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**Triage and patient satisfaction among callers in Swedish computer supported telephone advice nursing**

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## **Summary**

We investigated satisfaction with a Swedish telenursing service, and the healthcare seeking behaviour among callers who received a less urgent level of healthcare than they expected. A postal questionnaire was sent to a random selection of callers (n=273) to Swedish Healthcare Direct in October 2008. The "cases" were 18 callers where the telenurse recommended a lower level of health care than the caller expected and who were not in complete agreement with the nurse. The "controls" were 22 callers who either received a lower recommendation, or were in disagreement with the recommendation. There were no differences between cases, controls and other callers regarding background factors or the telenurse classification of emergency. However, both cases and controls considered their need for health care as more urgent than the other callers. An independent test of the nurses' reception, ability to listen and to take notice of the callers' health problem, showed that nurses who had served cases, had received a significantly lower rating than other nurses. For nurses who had served controls, there was no such difference in rating. Cases and controls had fewer subsequent care visits than other callers, in the three days following the call, although the proportion of emergency visits was higher among cases and controls compared to other callers. If the caller and the nurse disagree about the nurse's recommendations, the consequence can be a dissatisfied caller and more visits to unnecessary high levels of health care. Further training of the nurses may improve the telenurse service.

## **Introduction**

The number of Swedish inhabitants who contact a telenurse at Swedish Healthcare Direct (SHD) through its telephone number 1177 has increased rapidly during the last few years. Telenursing has been shown to be cost effective and time saving, and also increases the self-care ability of patients.[1] Swedish telenurses independently assess, triage and provide self-care advice, refer the caller to an appropriate level of care or make an appointment with the general practitioner (GP) on call.[2]

According to the quality goals of the SHD, every call should be answered as soon as possible and should be given the required time.[3] However, during peak periods, caller waiting times of 15 min or more have been recorded. These excessive waiting times create stress for the telenurses, and may also cause callers to become stressed. The telenurse might try to compensate for the long waiting times by keeping calls as short and potentially effective as possible. The outcomes of the calls depend on the verbal communication between telenurse and caller. And the assessment and recommendation is based on what the caller communicates about his/her symptoms, and how well the caller can describe the problem.[4] A common cause for calling is a desire for reassurance and acknowledgement.[2] With limited time, there is a risk that callers will feel that they have not been acknowledged, and not listened to. If callers experience a feeling of non-confirmation, they may call another healthcare provider to obtain a second opinion and reassurance, which requires more resources from the healthcare system. It is well established that callers not only want correct advice, but they also want to be reassured and acknowledged.[5]

## ***Gatekeeper and caregiver***

Telenurses are expected to be both caregivers for callers and gatekeepers for the healthcare sector. This is a conflicting demand.[6] The callers often have certain expectations about what recommendation they would prefer, and it can be difficult for telenurses to make callers

realize that they may not need to go to the emergency room or be seen by a doctor. Instead, the nurses encourage the caller to follow up the progress, and wait to see if things get better or worse.[7] Marklund *et al.*[1] have shown that the adherence of callers to telenurses' advice was 81% for self-care advice and 100% for recommendations to go to an emergency ward. That is, acceptance was better for higher care levels. However, a core question remains unresolved: do differences exist between callers who accept a lower care level and those who do not, in terms of the call and the outcomes of healthcare contacts?

The aim of the present study was to analyse patient satisfaction with the telenursing service. Specifically, in callers who received a less urgent level of healthcare than they expected, to compare the outcome in terms of health care seeking behaviour in comparison with other callers.

## **Methods**

A random selection of 660 callers was made to one site connected to the SHD, during one week in October 2008. The exclusion criteria were: women who had recently had a miscarriage, or people who were heavily depressed and reported suicidal thoughts. Two weeks after the selection period, questionnaires were sent by mail to adult patients (18 years old or older) and to the parents of children. Two reminders were sent. The second reminder was sent a month after the first dispatch and contained a new questionnaire.

### *Questionnaire*

There were 25 questions, half of which were directly related to the call situation and the patients' experiences of the call. The other questions concerned the respondents' experiences of primary and hospital healthcare, and background factors such as age, sex and health status.

The quality questions 19 and 23 were the same type of questions that have been used in other patient studies for the past 10 years. These followed the validated Quality Satisfaction Performance concept,[8] which was used to evaluate visits to doctors and surgeries in the county council healthcare system every other year from 1998 to 2008. Full details of the postal survey and the questionnaire sent to users of SHD 1177 have been published elsewhere.[9]

The questionnaire contained a question (number 23) "Do you consider that you and the nurse agreed on what you should do with your disease or problems after the call?".

### *Caller comparison*

We compared three groups of callers:

- (1) "cases" were those where the telenurse recommended a lower level of health care than the caller expected and who were not in complete agreement with the nurse
- (2) "controls" were callers that received a recommended level of healthcare that was lower than what they expected, or callers who were not in complete agreement with the nurse
- (3) "others" were all other callers in the study, i.e. excluding cases and controls.

The groups are summarised in Table 1.

**Table 1.** Distribution of cases, controls and other callers.

Agreement	A. Not in agreement	B. Neither in agreement nor disagreement	C. In agreement	Total (%)
<b>Recommendation</b>				
1. Lower level	12 (12 cases)	6 (6 cases)	42 (13 controls, 29 other)	60 (22)
2. Same level	12 (9 controls, 3 other)	18 (18 other)	146 (146 other)	176 (65)
3. Higher level	0	2	35	37 (14)
Total (%)	24 (9)	26 (10)	223 (82)	273 (100)

### ***Call information***

Information about the calls was obtained from the call guide database. This information included the nurse classifications of emergency, grade of recommended care/healthcare and free-text comments for each case. In the present study, we used the nurse grading of emergency. There were four categories:

- (1) Carry out self-care, or wait and see.
- (2) Seek primary healthcare on the next weekday.
- (3) Make an appointment at a primary healthcare centre, hospital surgery or emergency ward within 12 hours.
- (4) Seek healthcare as soon as possible or immediately.

All healthcare visits made by the callers in the period one week before to two weeks after the call to the SHD were retrieved from the patient administration register. Respondents were informed that their answers would be linked and matched with the SHD call guide database and the patient register. Despite the linking and matching of registers, the respondents remained anonymous in the study. The study was approved by the appropriate ethics committee. Statistical calculations were done with SPSS version 18 and Epistat.

### **Results**

The total response rate was 49% (316), but when restricting the number to complete answers on the four main patient satisfaction questions (Question 19, 20, 23 and 24), the net response rate was reduced to 43%, and 273 complete forms were eligible for analysis.

The sex distribution was the same among cases, controls and other callers, with more women as callers in all groups. There were no difference among cases and other callers regarding age but controls were significant younger than other respondents ( $P=0.019$ ). The average age for cases was 42 years, and 37 and 46 years among controls and other callers respectively. There were no differences between the cases and controls regarding gender ( $P=0.66$ ) or age ( $P=0.25$ ), and no differences in health status at the time for the call ( $P=0.20$ ). However, only one of the cases reported minor or moderate health problems at the time of the call compared

to seven among the controls. Both cases and controls differed compared to remainders by reporting more serious health problems ( $P=0.001$  and  $0.053$  respectively).

The cases did not rate their need for healthcare as more urgent than the controls ( $P=0.14$ ). However, four of the controls expected that the outcome of the call would be “Advice to self care and/or information”, while all the cases expected that their need for healthcare after the call would result in a visit to a physician (Table 2). Among the other callers (remainders), about half merely sought advice or health information and only 12% expected that visiting an emergency ward was the appropriate level of healthcare for them, while the corresponding figure was 56% among the cases ( $P<0.001$ ). The controls also had a significant rating in expecting a higher level of healthcare compared to other callers. Half of the control group thought their health problems would be best addressed at an emergency ward (Table 2). However, the nurse’s classification of emergency was 22% and 32% for care within 12 hours or sooner for cases and controls, respectively. For other respondents, 40% met the nurse’s classification of care within 12 hours or sooner. The nurse recommendation of emergency care was more common among other respondents than cases or controls, but not significantly different (Table 2).

**Table 2.** Self rated need for health care and the nurse’s recommendation of health care. Values shown are numbers (%)

	Cases	Controls	Other
Self rated need for health care (Question 9)			
Advice or health information	0	4 (18)	129 (55)
Visiting a doctor/GP in primary health care	3 (17)	5 (23)	50 (21)
Visiting a doctor on duty	5 (28)	2 (9)	27 (12)
Visiting an emergency ward	10 (56)	11 (50)	27 (12)
<i>P</i> -value cases/controls, cases/other		0.139	<0.001
<i>P</i> -value controls/other			<0.001
Total	18	22	233
Nurse classification of emergency (recommendation of level of care)			
Advice to self-care/wait and see	13 (72)	8 (36)	100 (43)
Next coming weekday	1 (6)	7 (32)	41 (18)
Within 12 hours	3 (17)	6 (27)	67 (29)
Immediately, very soon	1 (6)	1 (5)	25 (11)
<i>P</i> -value cases/controls, cases/other		0.096	0.144
<i>P</i> -value controls/other			0.372
Total	18	22	233

### *Satisfaction rating of nurses*

The following describes the outcome the independent respondents’ rating of nurses who served cases and controls (Table 3). Thanks to the rating of the other callers, it was possible to obtain an independent rating of nurses who served the cases and controls, respectively. At least two independent ratings had to be present for each nurse that was included in the t-test. The average rating was significantly lower for nurses who served the cases compared to those nurses that had not served cases, while, the mean rating for nurses who served the controls

were the same as for the other nurses. It should be emphasized that the ratings made by the cases and controls (respectively) are not included in the four t-tests presented in Table 3.

**Table 3.** Mean rating of the nurses at the SHD made by other respondents.

Average rating of the reception given by the nurse	Mean	t-test P-value	Number of nurses*
Outcome Question 19			
Nurses that had:			
- Served cases	6.0		11
Served other callers	6.4	0.033	24
- Served controls	6.3		13
Served other callers	6.3	0.85	22
Outcome Question 20			
Nurses that had:			
- Served cases	6.1		11
Served other callers	6.5	0.048	24
- Served controls	6.4		13
Served other callers	6.4	0.86	22

\*only nurses with two or more independent ratings were included in the analyses

The cases were not at all satisfied with their contact with the SHD. Only one of six respondents among the cases was satisfied, according to the global satisfaction rating in Question 24. Half of the controls were satisfied, and among others, 84% were satisfied with the telenursing service. In Table 4, t-tests were used to test the average rating made by cases versus the average rating made by controls and other on Question 19 and 20, and the item on global satisfaction with the SHD. The cases made a significantly lower rating on all three questions compared to controls ( $P=0.030$ ,  $P=0.021$  and  $P=0.023$ , for Question 19, 20 and 24, respectively). The controls in their turn had a significant lower rating than other (all  $P$ -values  $<0.05$ ). The fact that the variance was lower among cases compared to controls indicates that the lower rating among cases was more consistent than that among controls (Table 4). The significant difference in variance between the tested groups justifies the use of an unequal variance t-test. The homogeneity in variance was tested with Levene's test.

**Table 4.** Mean ratings by cases, controls and other callers. The  $P$ -values were calculated without assuming equal variances

Average rating 1-7, (SD)	Cases	Controls	Other
The reception given by the nurse (Question 19)	3.3 (1.8)	4.8 (2.3)	6.3 (1.1)
$P$ -value cases/controls, cases/other		0.030	$<0.001$
$P$ -value controls/other			0.005
Listening and notice by the nurse (Question 20)	3.2 (1.6)	4.7 (2.4)	6.4 (1.1)
$P$ -value cases/controls, cases/other		0.021	$<0.001$
$P$ -value controls/other			0.003
Global patient satisfaction (Question 24)	3.2 (1.9)	4.8 (2.3)	6.4 (1.1)
$P$ -value cases/controls, cases/other		0.023	$<0.001$
$P$ -value controls/other			0.004

Total	18	22	233
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### ***Visits to a physician in relation to the call***

According to the medical records the cases had about the same number of visits to a physician three days after the call compared to controls (0.72 and 0.86 respectively), while other callers had more visits to a physician (1.11). The proportion of visits to emergency care in relation to non-emergency care was largest among cases and controls, when compared to other callers (46% and 47% respectively, vs. 34%). Furthermore, in the group with the lowest recommendation on emergency given by the nurse “Advice to self-care/wait and see”, there was a strong tendency that controls had a larger proportion of visits in emergency care compared to cases and others. Controls had 4 of 7 visits in emergency care in the Advice to self-care group, while cases only had 2 of 9, and the other callers had 17 visits of 79, in emergency care (both proportions equal 22%) (Table 5). The larger proportion of visits in emergency care was not significant due to the low number of controls in this sub-group.

The distribution of ordinary visits or emergency visits among cases and controls, related to the main reason of the call, is shown in Table 6. For cases, there were 13 different main reasons for the call, and for the controls there were 15 different reasons. The cases and controls had eight reasons in common, of which sore throat/coughing, arm or hand problems/injuries, and urinary infection suspected, were the three most common.

### **Discussion**

One aim of the present study was to follow up on callers’ healthcare seeking behaviour after they had obtained advice from Swedish telenurses. There were no significant differences between cases and controls regarding the background factors age, gender, self-reported health status or self-rated need for healthcare. The classification made by the nurses was also equal between cases and controls, although a larger proportion of cases were advised to wait and see, and use self-care. Within three days of the call, fewer cases and controls had made a visit to a physician compared to other callers. However, in the group that was recommended to wait and see the controls had a much larger proportion of visits during duty hours than both cases and others had. This larger proportion of emergency visits may be the result of the subjects making their own decision to seek healthcare, thereby not adhering to the recommendation of the telenurse. There is also a minor possibility that the emergency visit was not directly related to the call to SHD but a result of other sudden illness or an accident.

Ten of 18 cases had expected that the call would lead to a visit to an emergency ward or to a doctor on duty, while the nurse classified only one case as eligible for immediate care and three cases were recommended to visit the healthcare within 12 hours. The latter type of visits could be made in primary or outpatient hospital care, and not necessarily to an emergency department or to a doctor on duty. When we checked the free-text comments made by the nurses we found that those recommendations appeared to be fair. We also noted that many callers were encouraged to make a healthcare visit, since their health status would become considerably worse later. The outcome was that five cases made at least one visit to a physician in emergency care within three days (all together six visits). This indicates that at least five callers among the cases adhered to the reduction in care level, and did not become worse. It is noteworthy that both cases and controls had fewer respondents who visited a

physician within three days compared to the others, though there were no significant differences in recommended health care level made by the nurses initially.

Eleven callers in the control group expected to visit an emergency ward, while the nurse considered that only one was eligible for immediate care and six for care within 12 hours. These assessments were based on the callers' descriptions of their symptoms/problems.[10] It is well known that callers both can understate and overstate their symptoms, and not always be aware of what the appropriate level of care is for them.[7] Among the controls, seven callers later made nine visits to an emergency department or to a doctor in duty within three days. Their choice of emergency as the appropriate care level may have been correct due to an impairment of the health status, but it might also reflect the long waiting lists in Swedish primary healthcare.[11]

The outcome was about the same for cases and controls regarding expectation of care level and the outcome of the visit. It is reasonable to wonder why there is such a difference between cases and controls in their satisfaction with the telenursing service. The explanation could be the lower independent satisfaction rating that nurses who advised cases received in the questionnaire. The other callers who had spoken with the same nurses as the cases, made generally lower satisfaction ratings on the two quality questions (Question 18 and 19), than did the other callers that had been served by different nurses. These lower ratings gave a lower mean for nurses who also had served cases, but there was no significant difference for nurses who had served controls. There were, hence, differences in telenurses' ways of handling the calls. Is this difference explained by telenurses' perceptions of their work, as argued by Kaminsky *et al.*,[12] or could it be that the participating nurses had different ways of interpreting their task with more or less emphasis on their gatekeeper function? Swedish telenurses have previously expressed the conflicting demands of simultaneously being caregivers and gatekeepers for the healthcare sector.[6]

Differences in patient satisfaction may also arise from different communication styles among the telenurses. In the healthcare context, two predominant types of communication styles have been described: a biomedical communication style and a patient-centred communication style. In biomedical communication, the doctor or nurse is the expert and the active party in the dialogue. This carries the risk of being authoritarian and focusing merely on bodily symptoms. Closed-ended questions are used, and sufficient efforts may not be made to check the patient's understanding.[13] In patient-centred communication, the patient and the carer are involved in a mutual discussion and the caller is allowed to present the complaint without interruption.[14,15] This is achieved by using open-ended questions and checking the caller's understanding of the problem. A patient-centred encounter between patient and caregiver may result in fewer referrals to other healthcare providers, fewer diagnostic tests, increased patient adherence and satisfaction.[16,17] For patients who receive a lower level of recommended health care and end up in disagreement with the telenurse, the likelihood of making a health visit at an unnecessary high level tends to increase. The large variation in patient satisfaction with the latest call to the SHD made by the independent respondents, indicates that the skill to communicate and reach consensus with the patients differed significantly among the telenurses.

All telenurses in the present study used a computerized decision support system in the triage process. Therefore, individual medical competence among telenurses was less likely to affect the outcome of the call. Ernesäter *et al.*,[18] however, established that nurses had ambivalent feelings about using such a computerized decision support system. This is in line with a

previous study by Holmström.[19] In addition, when studying NHS Direct, Monhagan *et al.*[20] found that there were differences in call length, depending on whether Registered Sick Children's Nurses or Registered Nurses triaged calls about children. It may also be the case that the content of the call, as well as the telenurses' reception of it differs, depending on their specialist education. To be treated in a kindly manner has been emphasized by callers.[2] The variation might also partly be due to the individual telenurses' communicative skills. The communicative process in telephone triage has not been studied, and further work is urgently needed.

The present study had some limitations regarding the representativeness of the data set. In general, the non-respondents in postal population surveys tend to have less healthy lifestyles, together with a higher degree of unemployment, and lower educational levels than do the responders.[21,22] In addition, older persons have higher response rates than younger persons do. A higher prevalence of poor subjective health has also been found among non-respondents.[22] It is likely that there was such selection among respondents and non-respondents in the present study, as well. Furthermore, previous results from patient studies have shown that patient satisfaction correlates with the response rate and that units with high average satisfaction scores achieve higher response rates than average.[23] Summing up, we suspect that selection bias related to age, health, lifestyle, employment and patient satisfaction has affected the group of respondents. However, because the study did not primarily focus on average outcomes, this bias may not have influenced the comparisons between cases and controls.

Another limitation regarding the representativeness of the results is that only one SHD unit of about 20 units in Sweden was studied. However, in comparison with another independent unit we found similar patterns of disagreement among the callers. This other unit was engaged in the same survey, in October 2008. The cases in this paper constituted 4% of all callers (cell 1A in Table 1) while the other unit had 3% callers in that category. Altogether, 26% callers belong to cell 1A, 1B, 1C and 2A in Table 1, while the independent material from the other unit had 23% callers in the corresponding cells. These similar figures from the two units support the existence of a general pattern of a group of callers that end up in disagreement with the nurse recommendation. The proportion of callers in disagreement may of course vary both within a unit, and between the units, but the pattern remains. Both these SHD units were considered experienced in 2008, by having been in service for five years or more, a fact that may add reliability to the results.

To improve the healthcare-seeking behaviour among callers, to the most appropriate level for each case, the SHD should strive for less variation and better patient ratings of the nurses. Less variation together with higher average rating can be achieved through further training. All telenurses can develop their communicative skills further. The training should be based on theories of communication and research in the field. We recommend the use of standardized and regular patient satisfaction surveys designed for telenursing services to monitor the effects of training.

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Table 5. Visits to a physician in daytime (i.e. ordinary care) and emergency care for cases, controls and others.

	Cases			Controls			Other		
	No of cases	Ordinary visits	Emergency visits	No of controls	Ordinary visits	Emergency visits	No of other	Ordinary visits	Emergency visits
1) Advice to self-care/wait and see	13	7	2	8	3	4	100	62	17
2) Seek primary healthcare next coming weekday	1	0	0	7	4	1	41	36	8
3) Make an appointment ward within 12 hours	3	0	3	6	3	3	67	59	40
4) Seek healthcare as soon as possible or immediately	1	0	1	1	0	1	25	14	23
Total N	18	7	6	22	10	9	233	171	88
Total visits per caller	0.72			0.86			1.11		
Proportion of emergency visits	0.46			0.47			0.34		

**Table 6.** The main reason for the call, and the outcome in healthcare visits within three days, for cases and controls.

	Cases			Controls		
	No of cases	Ordinary visits	Emergency visits	No of controls	Ordinary visits	Emergency visits
Sore throat/coughing	3	0	1	6	4	4
Arm or hand problems/injuries	2	1	2	2	0	1
Suspected urinary infection	2	1	1	1	0	1
Exanthema without fever	2	1	0			
Bleeding related to pregnancy	1	3	0			
Wound/cut unspecified	1	1	0			
Abdominal pain	1	0	1	1	0	1
Head injury	1	0	1	1	0	0
Haemorrhoids/anus problems	1	0	0			
Leg or feet problems/injuries	1	0	0	1	1	1
Pain in the chest	1	0	0	1	1	0
Suspected sinusitis	1	0	0	1	0	0
Sleeping problems	1	0	0			
Constipation				1	0	0
Diarrhoea				1	1	0
Ear/auditory meatus problems				1	1	0
Headache				1	0	0
Neck, shoulder or back problems				1	0	0
Nose-bleeding				2	2	0
Respiratory problems				1	0	1
<i>Total</i>	<i>18</i>	<i>7</i>	<i>6</i>	<i>22</i>	<i>10</i>	<i>9</i>