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# **TELEPHONE ADVICE NURSING**

callers' perceptions,  
nurses' experience of problems  
and basis for assessments

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....it is not enough to write it in order to know how much yes, or no, or maybe, means in all of this, you have to utter it aloud, hearing invariably captures the ultimate vibration, and when we are deceived or allow us to be deceived it is only because we did not listen sufficiently to our hearing.

**José Saramago**

*The history of the siege of Lisbon 1989*

## ABSTRACT

At a health care call center, care-seekers can consult telephone nurses 24 hours a day. Telephone advice nursing (TAN) includes triage, advice, support, education, referral, information and coordination. The overall **aim** of the thesis was to explore the core of TAN from different perspectives, the care-seeker/patient, emergency medical dispatching and the telephone nurse.

The **first** study described the telephone nurses' context of TAN at a health care call center. Calls from one week (n=2866) were registered and 203 callers were asked to answer a questionnaire, out of which 144 responded (71%). Altogether 20 different reasons for calling were found and in 47% of the calls were made on behalf of someone else. 49% received self-care advice and 85% stated in the questionnaire that they followed the nurses' advice. 95% stated that they received the help from the call center as they anticipated.

To obtain a deeper understanding of how the callers perceived their contact with the call center, comments in two open-ended questions in the questionnaire were analyzed with qualitative content analysis in the **second** study. The comments were categorized in satisfactory and unsatisfactory and practical and emotional aspects. The findings highlighted the importance of receiving appropriate advice, being treated in a kindly manner and receiving a feeling of security through the consultation.

In the **third** study an analysis of the complaints in emergency medical dispatching (EMD) filed with the Medical Responsibility Board, the Swedish National Board of Health and Welfare and Patient Advisory Committees revealed 54 cases between 1991 and 2000. The complaints were analyzed with focus on factors and circumstances that influenced misjudgments and in 19 out of the 21 complaints; the telephone assessments were made on the basis of second-hand information.

Twenty-five telephone nurses participated in the **fourth** study in which the Delphi Method was used including three sets of questionnaires with the focus on problems with TAN. 24 problems were identified and the findings like 'second-hand consultations' and the 'loss of visual contact' highlighted the difficulty of assessments in TAN.

In the **fifth** study seven telephone nurses were interviewed according to the "stimulated recall technique". Fourteen authentic calls were analyzed with a qualitative content analysis with the focus on what the nurses used as basis for their assessments. Findings show that the nurses' basis are very broad, and information revealed both by verbal and nonverbal communication was used and the categories could be related to three contexts; nurse, care-seeker and organization.

In **conclusion**, the findings show that the assessment seems to be the core of TAN. The individual perspective also seems to be important, both from the care-seeker and telephone nurse point of view. Further, the nurses seem to use both verbal and nonverbal communication in their assessments, and should therefore in all situations strive for direct communication with the care-seeker.

**Keywords:** telephone advice nursing, telephone triage, telephone assessments, emergency medical dispatching, nonverbal communication, individualistic perspective.

## ORIGINAL PAPERS

### I

Wahlberg AC, Wredling R. Telephone nursing: Calls and caller satisfaction. *International Journal of Nursing Practice* 1999; 5: 164-70.

### II

Wahlberg AC, Wredling R. Telephone advice nursing – callers' experiences. *Journal of Telemedicine and Telecare* 2001; 7: 272-276.

### III

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### IV

Wahlberg AC, Cedersund E, Wredling R. Telephone nurses' experience of problems with telephone advice nursing in Sweden. *Journal of Clinical Nursing* 2003; 12: 37-45.

### V

Wahlberg AC, Cedersund E, Wredling R. Bases for telephone advice nurses' assessments. Manuscript.

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### **LIST OF ABBREVIATIONS**

A&E	Accident and emergency department
ANC	Antenatal clinic
BVC	Barnvårdscentral (child clinic)
DSS	Decision support system
EMD	Emergency medical dispatching
MVC	Mödravårdscentral (see ANC)
NHS	National Health Service
TAN	Telephone advice nursing



## INTRODUCTION

This thesis has the focus on telephone advice nursing (TAN) as performed as a separate service, usually practiced at health care call centers. TAN has lately more come into focus in society, both in Sweden and internationally, even though it has been practiced for over half a decade. The thesis will first give a background description of the TAN context and then the methods used and findings will be presented. Finally, the discussion will try to bring the findings of the five different studies together and the future will be highlighted.

### **COMMUNICATION IN HEALTH CARE**

Communication can be defined as “social interaction through messages”. In the study of communication two main schools exist, where one sees communication as the “transmission of messages” and the other “the production and exchange of meanings” (Fiske 1982, p.2). Many studies show that communication between patients and health care professionals is a factor of great importance for the perceived adequacy of health and medical care. It is also argued that communication is influenced by the contexts in which it is produced (Johanson 1994, p.16). The exchange of information on the health problem in face-to-face consultations relies primarily on effective verbal communication between the health care professional and the patient, but nonverbal communication also plays an essential role in a consultation. Buller and Street suggest that one of the most important communication patterns relates to the elicitation and exchange of information that is complete, truthful and comprehensible (Buller & Street 1992, pp.119-121).

### **THE TELEPHONE AS A COMMUNICATION TOOL**

The telephone conversation takes priority in our daily lives. Using the telephone we can speak across distances and across social barriers. We expect to reach others quickly and to accomplish our goals. In telephone conversation, two people cast their voices across electronic distance. From telephone experience, we discover the centrality of speech in communication and the centrality of dialogue in interaction. Telephone speakers achieve smooth transitions between speaking turns (Hopper 1992, pp. 3-7).

Women’s use of the telephone helped to maintain family and community ties; it was typically denigrated as time wasted in trivial gossip (Sandelowski 2000b). However, the telephone may also function as a barrier between citizens and the public institutions and, when used as a medium for contacts in this way, it gives

the organization a way of controlling the “intake” of new clients. The telephone calls tends to be shorter than face-to-face consultations and thereby saves time for the officials (Cedersund 1992, pp. 4-5).

## **NURSING AND TECHNOLOGY**

Technology can be defined by its hardware and as a set of activities, such as making, designing and using, as a way of organizing labor and social relations, as a typology of knowledge and as encompassing human choices. Technology is context dependent in both speech and in the world, functioning semiotically as cultural sign, as cultural artifact and as culture itself. Technology shapes professional responsibilities, the relations of health care providers and, above all, the relationship between the individual provider and her or his patients. The new technological interventions during the last century radically altered both the experience of illness and bodily experience (Sandelowski 2000a, pp. 1-2).

Nurses have used a variety of tools, instruments and machines to treat and comfort patients. Nursing roles, such as the “intravenous” nurse have been built around technological devices (Sandelowski 2000a, pp. 1-2). Today telephone technology is an important component of telehealth systems, including telemetry, telemedicine and telenursing (Sandelowski 2000b). The nurse-technology relationship can be seen as a part of the political, social and economic process. Technology reflects social decisions and cannot be understood outside social, political, economic and cultural context. To think about technology in this way should empower nurses to participate in the decision-making process in the choice of systems and how it is used (Fairman 1998).

## **TELEPHONE NURSING**

The telephone was among the technologies that transformed the world and the work of the late 19th- and early 20th- century nurse (Sandelowski 2000b). It was intended to shorten the distance between people and this is an excellent example of the paradox often embedded in technologies. Technologies are increasingly revolutionizing nursing practice, as they enable long-distance, nurse-patient relationships to be created. Nurses and their patients here no longer occupy the same physical space (Sandelowski 2000b). The nursing role of the late nineteenth century and until recently was linked to hospitals (Lutzen & Tishelman 1991). Since patients’ bodies used to be the primary site of nurses’ work, nurses’ bodies have been the primary tools with which they have accomplished it. Moreover, in linking technology with dehumanization, nurses presented themselves as the boundary workers between two disparate forces of technology/touch and humanism/care. However, the new virtual geography of nursing practice challenges nurses’ traditional ideas of place and presence, as it calls into question bodily presence as essential to being there and to patients’ feeling

that their nurse is there for them. Over the last century, the nursing care has moved from the home to the hospital and back to the home again. And at the turn of the 21st century, it is moving to a place created and sustained by computers and communication lines. Tele-nursing practices; telephone nursing, telemetry, videoconferencing and video monitoring are examples that nursing care no longer needs to take place in any pre-determined physical space (Sandelowski 2002).

### **THE TELEPHONE ADVICE NURSING (TAN) CONTEXT**

There are several descriptions and definitions of general nursing. However, some argue that it is difficult to define nursing (omvårdnad), and that it is a constantly changing concept (Asplund 1995). The existing definitions primarily have in common the idea that the perspective of the individual is emphasized (Rolfe 1996, pp.11-12). The American Nursing Association defines general nursing as “..the diagnosis and treatment of human response to actual or potential health problems” (1980). The relationship between telephone advice nursing and the definition is apparent; here the human response to both actual and potential health problems is predominant, and not always the actual medical symptom or problem (Wahlberg & Wredling 2001).

This thesis deals with telephone advice nursing as performed as a separate service, usually located at health care call centers. TAN in this context is defined from the telephone nurse point of view as:

- triage – assessing the urgency of care needed
- giving advice, support and education
- referral to an adequate level within the health care service
- providing health care information
- coordinating health care resources

#### Triage

Triage has been described as the nurse making a quick clinical judgment regarding the health status of an individual, the nurses' response to the presented health problem and the situational context (Edwards 1998) and part of the diagnostic function of nursing (Benner 1984, p. 97). In triage the ability to focus immediately on crucial problems is a demand, it denies nurses the systematic thought, forcing them to depend instead upon judgment (Benner & Tanner 1987). Ever since Florence Nightingale established the practice of observation that legitimized the need for trained nurses, nursing has been synonymous with watchful care, that is, with looking for signs of improvement or decline in the patient's health and with looking after the patient's comfort, safety and well-

being (Sandelowski 1998). By the 1930s, assisting the physician in examining patients and in making diagnostic tests was one of the twelve aspects of nursing skill identified in an analysis of nursing activity. However, physicians have reserved the act of diagnosis for themselves (Sandelowski 2000a, p. 87), and that is still the case. In telephone advice nursing, nurses do not diagnose the caller's disease or illness; they assess the caller's health problem. Nevertheless, the nurses often have an idea of a diagnosis, but only sometimes share it with the caller. Nevertheless, in one study, nurses explained that they did not take part in the diagnosis, since they did not inform the callers about it. Tjora argues that the nurses in his study were involved in making diagnoses but did not define it as such, in order to keep a low profile in due to politics (Tjora 2000). Leppänen states that nurses in primary care are not expected to diagnose those seeking help (2001) and that nurses are sometimes approached as "secretaries" when callers use a request format with a request for a physicians' appointment with a self-made diagnosis (Leppänen 2000). Therefore, the word "assessment" (*bedömning*) is used in this thesis. However, Marklund found already in 1991 that, in 96 % of the telephone consultations, the same assessment was made as later in face-to-face consultations at a primary care center (Marklund et al. 1991).

#### Advice, support, education

Advice can be defined as "guidance and recommendations offered with regard to future action" (Oxford Dictionary 1999). Benner would call this the teaching-coaching function (Benner 1984). This is also a part of the intervention in TAN (Omery 2003). Advice includes mainly self-care advice, which represents approximately 50 % of the outcomes of the calls to a well-functioning health care call center (Swedin & Norberg 1998). Self-care advice includes recommendations on how care-seekers can manage their health problems at home by themselves or with relatives. Before giving *advice*, the nurse has to assess the care-seeker's need of care. For instance, one cannot give advice on how to cope with a small child who is vomiting until one has assessed whether the child can stay at home or should visit a health care service.

Support is included in the advice part of TAN and may include finding an acceptable interpretation or understanding of a health problem, including pain, fear, anxiety or other stressful emotion (Benner 1984, p. 49). An example within the telephone advice area is a caller who is performing adequate self-care at home, but needs to share concerns or to check that the self-care performed is adequate.

Education is an important part of the advice giving in telephone advice. Teaching is important for the care-seeker's preparation for and recovery from a health problem (Benner 1984, p. 77). In TAN it is frequently a question of teaching parents how to maintain a diet for their child who has diarrhea, or how to get rid of a tick and what to observe afterwards.

### Referral

Approximately a quarter of the outcomes from a call center are referrals to health care services, for example, to:

- primary care; health centers, ANCs (MVC), and child clinics (BVC),
- hospitals; accident and emergency department (A&E), specialist clinics, by ambulance,
- private specialist clinics,
- chiropractors and so on.

### Information

Information in TAN includes all kind of information about the national health care system, including opening hours, fees, and waiting lines for surgery. When providing care-seekers with information, no health assessment is needed, for example, a caller asking if one can use paracetamol while taking antibiotics.

When NHS-Direct started in England in 1997, the purpose of the new service was to provide easier and faster advice and information for people about health, illness and the National Health Service, so that they could act for themselves and their families (Munro et al. 2000). The information part of TAN is as important as the rest. Nevertheless, in Sweden, some attempts to exclude the information part have been made, with the idea that giving information about the health care system can be done by anyone, and one does not need to be a trained nurse to do that. However, an inquiry from a care-seeker about where to find the nearest A&E department may be transformed by a nurse into self-care advice. The telephone nurse may ask the caller about the problem and assess it as belonging to another level of service. People usually call health advice lines because they do not know how to handle the health problems that they or their families experience. A call about the address of an A&E department may not end up in a visit to such a department. If, however, a call-handler without training in health care would took that call, the care-seeker would probably end up in the A&E. Information is an important part of TAN and it instils in the caller a feeling of security, for instance, to know when she or he needs a health care service and where to go. Lack of information is a common source of patient complaint and is needed for patients to feel well cared for (Widmark-Petersson 1998, pp.49-50).

### Coordination

Coordination of health care services, most frequent in out of hours, is a significant but time-consuming task. As described below, this is the assignment that the TAN call center developed from (see The Swedish Development below). For instance, some care-seekers are assessed as in need of a visit from a physician, a district nurse or a home service on call, or in need to order an ambulance, and the telephone nurse provides the service.

## **THE TELEPHONE NURSE**

A telephone nurse is in this thesis defined as a nurse working mainly on giving telephone advice. In the future there might be formal training for nurses working with giving care over the telephone. So far, in Sweden, there have been several short courses, usually for 7,5-15 credits (5-10 weeks) but in the future the telephone nurse can be a nurse with specialist education, for instance, a Graduate Diploma in Primary Health Care Specialist Nursing or a Graduate Diploma in Emergency Care Specialist Nursing – Prehospital Nursing and with an approximately one-year (60 credits), telephone nursing, continuing education.

## **EMERGENCY MEDICAL DISPATCHING (EMD)**

The publicly owned company SOS Alarm manages the emergency medical dispatching in Sweden. Today there are 20 SOS emergency dispatch centers. All 112 emergency calls are received at the centers and the SOS operators also connect care-seekers with, for instance, fire departments, the police and the poison information service. EMD have been the least trained link in pre-hospital care (Calle et al. 1996) and approximately 35 % (n=199) of the 570 SOS operators have some kind of health care training, among these, assistant nurses 71%, registered nurses 18% and paramedics 11%. At one of the dispatch centers there is also a physician who assists in the dispatching. The SOS operators are required to pass a theoretical individually based education, consisting of a 40-hour, interactive web-based program in medicine and including three days of lectures and training at an SOS center. Annually, they receive 16 hours of continuing education and their knowledge status is tested (Wahlberg 2002). The protocol used in Sweden is a system originally developed in King County, Washington, in 1990 and further developed in Norway in 1995. Three priorities are used: Priority 1 Acute life threatening conditions or accidents, Priority 2 Acute but not life threatening symptoms, Priority 3 Transport. The dispatch centers receive annually 800,000 emergency medical calls, of which 25 % are priority 1. Of these 75 % involve acute illness and 25 % accidents. Priority 2 represents 20 % of the calls and priority 3 50 % (Bång 2002, p. 15).

Telephone assessments in 112 calls are similar to the calls to a health care advice line (Hälso- och Sjukvårdsrådgivning). EMD includes all of the objectives in TAN, but least regularly the information part. People sometimes call the emergency number without having life-threatening symptoms or being in need of an ambulance, and some may use the non-urgent advice line when in need of immediate care (Wahlberg & Wredling 1999; Wahlberg 2002).

## **THE SWEDISH DEVELOPMENT OF TAN**

Telephone advice is provided everywhere within the Swedish health care system. Call centers, primary care centers and specialist surgeries are common providers,

but insurance companies and pharmaceutical manufacturers also have lines open to the public. In addition, help-lines for different diagnoses, for example, poison information, HIV and tinnitus exist. However, the two first mentioned have a developed form of TAN, but they differ in some respects. This is described in the report on the investigation about the co-ordination of the Swedish call centers (Swedin 2003b, p. 9):

A telephone nurse at a *health care call center*:

- can be reached at any time and any day
- generally does not know the caller and has no access to the caller's health record
- works only on telephone advice
- answers questions concerning acute and occasional health problems

A nurse answering the phone at a *primary care center*:

- can be reached only in call hours
- often has access to the caller's health record
- often knows the caller
- often takes calls from patients undergoing treatment
- books appointments with the physician

#### Telephone advice at call centers

During the 1930s patients started to enter hospitals, not only to receive medical or nursing care, but also to find out whether and why they were sick (Sandelowski 2000a, p. 82). A burgeoning, health care call center (Sjukhuscentralen) first opened in Stockholm in the early 1930s. It worked as a coordination center for referring patients to hospitals in the city. Later, booking physicians and nurses on call and dispatching ambulances, were included.

During the 1960s, nurses became the primary users of telephones for triage, appraisal, monitoring, support and treatment (Sandelowski 2000b). In 1968, a valid call center (Sjukvårdsupplysningen) replaced the old center in Stockholm. The assignments were the same, but more nursing staff was employed to answer questions from the general public. In 1986, the call center was located at the SOS Alarm Emergency Dispatch Center but since 2000 Telefonakuten AB in Stockholm has run the call center. Other parts of Sweden have call centers as well, at least since the 1960s.

In the late 1990s, only five regions in Sweden had separate call centers but since the fall of 2003 17 regions out of 21 have advice lines (Hälso- och Sjukvårdsrådgivning) with separate numbers, open 24 hours a day, all the year round and staffed by trained telephone nurses (Swedin 2003b, pp. 20-23).

A proposal that call centers in several county councils should co-operate is made in a report presented by the Swedish Federation of County Councils

(Swedin 2003b). It is here recommended that the service should be reached by a national phone number-1177 – and thereby increase the value of advice by phone for the public and for the care providers. By sharing extra resources, for instance, nurses who speak a foreign language the phone service can be extended also to those who do not speak Swedish (immigrants and minority populations) (Swedin 2003b, p. 59). In early 2003, a project was set up to build a new, national, decision support system and to co-ordinate the call centers with the new national number (Swedin 2003a).

#### Telephone advice in primary care

Telephone lines were set up in the 1970s and are now to be found in most primary care centers. This was motivated by the growing number of one-person or one-generation households and on that account decrease in the knowledge of illnesses. Other reasons were to increase efficiency and meet the shortage of physicians (Marklund & Bengtsson 1989). During the 1990s, it was a reception nurse who took the calls (Timpka & Arborelius 1990). Today, several centers employ telephone nurses who work on telephone advice only. The nurses' primary tasks here are to assess callers' needs of care, and, if needed, to book an appointment with a physician. They also give advice and inform callers of other caregivers. According to Leppänen, the nurses have an important gatekeeping function (Leppänen 2000, p. 3). Holmström describes the conflicting demands on nurses to be both carers and gatekeepers, that is, loyal both to the health care system and to the patient. The nurses wanted to act in accordance with the patients' needs, but the lack of resources, led to more of a "fix the error" type of care (Holmström & Dall'Alba 2002).



## AIMS OF THE THESIS

The overall aim of the thesis was to explore the core of telephone advice nursing from different perspectives; the care-seeker, the emergency medical dispatching and the telephone nurse. This was approached with the following specific aims:

- To identify the problems that prompt people to call a health care call center, the outcome of the contact and how satisfactory they felt it was.
- To describe callers' experiences of their contacts with a health care call center, and to analyze the nature of the evaluated experience of their consultations with telephone nurses.
- To explore factors and circumstances related to complaints in Emergency Medical Dispatching filed at the Swedish National Board of Health and Welfare (Socialstyrelsen), the Medical Responsibility Board (Hälso- och sjukvårdens ansvarsnämnd) and the Patient Advisory Committees (Patientnämnder).
- To explore the problems, difficulties and disadvantages that telephone nurses with varying degrees of experience have met in their daily work with telephone advice nursing.
- To explore what nurses base their assessments on, as revealed in studying authentic calls to a health care call center, and what nurses choose to comment on in interviews.

## METHODS

### PAPERS I-II

Since very little was known about people using the health care call center where help was available 24 hours a day, every call (n=2866) was registered during one week in April 1997. During the study week approximately every tenth caller was invited to participate in a questionnaire study concerning experience of her or his contact with the center. Callers who had asked for a telephone number only were excluded. Of a total of 220 persons, 203 agreed to participate in the study and stated their names and addresses.

The questionnaire was mailed to respondents approximately two weeks after their calls and one written reminder was sent. Of the 203, 144 (71%) completed the questionnaire.

#### Questionnaire

The questionnaire (25 items) was developed for the study on the basis of the authors' work experience. The first author had worked on telephone advice at a call center for five years. A group of nurses at the study site judged the questionnaire regarding the relevance and appropriateness of the individual items and they were subsequently revised according to suggestions made. The revision concerned only wordings. The participating callers were asked to state their personal particulars as regarded sex, year of birth, and educational level. The outcome of the consultation was evaluated through nine items. There were also two questions concerning caller satisfaction and dissatisfaction. One of the questions was phrased: 'Did you receive from the medical call center the help you anticipated?' The response alternatives were: 'yes completely', 'yes partly', 'no – to a minor degree', 'no – not at all'. There was also space for voluntarily comments. The second question was phrased: 'If you think anything was unsatisfactory in your contact with the medical call center, please give your comment below'. Of the 144 respondents, 81 (56%) chose to comment on their experience in this matter. The 81 responses contained 140 statements. The present paper is based on the voluntary comments on the two questions.

#### Analysis Paper II

All the responses to the questions were read through once by the first author, to gain an overall picture of the content (Sandelowski 1986). The answers were then transcribed and put into the Nud\*ist computer program (QSRNud\*ist

1997), which was used to simplify the analysis steps of coding and categorization. After reading the statements several times, a pattern of codes and categories emerged. The data was explored for emerging themes related to satisfaction and dissatisfaction. After the first reading 29 codes were identified which after repeated readings of the transcripts were reduced to 20 codes. When studying the 20 codes a pattern of categories emerged and were sorted in subgroups. The comments emerged in two categories, the practical and the emotional aspects. The designations of the codes and categories created originated from the responders' answers and also from the interpretation of the statements (Coffey & Atkinson 1996). The general and specific sources of satisfaction and dissatisfaction were then classified according to the number of callers who commented on them. This was done to make the qualitative data more intelligible (Sandelowski 2001).

To ensure interrater reliability, the two present authors analyzed the responses to the open-ended questions independently. All the statements were compared, and the majority of the second author's classifications proved to agree with the first author's classifications. Whenever disagreement appeared, the rating was done again until consensus was achieved. A telephone nurse in charge with six years of experience of telephone advice work studied the probability of the categorization.

### **PAPER III**

#### Data

This was a retrospective review study of all decisions on complaints filed between 1991 and 2000. The decisions concerning EMD complaints were filed with three different bodies:

- Patient Advisory Committees (1993-2000)
- Swedish National Board of Health and Welfare (1991-2000)
- Medical Responsibility Board (1993-2000)

Among the 23 Swedish Patient Advisory Committees, only six had filed complaints regarding EMD and the complaints numbered 24 altogether. Thirteen committees stated that they had no filed complaints regarding EMD and four did not respond to the inquiry regarding complaints after one reminder. The Swedish National Board of Health and Welfare found 20 cases and the Medical Responsibility Board found 10 that involved EMD.

#### Analysis

The data analysis was performed in two phases to explore factors and circumstances that contributed to misjudgments and/or filed complaints and not to pinpoint individuals who might have faulted. The categorization in both phases

was carried out impartially and no categories were predetermined, except for personnel categories and disciplinary sanctions.

In the first phase, all complaints were read through once and primarily categories of cause were revealed. In the second reading, the causes were identified and categorized. In this phase, the personnel categories were also identified. This phase were carried out to get an understanding of why the complaints had been filed, and to identify the issues that could initiate complaints.

In the second phase, the complaints were read repeatedly read and factors and circumstances were explored that had contributed to misjudgments and/or the filing of the complaints. The identified complaints were categorized and accounted for. The categories emerged from the wordings and the statements in the complaints, for example, “andrahandsuppgifter [second-hand information]” or “hustrun kontaktade” [the wife contacted].

## **PAPER IV**

### The Delphi Method

Linstone and Turoff (1975) recommend the Delphi technique in cases in which for example, the problem studied benefits from subjective statements made on a collective basis, in which more individuals are needed than can interact face-to-face and where one wants to avoid the domination of a group on an issue through quality or strength of personality. The Delphi technique is used to produce a convergence and a consensus of opinion on a particular topic (Goodman 1987). The technique is gaining popularity among nurse researchers and can expand nursing knowledge in important care areas (McKenna 1994; Gibson 1998; Wengström & Häggmark 1998). The present data collection consisted of three sets of mailed questionnaires, with one written reminder per questionnaire.

### Participants

The nurses selected for this study were telephone nurses employed to work principally on telephone advice. A geographical spread was desirable to represent the differences between various parts of Sweden, for instance, big cities and provinces. Nurses working at the existing six, health care call centers open 24-hours a day were asked to participate. The first author informed the manager at each center about the study and the managers informed the nurses at annual meetings. Interested nurses were asked to forward their names and years of work experience to the first author. Of the 29 nurses eligible for the study, four were not chosen owing to the risk of imbalance, since they came from one large call center with nine eligible nurses. Finally, five nurses each from five different areas of Sweden were included.

Of the 25 participating nurses, 24 were female. The mean age was 48 years (range 33-63). The mean duration of employment at the call centers was 8 years (range 1-26) and in telephone advice in general 10 years (range 1-26). All 25 telephone nurses participated in all three phases and the response rate was 100%.

#### Questionnaires and analysis

The questionnaire for phase 1 (8 items) was developed for the study by the authors. A telephone nurse with six years' experience of telephone advice studied and commented on the questionnaire during the development. The questionnaire covered background information on the year of birth and sex, the year qualified, further nursing training, length of employment at the call center and length of work on telephone advice altogether. One item concerned work experience in other nursing specialties. Finally, in the questionnaire the telephone nurses were asked to answer the main open-ended question 'What problems have you experienced with telephone advice?'

All the responses to the questions were read through once by the first author to get an overall picture of the content (Sandelowski 1986). The answers were then transcribed and put into the Nud\*ist computer program (QSRNud\*ist 1997), which was used to simplify the analysis steps of problem categorization. After the statements had been read several times, a pattern of categories emerged. Some phrases contained more than one category. The three present authors analyzed the responses to the open-ended question independently. All the statements were compared and whenever disagreement appeared, the rating was done again until consensus was achieved. Twenty-four problems were identified from the responses to the open-ended question.

The second-phase questionnaire covering the 24 problems identified in the first phase was also mailed to the participating nurses. The respondents' own wordings were used in listing the 24 items (Hasson et al. 2000). Of the 24 problems, the nurses were here asked to rank the 10 greatest problems in descending order. Fourteen problems were thus omitted from the rating.

The results of the ratings were put into the StatView computer program (1992-98). The numbers were reversed, in order to simplify presentation, i.e. number 1 was transformed to 10, the second biggest problem 2 was changed to 9 and so on. In the data analysis, frequency distributions were used to illustrate proportions: the ranked numbers of each problem were summed and the mean was calculated.

In the third-phase questionnaire, the respondents were asked to rate 10 problems emerging from the second questionnaire. The summative Lickert rating scale was used since this is usually reliable (Cohen et al. 1996). Here each item presented the respondent with seven alternative responses, in which 1 was 'no problem' and 7 'a very big problem'. The results were entered into StatView 5.0 and the mean was calculated. For face validity, the findings and categories were discussed with three different groups of working telephone nurses.

## PAPER V

### Participants

The telephone nurses selected for this study was a convenient sample. Seven telephone nurse respondents at a health care call center in Sweden were interviewed. The call center is located in the northern part of Sweden and serves approximately 250,000 inhabitants, living in towns but predominantly in rural areas.

### Procedure and analysis

Professionals often recognize phenomena every day but cannot say what they know (Schön 1991, p. 49). Stimulated recall technique was chosen as method so the nurses could comment on how they were thinking during their own authentic calls. Stimulated recall technique enabled us to explore telephone advice from a realistic point of view in an actual environment of health care. The common number of interviews using stimulated recall is around 12 to 15 (Hansebo & Kihlgren 2001; Liimatainen et al. 2001). Two authentic calls per nurse were the basis for the interviews and therefore 14 interviews were performed. The first author informed the telephone advice nurses at the call center orally about the study and gave written information. The nurses could then voluntarily participate in the study. The nurses were asked to choose typical calls dealt with during the previous week. It was important that the calls were not too brief and that they included an assessment of care needed. During the interviews, the participating nurses were asked to fill out a questionnaire containing questions about sex, year of birth and duration of telephone advice working experience.

The participating nurses were females and the median age was 52 years (range 47-62). The median duration in overall working experience in nursing excluding telephone advice was 12 years (range 5-22 years) and on telephone advice 15 years (range 3-25 years).

Stimulated recall interviews included the following:

1. The researcher and the respondent together listened to the authentic taped consultation
2. The tape was played again and the respondent was asked to stop the tape for comments
3. The researcher stopped the tape for questions during the third playing of the tape.

In phase 2 the nurses were instructed to stop the tape when they wanted to comment on their actions and on how they were thinking. During phase 3, the interviewer asked the respondent to comment on anything that the researcher thought had been missed or was unclear during the second phase. The whole session was taped (Erickson & Shultz 1982). The interviews lasted between 20 and 45 minutes.

The tapes were transcribed verbatim and the material was imported in the Open Code computer program ("OpenCode" 2001) only to simplify the coding and categorization. A qualitative content analysis was used for analyzing the data (Sandelowski 1986, 1993). Content analysis is the process of identifying, coding and categorizing the primary patterns and this means analyzing the content of interviews and observations. The members of the research team studied the interviews and the coding was then compared and discussed (Patton 1990, pp. 381-383). The readings followed the phases in the interviews. First the interviews were read through once. In this phase, the focus was on what the nurses based their assessments on, as found in the authentic consultation. The content of the calls was the data coded in this phase. The second and third phases focused on the nurses' comments regarding their bases for the assessments and the nurses' comments were here the basis for the coding. When analyzing the calls 14 codes and in the comments 20 codes were identified. When reading the coded text units from all phases 12 codes seemed to overlap between phases. Thus after merging 22 codes remained. These 22 codes were classified as related to three different general categories. In two of these main categories two subcategories each could be identified.

### **THESIS - COMPILATION**

To increase the understanding of the area of TAN an attempt of bringing the findings from the studies with diverse methods in the last part of the **Results** section is presented. Findings from complementary studies enable greater depth and increased scope in inquiry by providing information that should fit together. The findings in each study should complement each other, thus validating the research as a whole (Sandelowski 1995; Morse 2002). All categories found in studies II-V, were fit into care-seeker, nurse and organization perspectives and linked with each other when appropriate.

## RESULTS

### CALLERS (I-II AND THESIS)

The studies of the callers describe the characteristics of users of a health care advice line in a big Swedish city during a week in spring in the late 1990s. Of the 2866 callers, 1742 were female (61%) and 1106 were male. Only among children under the age of 10 were the males as inclined as the females to use the call center. The majority of people for whom advice was sought were children under the age of 10 and individuals between 20 and 40. 1057 (47%) of the calls were made on behalf of somebody else. The vast majority of these callers were parents with children under the age of 18. The most common reasons for consulting a telephone nurse were symptoms of infections such as colds, influenza and diarrhea. The second largest reason was chest or abdominal pain. Altogether twenty different reasons for calling were found in the study.

The overall results showed that 49 % of the care-seekers received self-care advice, but if one studied the advice given during the evening and night, the proportion of self-care advice increased (Table 1). This could be interpreted as due to the fact that the proportion of "information" decreases, but it can also be seen that the number of ambulances and recommendations to visit the A&E increases.

*Table 1 Advice given during different times of day (n=2571).*

Advice	Day n (%)	Evening n (%)	Night n (%)
self-care	349(39)	441(46)	459(63)
information	314(36)	229(24)	89(12)
physician	160(18)	221(23)	79(11)
A&E	38(5)	55(5)	74(10)
district nurse	11(1)	7(1)	1
ambulance	11(1)	7(1)	21(3)
ambulance (priority 1)	3	1	1

The question in the questionnaire as to whether the callers followed the nurse's advice was answered by 136 persons out of 144. Of these, 85% (n=116) stated that they followed the advice, 8% (n=11) said that they did not follow the



advice, and 7% (n=9) stated that they felt uncertain and contacted some other health care provider, for example a hospital or a primary health care clinic. 85% (n=121) stated that they received in full the help from the health care call center that they anticipated, 11 % (n=16) said “yes, partly” and 4 % said “no, little” (n=3) or “no, not at all” (n=3).

#### Callers' perceptions

*I have always got good advice and above all, the nurse listened to me. One often calls because one is worried!*

This is how one of the callers described how she used the call center. This and the other statements in the second study generated satisfactory (n=97) and unsatisfactory (n=43) statements and two categories; the *practical* (n= 81) and the *emotional* (n=59) aspects of experience.

The *practical* aspects were as follows:

*Accessibility* (n=33) The statements in this category concerned the problem of not being able to get through to a nurse. Either the line was engaged and/or the wait was very long before getting through. This problem of not knowing whether the caller could reach a nurse was linked to a feeling of insecurity.

*Caller convenience* (n=5) The caller's convenience included respondents' comments on a positive outcome of a call to the center. Callers save time and money when they receive a medical assessment and self-care advice, instead of having to attend a health care clinic.

*Nurse knowledge* (n=43) The nurse's knowledge included both satisfactory and unsatisfactory comments. The majority of callers reported that they had got adequate advice.

The *emotional* aspects were as follows:

*Caller management* (n=21) This category contained comments on the feeling of security and the calming effect experienced from the call. All comments in this category reflected satisfaction. The callers wanted to be calmed down and confirmed in their thoughts and ideas.

*Nurse behavior* ( n=38) The category of nurse behavior contains both positive and negative comments. The comments showed that callers had been kindly treated, had experienced professional nursing behavior, had been met with support, had been listened to and received empathy. However, they had also experienced insecure nurses and one comment deals with a nurse's lack of interest in the caller's problem.

In this study, the dimensions of security and insecurity were interwoven in nearly all the categories and explicitly commented on in eleven statements. We have used the term “security” for the Swedish word *trygghet* used by several of the responders. Calls to a health care call center often seem prompted by insecurity. When a person, relative or friend gets symptoms of illness that are unfamiliar or difficult to interpret, the caller may start to feel insecure about how

to handle the situation. When the feeling of insecurity reaches a certain point, the caller decides to contact the health care, sometimes wanting to regain the feeling of security and control. The comments show, that through a consultation with a call center nurse, the caller regained the feeling of security. These statements show that just knowing that it is possible to talk to a nurse creates a feeling of security. When the caller receives adequate advice and kind treatment, the caller tends to trust the nurse and follows the advice. If people do not know whether they can reach a telephone nurse, a feeling of uncertainty spreads. If the call center is difficult to reach some people may visit an A&E department or a health care center instead (Figure 1).



*Figure 1* Illustration of a relationship between the caller's perceived experience and the possible outcomes of the nurse consultation.

### COMPLAINTS (III)

The analysis of the complaints filed with the Medical Responsibility Board, the Swedish National Board of Health and Welfare and Patient Advisory Committees revealed that there was more than one caregiver per filed complaint and that some complaints also consisted of several categories. The following are the categories of cause:

#### *Incorrect priority*

The reason for a filed complaint was assessed in 13 cases as an incorrect priority. In all these complaints, SOS operators had given the ambulance an incorrect priority. In these cases, the care-seeker had been more seriously ill than the operators had understood. In five of these complaints, the operators received disciplinary sanctions.

#### *Ambulance not dispatched*

Eleven cases had been categorized as the outcome of the call not resulting in the dispatch of an ambulance to the care-seeker. In these cases, the call-taker concluded that the care-seeker was not in need of an ambulance.

*Ambulance denied*

In this category, the call-taker actively denied the care-seeker an ambulance. The personnel affected in eight of the complaints were SOS operators; there were nurses in two and no personnel category was stated in four. In one complaint, a disciplinary sanction was imposed, owing to insufficient interview of the caller.

*Ambulance delayed*

Here the callers have perceived the arrival of the ambulances as too late. In three complaints, SOS operators were the identified personnel category but in the rest of the cases there was no identification.

*Bad treatment*

In these eleven cases, the callers perceived their treatment by the call-takers as being bad or unpleasant. One of the complaints resulted in a disciplinary sanction for not treating the patient with respect and care.

*Incorrect referral*

This category comprised only one complaint, which resulted in a disciplinary sanction. The care-seeker was asked to wait until the next day, instead of being referred to the dentist on call.

## Factors and circumstances

In 37 out of the 54, cases the complaint was identified concerning the decision-making process. Some of the complaints used in this study did not contain complete information regarding the cause of the complaint. Nevertheless, if one studies only the complete complaints, the complaints filed with the boards, 21 out of 30 concern the decision-making process. In the review of all the decisions on the complaints, it can be observed that certain factors and circumstances influenced the misjudgments. In 23 out of the 54 complaints, the call-taker was not able to speak directly to the care-seeker. Twenty of these pertained filed complaints with the Swedish National Board of Health and Welfare and ten complaints filed to the Medical Responsibility Board. Of these, 21 complaints concerned the decision-making process and 19 were based on second-hand information. Regarding the other two, in one case the caller talked directly to the sick person and in the other complaint it was not stated who made the call.

**TELEPHONE NURSES (IV, V)**

## Problems experienced (IV)

The open-ended question as “what problems have you experienced with telephone advice?” generated 154 statements, which were categorized in 24 problem categories. Ten problem categories were mainly related to the *nurse perspective*, i.e. the problems associated with the qualities of the nurse. Several of the categories related to the nurse perspective dealt with the loss of the direct and

visual communication that nurses normally use for assessing patients, that is ‘not seeing the patient’, ‘perceiving the unspoken’ and ‘second-hand consultations’. The difficulty of making the right decisions was brought up in ‘always making a decision’, ‘knowing when to refer’, and ‘asking the right questions’. The complexity of the relationship with people who were in contact with the nurses was mentioned in ‘communication with health care staff’, ‘always being calm and friendly’ and ‘everyone satisfied’.

Eight categories principally belonged to the *patient perspective*, i.e. problems associated with caller characteristics. Several of the categories dealt with patient behavior as ‘callers overstate/understate’, ‘convincing callers not to visit health services’, ‘callers’ trust/demand’, ‘aggressive patients’ and ‘patients’ listening difficulties’. Other categories within this perspective were ‘immigrant problems’, ‘psychiatry/addiction’ and ‘patients’ poor knowledge of the body’.

Six categories mostly related to the *organizational perspective*, i.e. problems linked with the organization of the national health service. One of the categories, ‘lack of health care resources”, dealt with the lack of access to surrounding services. The rest of the categories dealt with internal problems at the work-places, that is ‘often suffering from stress’, ‘keeping up one’s competence’, ‘no feed-back’, ‘faulty working equipment’ and ‘working alone’.

The problem rated by the nurses as the greatest was ‘lack of health care resources”, and the second greatest was ‘second-hand consultation’ (Table 2).

*Table 2 Telephone nurses’ (n=25) measures of the size of the 10 greatest nursing problems experienced in telephone advice.*

Problem	Measure 1-7 1 = no problem 7 = greatest problem
	mean (range)
Lack of health care resources	6,2 (4-7)
Second hand consultations	5,2 (3-7)
Always making a decision	4,6 (2-7)
Not seeing the patient	4,5 (2-7)
Convincing callers not to visit health services	4,4 (2-7)
Often suffering from stress	4,3 (2-7)
Perceive the unspoken	4,1 (2-6)
Callers overstate/understate	4,1 (2-6)
Asking the right questions	3,8 (1-7)
Immigrant problems	3,6 (1-7)

#### Basis for assessments (V)

Like the problem experiences stated by the telephone nurses above, the categories found as the bases for the telephone nurse assessments could be related to three different contexts; **care-seeker**, **nurse** and **organization**. In the **care-seeker** category the bases for assessments were influenced by the characteristics of the *individual* such as 'age', 'sex', 'housing area', 'life style' and 'behavior'. The *health problem* itself, of course, influenced the assessment, for example, the 'symptom', 'symptom sounds' and the 'impact of the problem' on the care-seeker.

The **nurse**-related context dealt with the nurses' *knowledge* and *responsibility*. Here the categories dealt with the characteristics of the nurse and her knowledge. 'Nurses' own experiences' and knowledge of 'ongoing health problems' were among the categories belonging to the first subcategory and 'monitoring by telephone' and playing 'safeguard' belonged to the *responsibility* subcategory.

In the main category of the **organization**-related context, only one subcategory was found, 'health care accessibility', the assessments were influenced by open health care services.

The nurses used between 13 and 18 categories as basis for their assessments in their calls. The nurses had a range between 3 and 25 years of telephone advice work experience and this experience did not seem to influence the number of used categories.

### **CARE-SEEKER, NURSE AND ORGANIZATION CONTEXTS (THESIS)**

On bringing the findings of Papers II – V together, an attempt of combining the categories found in the different studies was made. In Figures 2 to 4 only the categories with relationships are presented to clarify the reading of the figures.

The *nurse*-context findings show that several categories are related to 'nurses' own experiences' (V), which include the body of knowledge each telephone nurse possesses. For example, nurses' communication and medical skills are here exposed in both callers' perceptions (II) – 'adequate advice', complaints in EMD (III) – 'insufficient medical knowledge' and telephone nurses' experiences of problems (IV) – 'second-hand consultations' (Figure 2).

In the context of the *care-seeker/patient* the 'impact of the problem' (V) seems to correspond with the findings in several studies. The 'feeling of security' (II) seems to be related to the 'callers' trust/demand' (IV). Also the 'care-seeker behavior' (V) seems to be related to several other findings such as 'language problems' (III) and 'immigrant problems' (V) (Figure 3).

In the *organization* context 'health care accessibility' (V) seems to relate to other results such as 'waiting time too long' (II) and 'lack of health care resources' (IV) (Figure 4).

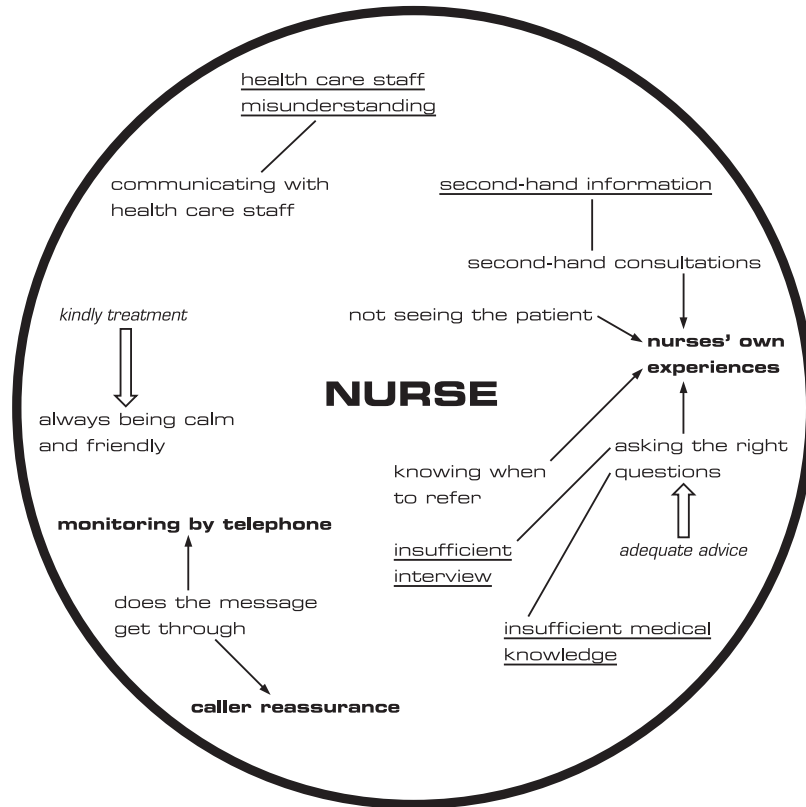


Figure 2 Relationships of categories found in study II – V in the nurse perspective in telephone advice nursing. Callers' ⇔ and nurses' → aspects, **basis for assessments** and circumstances — related to EMD complaints

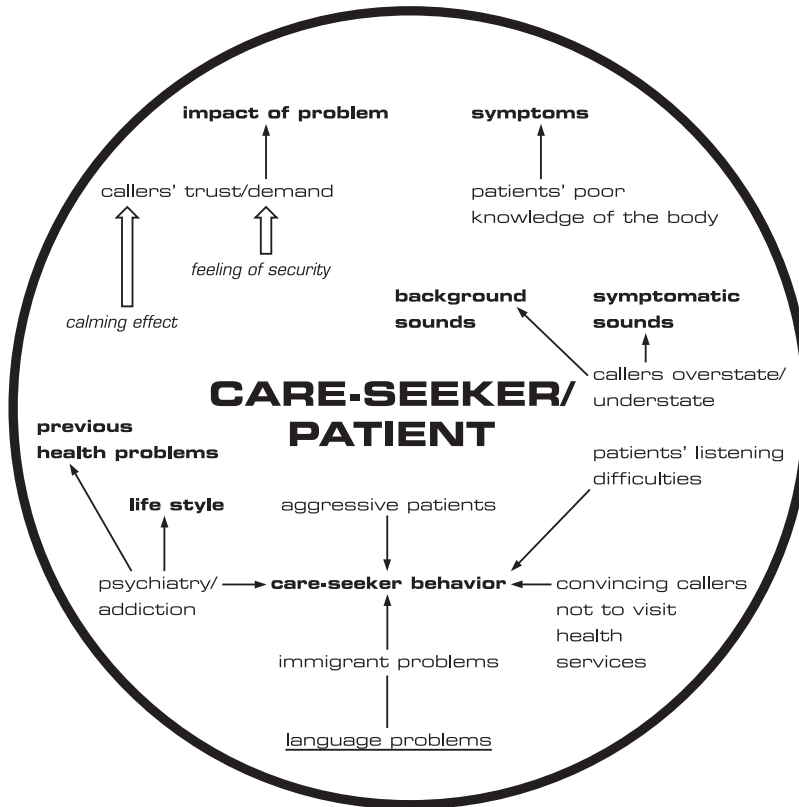


Figure 3 Relationships of categories found in study II – V in the care-seeker/patient perspective in telephone advice nursing. Callers' ⇔ and nurses' → aspects, **basis for assessments** and circumstances — related to complaints in EMD.



*Figure 4 Relationships of categories found in study II – V in the organization perspective in telephone advice nursing. Callers' ⇨ and nurses' → aspects, and **basis for assessments.***



## DISCUSSION

This thesis describes telephone advice nursing and its profession as how it is practiced; it is not a thesis on the theoretical concept of the profession. Sandelowski states that technology has become a way of differentiating nurses; in “telephone nursing”, a new field of practice built around an old technology and nurses offering triage, consultation and primary care services by telephone are “telephone nurses” (2000a, p. 2).

### STUDY LIMITS

In designing the research proposal in 1997, there was a problem in connection with the limited research literature that had been published within the chosen research area. Consequently, the design of the study had of necessity to be explorative and therefore, its generalizability was limited. The methods was, however, chosen according to the diversity of knowledge in nursing practice, which implies the need for an epistemology that enables description and conceptualization of the complexity of human responses to various health care situations (Foss & Ellefsen 2002). Although, the studies in this thesis do match several of the eight thematic content research areas identified in a recently published review. The areas were: delivery and continuity of care to populations, appropriateness of advice given, patient/provider satisfaction, disposition/utilization after calls, reason for calling, cost analysis, process of decision-making and documentation (Omery 2003).

In the first two studies (I and II), the callers should not be regarded as representative of every week and of all existing advice lines in Sweden, since there are differences between the seasons, as regards, for instance, infections spreading in society and differences in health problems between countryside and city. However, some results correspond to those of other Swedish studies (see Leppänen 2002, pp.59-66).

The review of the decisions in the study of the filed complaints in EMD (III) cannot be regarded as consistent, as there have been problems in finding all complaints. There may have been more cases among the Patient Advisory Committees, as some of them recently changed from manual to computerized registration of complaints and therefore encountered problems in their attempts to find older cases. The Swedish National Board of Health and Welfare was not able to find two cases, owing to incorrect registration numbers. Finding cases earlier than 1993 at the Medical Responsibility Board was problematic. There were difficulties in identifying the same complaint filed by two boards. The terminology was also inconsistent; some complaints were filed with the keyword

“ambulance” (ambulans) and some as EMD (ambulansalarmering). At some Committees, the kind of staff involved was not recorded and, in some cases, the data on the complaints were incomplete.

The Delphi Method used in the fourth study (IV) is very useful for initiating discussion on a particular issue, although its ability to produce a consensus of opinion should be viewed with caution. Green et. al. described difficulties in the selection of statements for inclusion in the third round and the importance of analyzing language in a context (Green et al. 1999). The results in our study should therefore be regarded as the starting point for a discussion on how telephone nurses work and what problems they have experienced in their working situation.

In the fifth study (V), the findings would have been more elaborate and other categories might then have been found if the interviews had been made at two call centres. When planning the study, another call center was included, as the intention was to do interviews at two call centers. Five nurses at a second call center had agreed to participate in the study and had even chosen calls, but owing to technical problems, no interviews could be made. Convenience sampling, used in this study, is the weakest form of sampling. When the phenomena of interest are heterogeneous, there is no other method sampling that the risk of bias is greater – and there is no way to evaluate the bias (Polit et al. 2001, p. 236). There was also no internal order of the categories in the study and no statement regarding the importance of each category could be made.

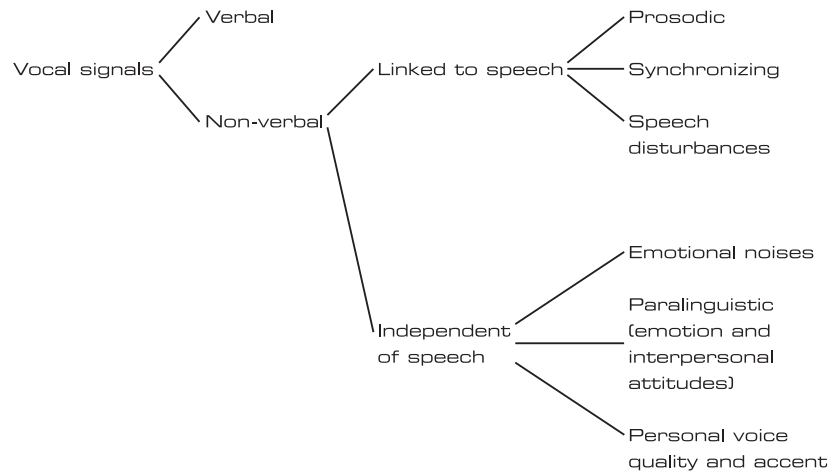
## **NONVERBAL COMMUNICATION**

Human communication involves both intended and unintended messages (Knapp 1984, pp. 22-23). Language cannot be used without nonverbal features and the fact that these cannot carry any information means that for human experience and behavior the nonverbal and verbal have to be treated together (Robinson 2003, p. 98). Nonverbal communication can be defined as communication effected by other means than words. Here the vocal behavior with how something is said is relevant. Two types of sound are included; variations made with the vocal cords during talk, for example, loudness and silence, and sounds that result primarily from physiological mechanisms in other than the vocal cords, for example, the oral or nasal cavities. Specialized sounds, such as laughing and moaning, may also affect the outcome of the interaction (Knapp & Hall 1997, p. 11).

The vocal signals, that is, how things are said, are in some way linked to speech such as synchronization, and some are independent of speech such as emotional noises, for instance, laughs. The way a person speaks can include information about the individual’s personality, age, sex, social class and geographical origin (Argyle 1994, p. 140) (Figure 5).

In interpreting nonverbal cues, one usually listens for discrepancies from the general profile; are there odd cues and why may they be discrepant? However, one should remember that we can be trained to avoid unintended messages, that

is, some people can lie without any indication from contradicting nonverbal cues (Robinson 2003, p. 96). However, we tend to believe the nonverbal message if the verbal and nonverbal contradict each other (Cormier & Cormier 1979, p. 30).



*Figure 5 Nonverbal vocalizations. Classification of different signals describing the information that can be gathered about a speaker. From Argyle 1994, p. 141.*

#### Nonverbal communication in telephone advice nursing

According to Wilson & Williams, telephone communication is considered to have less substance than face-to-face consultations, because of the loss of the information received through body language (2000). However, the findings in several of the studies (III-V) show that nonverbal communication is also important in TAN, since the results seem to be similar in the different studies. Telephone nurses use symptom sounds and background sounds when assessing callers (Wahlberg et al. 2003a). Pettinari and Jessopp also found that background sounds, such as children crying and coughing, might also influence nurses' decisions (2001). This could also be seen when nurses commented on the difficulty of 'second-hand consultations' (Wahlberg et al. 2003c) and the presence of 'second-hand information' in EMD complaints (Wahlberg et al. 2003b) (Figures 2-3). For example, when using an interpreter the nonverbal communication is usually lost. The interpreter does not translate the words verbatim either and a process of decoding and new coding takes place (Englund Dimitrova 1991, pp. 84-86). This implies that talking to another person than

the one in need of care may mean that the telephone nurse receives other information than the sick person would mediate. Background and resources set limits to what can be communicated nonverbally. As mentioned earlier, age, religion, ethnicity, sex and social class influence the nonverbal communication. When learning a second language we are taught how to grunt, and laugh in a foreign tongue (Robinson 2003, p. 90). This could also be true of immigrants after a while in the new country.

### **DECISION SUPPORT**

Telehealthcare systems are politically attractive but clinically contentious technologies that promise new links between clinicians and patients separated by time and space. Some of these technologies are unstable in clinical practice: they are not widely used and there are doubts about their efficiency. However, they seem to be attractive to policy-makers, because they appear to offer a technological solution for existing structural problems that affect access to health care (May et al. 2003).

Nurses working with technology sometimes feel far removed from the process of technology development and decision-making, because they know only the immediate need to keep the machine and the patient functioning (Fairman 1998). The computer is widely used as part of administrative procedures. Pre-coded, computerized forms are used in order to document information about clients. The use of computer systems in the "intake" interview process may have some unintended effects on the communication between the caller and the professional. The computer system may influence the pattern of conversations (Cedersund 1992, p. 5). Technique can overemphasize the maximization of efficiency and the development of conformity and sameness in product, process and thought. Accordingly, it is technique that we must confront, not technical objects themselves. Nurses have delegated the power of decision-making and have relied on technique for the development of professional status (Barnard & Sandelowski 2001).

Telephone nurses are compelled to infer from "reduced data" the conditions and intentions of the care-seekers. As telephones incline users toward interactions involving the communication of information, nurses must work around the telephone to convey the fullness of attentive care. To offset the reductions and inclinations of the telephone, protocols and decision support systems (DSS) have been developed for nursing appraisal and intervention (Sandelowski 2002). However, several studies show that telephone nurses do not want to use decision support systems as a standard method which binds them to rigid rules for categorizing patients (Farand et al. 1995; Hoare et al. 1999; Tjora 2000; Mayo et al. 2002; R. Wilson & Hubert 2002). They feel more comfortable with the use of their own medical knowledge and experience. Tjora (2000) describes in his study of an emergency dispatch center in Norway how the nurses use the

DSS as a knowledge bank and reference, as a post-decision quality control and to check their own medical decisions. According to Tjora the DSS seeks to pre-program nursing work according to an idealized model of medical decision-making, rather than trying to replicate good nursing practice. DSS are often created on the assumption that nurses follow specific rules and only those rules when assessing callers and their health problems. Physicians can, however, benefit from the development of these systems by delegating less interesting and routine activities to nurses and still maintain control of how the nurses perform their tasks. This thesis shows that the nursing knowledge in TAN is far more complex than can be put into a computer program as a whole. The basis for assessments (V) includes several factors that cannot be compressed in protocols or a DSS, for example, symptomatic sounds. However, protocols and guidelines can be used as support for the nurses and for the documentation process, the latter, is compulsory according to the Patientjournalagen ("Act on Patient's Record" SFS 1985:562) and is pointed out as important in the protection of nurses and care-seekers in a court of law (Coleman 1997). Information about the care-seeker such as identity, patient history, diagnosis and intervention should be documented for each call.

### **THE INDIVIDUALISTIC PERSPECTIVE**

Listening to patients, in the sense of making room for their stories, was not an integral part of the nurse-patient relationship, according to Florence Nightingale. She viewed too much talking on the patient's part as an indication of poor nursing practice (Sandelowski 1998). During the past few decades a holistic perspective has been an important foundation in the Swedish health legislation with the intention of making health care professionals pay attention to patients as unique individuals with different wishes and needs; however, some services still lack this perspective (Nyström, 2002).

Professionals within the health care system have sometimes charged medical technology with the dehumanization and objectification of patients and of nursing care. Some nursing literature critical of technology argues that it is opposed to touch and humane care and thereby opposite to nursing practice. Technology belongs to the "troublesome dualisms" such as nature/culture, person/object, female/male and human/nonhuman. Lately, however, research has suggested a more complicated relationship, that technology is context bound. What technology is depends on the historical, social and cultural contexts in which it acts and is acted upon. Barnard and Sandelowski argue that we should emphasize the technique over technology. Many aspects of nursing and health care are structured according to technical demands arising from relationships that emerge because of technique and which emphasize the primacy of means, efficiency and rational order. Technique does not consider individual or cultural differences (Barnard & Sandelowski 2001).

What determines whether technology dehumanizes or objectifies is not the technology itself, but how individual technologies operate in specific user contexts, the meanings attributed to them, how the individual or cultural group defines what is human, and the potential of technique to emphasize efficiency and rational order (Barnard & Sandelowski 2001). Nyström found in her study of an emergency care unit that nursing was perceived as an extension of medicine, involving technical skills and a willingness to be useful to the physicians. The nurses did not think about their patients as unique beings whose wholeness was manifested in feelings and behavior (2002).

Nursing is commonly conceptualized as a caring profession, with the tradition of developing an intimate and emotional relationship with the patient as a part of the therapeutic plan. Technology appears to get in the way of caring and we blame it for interfering and creating distance in the nurse-patient relationship (Fairman 1998). TAN is sometimes viewed as “not real” nursing by professionals in other health care services. The loss of visual contact and face-to-face meetings with the patient makes the nursing deficient. “Real” health care professionals have physical meetings with their patients and without the visual communication one cannot care for the patient properly. However, the callers studied in this thesis and other callers in other studies seem to have been quite satisfied with this type of nursing; here the evidence seem to be conclusive (Patel et al. 1997; Wahlberg & Wredling 1999; Hagan et al. 2000; O’Connell et al. 2001; Chang et al. 2002; Omery 2003). The studies in this thesis seem to point to the perspective of the individual as important, from the point of view of both the care-seeker and the nurse. The caller appears to anticipate being treated as a unique being, taken seriously and receiving a feeling of security from the consultation, which other studies have also found (Farrell 1996). It seems also to be important that the care-seeker shall trust the nurses. Attributes of trust are dependence on another individual to have a need met, choice and willingness to take some risk, an expectation that the trusted individual will behave in a certain way, limited focus on the area or behavior related to the need and testing the trustworthiness of the individual (Hupcey et al. 2001). Some of the results in Paper II appear to confirm that the callers in this study trusted the nurses they talked to, for example in the categories “taken seriously”, kind treatment” and the nurses’ “professional” behavior (Wahlberg & Wredling 2001). If disputing with a care-seeker, words can lose their meaning through being embedded in an argument, and can result in an assessment error (Whalen et al. 1988).

The telephone nurse seems to assess the care-seeker from the individual’s situation, condition and need. A shift from acting as gatekeepers in the primary care, towards a role as more keeping with the needs of patients could be observed in the United Kingdom when nurses started working in a centralized call center in NHS Direct (Mark & Shepherd 2003). Leppänen found that primary-care telephone nurses never only investigated the physical signs of illness but also related the social context that was revealed during the calls. Study V and

Edwards' study revealed that the impact of the problem upon the caller influenced the assessment (Edwards 1994; Leppänen 2001; Wahlberg et al. 2003a).

### **THE CORE OF TELEPHONE ADVICE NURSING**

As mentioned in the **Results** section, on combining the findings in Papers II-V, several of the results seemed to correspond with each other (see Figures 2-4). Both callers and nurses seem to view the core of TAN in a similar way. They seem to believe that the core of TAN is mainly the assessment of the care needed. The main core of TAN is not the assessment as the task; it is the expertise of making good-quality assessments. For telephone nurses there is the importance of performing good assessments, and for the care-seekers of receiving the adequate advice, which follows a high-quality assessment. In order to complete good assessments, the individualistic perspective is necessary; the outcome of TAN would probably not be sufficient without the personal interaction. This core can be studied from three perspectives, the nurse, the patient and the organization, but they are, of course, linked together. Some areas within these three perspectives seem to stand out – the nurses' knowledge and ability to use all kinds of communication and their ability to treat care-seekers in a satisfactory manner.

It is hoped that this study has contributed to the definition and development of TAN, even though the body of knowledge in this new nursing field of practice is still relatively small.

## CONCLUSIONS

- Users of a health care call center seems to be satisfied with the service and a vast majority followed the advice they were given. Since the range of reasons for calling a health care advice line are divergent, telephone nurses needs knowledge on every aspect of health care.
- Users of a health care call center emphasize the importance of receiving appropriate advice and being treated in a kindly manor. The telephone nurse's communication skills and their ability to deal with callers as individuals to make and to make them more secure are highlighted.
- Second-hand information may constitute an aggravating circumstance in assessing the urgency of the care needed on the telephone. Therefore, call receivers should be more cautious when undertaking assessments based on information provided by a third person.
- "Lack of health care resources", "second-hand consultations" and "always making a decision" were viewed by 25 telephone nurses as the biggest problems with telephone advice nursing. The problems were related to the nurses, the patients and to the organization and the assessment seems to be the core of telephone advice nursing.
- Telephone advice nurses' basis for assessments appear to be very broad. Both verbally and nonverbally communicated information seems to be used and care-seeker, nurse and somewhat organization related factors influenced the assessments. An individualistic view of the care-seeker seemed to dominate the assessments in non-urgent calls to a health care call center.



## THE FUTURE

### THE TELEPHONE NURSE PROFESSION

**B**enner (1984) suggest that the ability of the nurse to focus and act upon contextually bound nuances automatically is characteristic of expertise. Clinical expertise in nursing may be understood as presenting high levels of assessment and observation skills, paying attention to non-verbal elements of communication and acting outside convention or standard practice, with a wish to promote patient choice and empowerment (Hardy et al. 2002). Ten years seems to be required for accumulating a large store of information in a discipline, to become an expert (Patel et al. 2000).

The TAN field in nursing should surely be client-centered care. Client-centered care includes, for example, respecting the client's wishes and caring for clients as whole and unique, human beings; clients know themselves best and clients should be the leaders of care (Nelligan et al. 2002). However, this should be discussed regularly and brought up in training. Training in different areas in nursing would probably increase confidence in handling calls (Porter & Porter 1991; Payne et al. 2002). Communication skills are an important area for training, in form of questioning, explaining and information giving (Crouch et al. 1997). Another way of improving telephone consultations is for the telephone nurses to regularly listen to authentic calls, their own and those of others. Active listening is a skill for exploring and recognizing care-seekers' clues (Lang et al. 2000). If telephone nurses listen to authentic calls, should enlighten them on what they sound like and thereby they may recognize things that could be improved. The importance of personal appearance should be emphasized, paralanguage, for example, not betraying alarm and the unnecessary, higher pitch (Poyatos 1992, p. 375). Recommendations for effective, nonverbal communication may be showing concern for the care-seeker by displaying a moderate amount of anxiety in the tone of voice and avoiding sounding bored (Buller & Street 1992, p. 133), which is supported by the findings in Paper II, where callers commented on a 'nurse's lack of interest' (Wahlberg & Wredling 2001). Nauright also found that nursing educators need to be more aware of this emerging new role of the telephone nurse and prepare the students to function competently in this area (Nauright et al. 1999). However, in Sweden, courses have started at several universities during the last few years, but they should be prolonged.

Tjora pointed out the importance of the nurses applying both their individual competence, and their joint experience and competence in assessing callers at a call center (Tjora 2000). This would emphasize the importance of not organizing too small call centers; at least two nurses should be on duty at the same time.

As pointed out earlier in this thesis, the new role of the telephone nurse is emerging. It is to be hoped that this role will follow the image of the nursing care expert. Socio-historically, there are two origins – the medical assistant and the nursing care expert. The former follows the old and traditional, task-oriented norm, and the latter identify her- or himself with the academically educated nurse (Öhlen & Segesten 1998). In Sweden, the role of the telephone nurse will certainly develop during the coming years and demand a professional identity of the nursing care expert. The new national number 1177 will speed up the development and increase the status of the telephone nurse in Sweden. Possibly in the future, telephone advice nursing will be the “first level” of the Swedish health care. One hopes that the public will take on the habit of always calling 1177 (or 112 if life threatening) when they encounter a new and unknown health problem, before visiting a health care clinic. This would make telephone advice nursing and telephone nurses a significant and indispensable part of the national health system.

### **FUTURE RESEARCH**

TAN is a quite new area of nursing research. Some of its contents are, however, already covered sufficiently, for instance consumer satisfaction. Omery suggests in her recently published review that research should prioritize the *advice* area within TAN (2003). Studies in this part would be interesting, but the other parts of TAN should also be emphasized, especially the *information* and *coordination* parts. For example, the interview data collected for the fifth study could be used for several studies. It would be interesting to explore what the telephone nurses chose to comment on in the stimulated recall interviews, how they reflected upon their assessments. Also studying the advice given in the authentic calls would be interesting.

A randomized study of reflective learning would be interesting. Making telephone nurses follow-up calls to care-seekers in order to identify the outcome of the given advice. The purpose of letting the nurses make the follow-up calls are to create a learning situation and extended knowledge. Studying the differences between urban and province areas regarding reasons for calling and telephone nurses' experience of TAN would be valuable in respect to the suggestion of a national telephone number with over-flow between calls to call centers in different areas of Sweden.

Research on EMD is still limited. Here studies could focus on the calls, that is, how many of the calls are made of behalf on others, which today is unknown. Furthermore, there might be a study on how assessments in EMD are influenced when the care-seeker calling 112 has to speak with several call-takers in one call. Today it is not uncommon that a caller first reaches an operator and then speaks to a nurse. It would be interesting to find out whether callers repeat the information to the second call-taker or not.

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## SVENSK SAMMANFATTNING

**P**å en Hälso- och sjukvårdsrådgivning nås sjuksköterskor dygnet runt för att bistå varje vårdsökande med omvårdnadsråd, medicinska råd och hänvisning till rätt vårdnivå. **Syftet** med projektet är att bidra till att definiera och utveckla telefonsjuksköterskors rådgivning genom att belysa allmänhetens användning av och inställning till telefonrådgivning, undersöka vilka faktorer och omständigheter som bidragit till att felbedömningar gjorts vid telefonbedömningar av ambulansbehov samt studera telefonsjuksköterskornas upplevda problem och resonemang kring egna bedömningar i telefonrådgivning.

**Delstudie I** För att få en uppfattning om telefonsjuksköterskornas kontext registrerades samtliga personer som ringde till sjukvårdsupplysningen i Stockholm (n=2866). Ungefär var tionde inringare tillfrågades om att besvara ett postat frågeformulär (n=203) som utvecklats av forskargruppen för studien. Svarsfrekvensen var 71 % (n=144). Hjälpökande kvinnor var användare i 61 % av samtalen 31 % frågade om infektionssymtom. I 47 % av samtalen var det någon annan än den sjuke som kontaktade sjukvårdsupplysningen. Egenvårdsråd gavs till 49 % av de inringade, 85 % uppgav att de erhållna råden följts och 95 % uppgav att de fått den hjälp de önskat.

**Delstudie II** För att få djupare förståelse för hur användarna uppfattade kontakten med sjukvårdsupplysningen analyserades svaren i två öppna svarsfrågor kvalitativt i den andra studien. De öppna svarsfrågorna i enkäten besvarades av 81 deltagare (56 %). Kommentarer delades upp i kategorierna tillfredsställande och otillfredsställande och i praktiska och emotionella aspekter. Resultaten i studien visar att bemötandet och att få adekvata råd ansågs viktigt. Även att erhålla en känsla av trygghet genom samtalet betonades.

**Delstudie III** Här studerades samtliga beslut i avslutade anmälningsfall rörande ambulansalarmering till Socialstyrelsen, HSAN och samtliga landets Patientnämnder. Mellan 1991 och 2000 identifierades 54 fall. Ärendena studerades med fokus på faktorer och omständigheter som bidrar till felbedömning. I 19 av de 21 anmälningsfall rörande fel i bedömningen, och som registrerats hos Socialstyrelsen och HSAN, var bedömningen gjord på andrahandsuppgifter.

**Delstudie IV** Tjugofem sjuksköterskor med olika lång erfarenhet av telefonrådgivning deltog i den fjärde studien. Tre omgångar frågeformulär skickades till sjuksköterskorna enligt Delphi-metoden. I det första formuläret fick deltagarna svara på en öppen fråga om erfarenhet av problem i telefonrådgivning. Tjugo-

fyra problem identifierades i svaren och återsändes för rankning av problemen. I sista formuläret ombads sjuksköterskorna värdera problemen i en Lickert skala. Svarefrekvensen var 100 %. Majoriteten av problemen handlade om svårigheter att göra bedömningar, bl.a. andrahandsbedömningar och avsaknaden av visuell kontakt. I studien framkom även sjuksköterskornas benägenhet att lägga över problem på patienten.

**Delstudie V** I den femte studien intervjuades sju sjuksköterskor enligt ”stimulated recall” metoden. Två autentiska samtal per sjuksköterska på en sjukvårdsupplysning utgjorde grunden för intervjuerna. Sjuksköterskorna bad sedan kommentera vad i samtalet de grundat sin bedömning på. Resultaten visar att flera faktorer påverkar bedömningen, inte bara den uppringandes verbalt kommunicerade hälsoproblem utan även den icke-verbala kommunikationen vägs in, t.ex. tung andning. Även sjuksköterskans erfarenhet, den enskildes livssituation och tidigare kontakter i sjukvården, samt sjukvårdens allmänna tillgänglighet vägdes in i bedömningarna.

**Slutsatser** Sammanfattningsvis visar studierna att telefonsjuksköterskans bedömning är central i hälso- och sjukvårdsrådgivning. Individperspektivet verkar också viktigt, både ur den uppringandes och ur telefonsjuksköterskans synvinkel. Den uppringande önskar bli bemött som en individ, tagen på allvar och bli trygg av samtalet. Telefonsjuksköterskan verkar använda både verbal och icke-verbal kommunikation i sina bedömningar och bör därför sträva efter att tala direkt med den vård sökande.

