	7 items ^a
Affective support	7	7 items ^a
Decisional control	2	2 items ^a
Professional-technical competencies	4	4 items ^a
Health outcome		
Satisfaction with care	10	5 items on satisfaction with interaction ^a Level of expectations met ^b , Overall satisfaction with call ^c
Descriptive items of the call (not in the IMCHB)		
	7	Time for call ^b , Waiting time ^b , Main result of the call ^b

^aItems included in the Telenursing Interaction and Satisfaction Scale (TISS), see [Table 2](#).

^bAdjustment variable in this study.

^cDependent variable in this study.

call from the TISQ; 'Finally, how satisfied were you as a whole with the current call to the advisory service?'. The two highest response options, 'Very dissatisfied' (5) and 'Dissatisfied' (4), were collapsed into one category due to few responses to each item. The ordinal logistic regression analyses were conducted in two steps: step one included satisfaction with interaction as the only explanatory variable while age, sex, health status, waiting time, time for call, main result of the call and level of expectations met were controlled for in step two.

The significance level was set at $p < .05$. All statistical analyses were performed in SPSS statistics, version 27 (IBM Corp.).

4 | RESULTS

4.1 | Sample characteristics

The final sample consisted of 466 callers; a majority were females ($n = 332$, 71%). About one third ($n = 148$, 32%) were between 45 and 64 years of age, and one tenth ($n = 45$, 10%) were above 75 years old. Self-care advice from the telenurse was the most frequent result

of the call ($n = 143$, 31%), followed by advice to contact another caregiver such as general practitioner during office hours, dentist or midwife ($n = 119$, 25%), advice to visit the emergency department ($n = 109$, 23%), appointment with GP after-hours ($n = 77$, 16%) and other not specified ($n = 18$, 4%). Approximately half of the calls were carried out during weekday office hours ($n = 220$, 47%) and one third during evening or nighttime ($n = 135$, 29%). Self-reported health status was rated as good or very good for most of the callers ($n = 322$, 69%; [Table 3](#)).

4.2 | Satisfaction with interaction

Overall, the callers reported high levels of satisfaction with interaction. Of the four components of satisfaction with interaction in the TISS, callers gave the highest levels of satisfaction for affective support (mean = 8.92, SD = 1.81) followed by professional-technical competencies (mean = 8.59, SD = 2.07), health information (mean = 8.19, SD 1.82) and decisional control (mean = 7.77, SD = 2.29). The overall differences between the four components

Subscale according to the IMCHB ^a	Items in the TISS
Health information (8 items)	<p>When you called, did you perceive that...</p> <ul style="list-style-type: none"> ...you were given the opportunity to ask all your questions? ...you received answers to all your current questions at the time? ...the nurse provided you with information on the future potential development of the health problem? ...you got information about what you should do next? ...you had understood the advice/information when ending the call? ...you received advice and information adapted to your needs and conditions at the time? ...you were informed about where to find additional information? <p>Overall, how satisfied were you with...</p> <ul style="list-style-type: none"> ...the advice and information you were given?
Affective support (9 items)	<p>When you called, did you perceive that...</p> <ul style="list-style-type: none"> ...you felt confidence in the nurse you talked to? ...the nurse listened attentively? ...the nurse understood what you wanted? ...the nurse showed empathy? ...the nurse was friendly? ...the nurse was calm and instilled a sense of security? ...the nurse showed an interest in your understanding of the health problem? <p>Overall, how satisfied were you with...</p> <ul style="list-style-type: none"> ... the nurse's ability to support you affectively? ... how the nurse treated you?
Decisional control (3 items)	<p>When you called, did you perceive that...</p> <ul style="list-style-type: none"> ...you were given opportunities to discuss alternative solutions to the health problem? ...you and the nurse agreed on how to deal with your health problem? <p>Overall, how satisfied were you with...</p> <ul style="list-style-type: none"> ... the possibility to influence the result of the call?
Professional-technical competencies (5 items)	<p>When you called, did you perceive that...</p> <ul style="list-style-type: none"> ...the nurse had enough competence to deal with your health problem? ...the nurse asked relevant questions about your health problem? ...the nurse was thorough in her work? ...the nurse was skilled in leading the conversation forward? <p>Overall, how satisfied were you with...</p> <ul style="list-style-type: none"> ... the competence of the nurse?

^aInteraction Model of Client Health Behavior (Cox, 1982).

of interaction were all statistically significant ($p < .001$) and the post-hoc test showed significant differences between all pairwise comparisons ($p < .008$).

4.3 | Association between satisfaction with interaction and overall satisfaction with the call

In the unadjusted (univariate) regression models (step I), all four components of satisfaction with interaction were significantly associated with overall satisfaction with the call. In step I, the odds ratio was the highest for satisfaction with affective support (OR = 3.69, $p < .001$) followed by professional technical competencies (OR = 3.19, $p < .001$), health information (OR = 3.17, $p < .001$) and decisional

TABLE 2 Items and sub-scales in the Telenursing Interaction and Satisfaction Scale (TISS)

control (OR = 2.38, $p < .001$). All associations remained statistically significant in the adjusted (multiple) models in step II (OR = 1.69–2.54, $p < .001$).

Satisfaction with interaction measured on the TISS total scale was significantly associated with overall satisfaction with the call in both the unadjusted (OR = 5.69, $p < .001$) and adjusted regression model (OR = 3.87, $p < .001$; Table 4).

5 | DISCUSSION

To the best of our knowledge, this is one of the few studies in telenursing that with a deductive approach aims to explore caller satisfaction with nursing interaction and its association to overall

TABLE 3 Sample characteristics and information about the calls ($n = 466$)

	<i>n</i> (%)
Sex	
Female	332 (71.2)
Male	134 (28.8)
Age groups	
18–25	51 (10.9)
26–44	124 (26.6)
45–64	148 (31.8)
65–74	98 (21.0)
>75	45 (9.7)
Health status	
Very good	91 (19.5)
Good	231 (49.6)
Neither good nor bad	94 (20.2)
Bad	44 (9.4)
Very bad	6 (1.3)
Number of previous contacts with this service	
0	43 (9.2)
1–5	254 (54.5)
>5	167 (35.8)
Unknown	2 (0.4)
Self-reported main result of the call	
Self-care advice from the telenurse	143 (30.7)
Appointment with GP (after-hours)	77 (16.5)
Advice to visit ER	109 (23.4)
Advice to contact another caregiver	119 (25.5)
Other	18 (3.9)
Time for call	
Weekday, office hours	220 (47.2)
Saturday, Sunday or public holiday, daytime	111 (23.8)
Evening or night time	135 (29.0)

TABLE 4 Association between satisfaction with interaction measured by the Telenursing Interaction and Satisfaction Scale (TISS) and overall satisfaction with the call ($n = 466$)

Interaction dimension	Step I: Unadjusted (univariate) regression model ^a			Step II: Adjusted (multiple) regression model ^b		
	OR	95% CI for OR	<i>p</i> -value	OR	95% CI for OR	<i>p</i> -value
Health information	3.17	2.69–3.75	<.001	2.07	1.69–2.54	<.001
Professional-technical competencies	3.19	2.71–3.75	<.001	2.30	1.91–2.77	<.001
Affective support	3.69	3.04–4.49	<.001	2.54	2.04–3.18	<.001
Decisional control	2.38	2.10–2.67	<.001	1.69	1.45–1.96	<.001
TISS total scale	5.69	4.44–7.27	<.001	3.87	2.92–5.12	<.001

Abbreviations: CI, confidence interval; OR, odds ratio.

^aOrdinal logistic regression model.

^bOrdinal logistic regression model adjusted for by age, sex, health status, waiting time, time for call, main result of the call and expectations.

satisfaction with calls. Overall, callers in the study were most satisfied with affective support, followed by professional-technical competencies of the telenurse, health information and decisional control—in that order. All four components of interaction were positively associated with overall satisfaction with calls, also after adjustment for other variables with known importance for overall satisfaction in telenursing.

Caller satisfaction rates were greatest for affective support. The supportive effect of calls is recognised by callers (Gustafsson et al., 2020; Moscato et al., 2007) but also by telenurses who describe job satisfaction when callers are obviously relieved during conversations (Barbosa & Silva, 2017; Kaminsky et al., 2009; Yliluoma & Palonen, 2020). The fact that affective support received the highest scores is still somewhat surprising, given that prior RIAS analysis of authentic telenursing conversations in the same setting have revealed that telenurses tend to avoid discussions about affective reactions. Instead, they redirect conversations to 'voice-of-medicine' (Ernesäter et al., 2016). The relatively high satisfaction rate for affective support found may reflect a supportive effect of the mere existence of the service, and that callers do not expect to discuss feelings explicitly with the telenurse. Callers appreciate access to professional telephone services and to have a constructive, and informative dialogue with a professional nurse in threatening situations (Arvidsson et al., 2019; Kvilén Eriksson et al., 2015). It could also be that callers perceive non-verbal communication such as tone of voice and supportive 'humming' as supporting, and that this non-verbal communication was not detected in the RIAS analysis. Even so, there may be potential for improvement in this component, especially in situations where callers are emotional (Eriksson et al., 2020; Yliluoma & Palonen, 2020). Empathetic interventions in oncology nursing over the phone include nurses making efforts to understand patients' experiences and to respond adequately to them, to use humour and validation, and ability to engage in problem-solving (Torres-Vigil et al., 2021), strategies that may be applicable and further developed also in a primary healthcare telenursing context.

The component with lowest satisfaction rates in this study was decisional control. The study design did not elicit any reasons for

callers' relatively lower satisfaction rate with this component. It may result from expectations not fully met, as described by Rahmqvist et al. (2011) and Kaminsky et al. (2020). After a re-organisation of the Swedish service, telenurses are no longer able to make referrals to general practitioners in out-of-office hours. Instead, if the medical assessment suggests an appointment with a general practitioner during out-of-office hours, the telenurse re-directs the caller to another telephone line where appointments can be made. This organisational arrangement may disappoint callers who expect an appointment on the spot. Another reason for lower satisfaction with decisional control could be that the caller and telenurse were unable to reach consensus on assessment of the situation and what to do next. Research on telenurses' strategies to cope with difficult calls reveals that disputes between telenurse and caller occur, and that telenurses have developed strategies to handle such situations (Eriksson et al., 2020; Yliluoma & Palonen, 2020). The era of patient participation, in which decisional control is merely one aspect of participation (Nilsson et al., 2019; Stiggelbout et al., 2015), is perhaps yet in its embryo as compared with the other three components of interaction in the IMCHB. Even though the mutual nature of nurse–patient interactions has been studied for decades (Fleischer et al., 2009), it is not until recently that the role and influence of patients have received more focus. Mayor and Bietti (2017) found asymmetrical nurse–patient relations and that nurses tend to dominate, taking the role of the leader despite patients trying to collaborate. This hinders patient participation and thus decisional control of the caller. In a telenursing study of authentic calls (Ernesäter et al., 2016), the mean number of open-ended questions asked per call was as low as 0.9 per call. The more open questions posed, the more focus can be on the callers' cues and concerns and less on the nurses' agenda. Although not specifically investigated in our study, unbalanced interaction may have occurred and contributed to the lower ratings of satisfaction with decisional control. A recent concept analysis of patient participation concludes that more research is needed to elicit and operationalise how participation can be achieved in clinical contexts (Nilsson et al., 2019), a highly prioritised area to explore also in telenursing.

All four components of nursing interaction were significantly and positively associated with overall satisfaction with calls. This was true also for the TISS total scale. The result confirms that interaction matters, also when other variables of importance for satisfaction are considered. This strengthens incentives for organisations and managers to invest time, money and effort in the development of interactions in telenursing and to not be too blinded by timely measures of effectivity such as waiting times and lengths of calls. Satisfied callers do contribute to effectiveness since unnecessary use of healthcare resources is avoided when callers are satisfied (Gustafsson, 2016). In this study, it was not possible to include all four components of interaction in one regression model due to multi-collinearity of factors (Field, 2018) and therefore, it was not possible to examine whether any of the four components is superior to the others for overall satisfaction with calls. In separate models, affective support showed the strongest association to overall satisfaction, and decisional control the weakest. This result corresponds with findings of

Gustafsson (2016) who found that callers' feelings of reassurance after the call correlated the most with overall satisfaction and agreeing with the telenurse correlated the least. However, the two studies do not provide conclusive support for which, if any, component to be emphasised. In addition, and according to Cox (1982), nurse–client interactions should be tailored to fit the individual needs of each client. The conclusion may therefore be that the telenurse must adequately identify the needs of the individual caller in line with the four components. After that, adequate interaction strategies can be tailored to meet these needs. Most likely, competences and potential for development vary between telenurses due to personality, interest and perhaps also due to understanding of work (Kaminsky et al., 2009). The TISS could be used to identify areas for improvement of individual telenurses.

5.1 | Methodological considerations

The cross-sectional design of this study did not enable any analysis of causal relationships, merely a description on how satisfaction rates vary between the four components in the study sample and how they relate to overall satisfaction.

No a-priori sample size calculation was performed prior to data collection, which is a limitation of the study. The sample size of 466 callers can be considered sufficiently large to detect a medium or large effect (Bujang et al., 2018). Yet another weakness in the data collection procedure was that no reminders were sent to callers who did not return questionnaires, a fact that may have contributed to response bias. However, acceptance to participation was communicated before the call was forwarded to the telenurse and therefore not based on outcomes of the actual call.

The choice of variables to adjust for in the logistic regression analysis was based on prior research findings, even though the number of telenursing studies is small. Findings suggest that satisfaction differs mainly due to age of the caller, reason for call, main result of call, waiting time, health status and ratings of expectations on interactional aspects and competence of the nurse (Gustafsson, 2016; Moscato et al., 2007; Zinger et al., 2019). Other not-yet-identified predictors to satisfaction in telenursing may exist, but based on available evidence, all potential determinants and confounders are included.

All participating callers called on behalf of themselves. The results may therefore not be applicable to callers who called on behalf of someone else, for instance a parent or child. Representation of callers with lower educational levels, men and persons with language difficulties is often low in studies (Gustafsson, 2016; Moscato et al., 2007) which was true also in this study.

6 | CONCLUSION

Caller satisfaction with interaction in telenursing is generally high but can be improved, especially regarding decisional control.

Satisfaction with interaction does matter for overall satisfaction with calls, also after adjustment for other variables with documented importance, such as waiting time, caller's health status and main result of the call. Future interventions for telenurses with the aim to increase caller satisfaction should consider all four components of interaction.

7 | RELEVANCE TO CLINICAL PRACTICE

The result of this study is relevant for professionals at all levels in telenursing organisations. They can inspire clinically active telenurses to reflect on how four comprehensible components of interaction contribute to satisfaction with calls. Managers may be supported to initiate and/or continue educational efforts to enhance interaction and communication competence for telenurses. Since telenursing is based on verbal interactions only, telenurses need high degrees of communication competence to master all four components of interaction. Interactional matters in telenursing deserve attention and should be explored, developed and performed in a structured and comprehensive manner.

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CONFLICT OF INTEREST

The authors have no conflicts of interest to report.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author, [MM], upon reasonable request.

ORCID

Marie Mattisson  <https://orcid.org/0000-0001-5033-0874>

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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