Development of an instrument to measure the degree of critical patient’s satisfaction with nursing care: research protocol

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ABSTRACT

Aim: To investigate and comprehend patient satisfaction with nursing care in the Intensive Care Unit in order to identify the scope of the concept of “satisfaction” from the patient’s point of view. To design and validate a questionnaire that measures satisfaction levels in critical patients.

Background: There are many instruments capable of measuring satisfaction with nursing care, however, they do not address the reality for critical patients nor are they applicable in this context.

Methodology: A dual approach study comprising: an initial qualitative phase employing Grounded Theory and a second quantitative and descriptive phase to prepare and validate the method used to gauge satisfaction. Data collection in the qualitative phase will consist of: in-depth interview after theoretical sampling, on site diary and expert led discussion group. The sample size will depend on the expected theoretical saturation n=27-36. Analysis will be based on Grounded Theory. For the quantitative phase, the sampling will be based on convenience (n=200). 3 instruments will be used to measure satisfaction: a questionnaire compiled on the basis of qualitative data, the Critical Care Patient Satisfaction Survey and the SERVQUAL questionnaire. Descriptive and inferential statistics will be used. The method validation will be developed on the basis of the validity of the content, the criteria of the construct and the reliability of the instrument by Cronbach’s Alpha and the test-retest approach.
Discussion: Self-perceptions, beliefs, experiences, demographic, socio-cultural epistemological and political determinants for satisfaction; and these should be taken into account when compiling the questionnaire on satisfaction with nursing care among critical patients.
TRIAL REGISTRATION

Not applicable due to the dual nature of the study and the lack of intervention required.
SUMMARY STATEMENT

What is already known about this topic

- Patient satisfaction with nursing care has become a key factor in determining the quality of the health care.
- Most of the methods for measuring satisfaction with nursing care have been devised from the professionals’ point of view.
- Methods aimed at measuring satisfaction with nursing care are ill suited to the reality of critical patients and even less so to our culture.

What this paper adds

- It introduces a dual methodology research protocol based on a Grounded Theory method and a descriptive design, whilst creating and validating a satisfaction questionnaire.
- The discussion and analysis of different methods for measuring patient satisfaction with nursing care.

Implications for practice and/or policy

- Knowledge as to what our patients are satisfied with may help nurses carry out customised care protocols.
- Designing and validating the questionnaire will help with the monitoring and continued improving of the quality of nursing care.
- Knowledge of the level of satisfaction with nursing care will enable the optimisation of cost-efficiency, taking into account the perspective and the experience of the patients themselves in the current socio-economic context.
KEYWORDS

Patient satisfaction, perception, nursing care, critical care, qualitative research, questionnaire design.
MAIN TEXT

Background

The level of satisfaction among patients has become the key factor in health services to improve service quality and the main indicator of the quality of the care offered (Redmon & Sorell 1999, Caminal 2001, Turris 2005). Some authors have flagged the importance of introducing the analysis of the user satisfaction with the health services in addition to other quality control activities (Gea et al. 2001). Recent studies recommend that patient satisfaction with health care should be one of its desired results, as a mediator between patient perception on quality and their future intentions of using the service again, or recommending the hospital to their family and friends (Jafar & Muayyad 2003, Pujiula et al. 2006, SØrlie 2006). On the other hand, these surveys flag the fact that patient satisfaction with nursing care is the aspect that better predicts satisfaction with the hospital admission period (Megivern et al. 1992, Cabrero-García et al. 1995, Merkouris et al. 1999, Chang et al. 2003, Schmidt 2003, Larrabee et al. 2004), as a main component for maintaining and rehabilitating health (Cabrero-García et al. 1995, González-Valentín et al. 2005). Therefore, patient satisfaction with nursing care has become a key factor in determining the quality of the health care (Jafar & Muayyad 2003, Wagner & Bear 2008).

The concept of satisfaction with health services is complex since it is connected with a wide range of factors such as lifestyle, previous experiences, future expectations, personal values and society. One of the main difficulties for the analysis of satisfaction lies in the ambiguity with the concept itself, which is explained by its subjective and contextual dual nature (Turris 2005). In line with this, several studies show satisfaction as a phenomenon determined by cultural habits of different social groups. Therefore, its definition varies according to the social context and the multidimensionality of previous experiences related to it (Merkouris et al. 1999, López-Palenzuela 2005, Turris 2005).
When it comes to nursing care, some authors claim that patient satisfaction with nursing care is the degree of coherence between patient expectations of ideal nursing care and their opinion about the nursing care actually provided (Donabedian 1966, Risser 1975, Megivern et al. 1992, Cabrero-García et al. 1995, Redmon & Sorell 1999, Regaira et al. 2010). If we agree on the fact that the main goal of a health service is the patient, it is essential that we are aware of his/her opinion and level of satisfaction with the service in order to be able to adapt the service as much as possible to his/her actual needs, expectations and priorities.

The interest of nursing professionals in knowing the level of satisfaction of health care users becomes evident in light of the proliferation of different satisfaction measurement methods both on a national and international level. Among these instruments, the following are worth mentioning for their acknowledgment and validation: CARE-Q (Caring Assessment Instrument) (Larson & Ferketich 1993, Sepúlved et al. 2009, Watson 2009), SERVQUAL (Service Quality) (Babakus & Mangold 1992), LOPPS (La Monica-Oberst Patient Satisfaction Scale) (La-Monica et al. 1986), and NSNS (Newcastle Satisfaction With Nursing Scale) (McColl et al 1996).


The SERVQUAL scale is one of the more widely used methods in the service sector and it is based on the “nonconformity paradigm”. It was adapted by Babakus and Mangold (Babakus & Mangold 1992) to be used in hospitals, measuring the quality of the care based on the difference in the scores between patient expectations and perceptions, and is used to evaluate the care in its summarised version (Parasuraman et al. 1985, Parasuraman et al. 1988, Parasuraman et al. 1991, Babakus & Mangold 1992, González-Valentín et al. 2005, Regaira et al. 2010). It is divided into 5 dimensions: tangibility, reliability,
response capacity, security and empathy (includes 15 items for perceptions and the same for expectations).

LOPPS, derived from the Risser (Risser 1975) scale, adds aspects of physical care and comfort to adapt the instrument to admitted patients. This scale consists of 41 items describing nursing behaviour, 17 of these are written in a negative way, and the remaining ones in a positive way. Each item is assessed based on the Lickert scale type of 7 points, from totally agree to totally disagree.

And lastly, the NSNS (McColl et al 1996), which is a scale measuring the opinion of patients about nursing care. This consists of two subscales: the experiences of the care received in 26 items and 7 response options for each one of them and the satisfaction with the care consists of 19 items with 5 response options for each one, plus 11 items to assess social and demographic aspects. This scale can be used in Primary Healthcare and hospitalization either before or after the patient was discharged.

So far, no assessment scales for patient satisfaction with healthcare have been designed in Spain. However, national publications show the validation and adaptation of international scales throughout the country. Therefore we may find: LOPSS 12, including 12 questions aimed at understanding patient satisfaction with nursing care (Cabrero 1994, Cabrero et al. 1995) and which was elaborated from the satisfaction scale of La Mónica and collaborators (La-Monica et al. 1986); and SERVQUAL, adapted by Babakus and Mangold (Babakus & Mangold 1992) and validated in the context of intensive care in a private hospital (Regaira et al. 2010).

In spite of the benefits and the great step forwards in measuring the satisfaction with nursing care derived from using those methods, none of these have been specifically created to evaluate the satisfaction of patients with nursing care, in complex and specialized units such as intensive care units. They do not show the relevant dimensions for the critical patient, nor do they value completely and thoroughly the nursing care in this practical context (Megivern et al. 1992, Sepúlved et al. 2009, Regaira et al. 2010). The only validated scale in Spain for measuring patient satisfaction in the context of intensive care is the SERVQUAL.
scale (Regaira et al. 2010). However, the items in this method are more associated with structural aspects and the services offered by the hospital rather than with nursing care. That is why, from our point of view, it would not be a valid instrument to measure satisfaction with nursing care among this type of patient.

On the other hand, in the context of international intensive care, only one questionnaire has been found that measures the satisfaction of the critical patient and their relatives with nursing care, the *Critical Care Patient Satisfaction Survey* (Megivern et al. 1992). It includes 43 items distributed among the following dimensions: the art of looking after people, the technical quality of the care, the physical environment, availability, continuity in the care, promotion of the autonomy of the patient and the education of the patient and family (Megivern et al. 1992). However, only the first publication of the pilot has been found and therefore it is hard to verify the complete validation of the questionnaire in the context of a critical patient. On the other hand, although the authors make open-ended interviews about the satisfaction of expressive and instrumental nursing activities, the interview outline is based on the aspects identified in the bibliography about patients’ satisfaction. Assuming the satisfaction as an opinion about the quality of the nursing care representing specific elements of such quality, which most of them are connected with patients values and expectations (Cabrero-García et al. 1995, Merkouris et al. 1999), is significantly relevant, knowing the dimensions of satisfaction from the perspective of the critical patients and not the other way around, as nor the existing instruments nor the qualitative results of published surveys show the multidimensionality of the concept of satisfaction in the context of intensive care and from the own critical patient’s perspective, i.e., from his or her own experience. Finally, as stated by the writers, one of the limitations of the pilot test of this instrument is that the size of the sample is insufficient for relevant results from a statistic point of view (Megivern et al. 1992).

For all these reasons, a new survey line must be created both at national and international level to be followed in the near future. This must be based on really understanding the perceptions and experiences of critical patients and their
satisfaction with the nursing care, in order to create and validate instruments that really measure the satisfaction as expressed by the people who have experienced nursing care in a critical context. Only by listening to the experiences from the patients, the nurses can improve the quality of the care, as patient perceptions will add new data to the same reality (Megivern et al. 1992, Hyrkas et al. 2000, López 2005, Wagner & Bear 2008, Sepúlved et al. 2009, Regaira et al. 2010) and will allow to conceptualize the satisfaction of a critical patient with the nursing care in a new and innovative way from the own reality of the users, not the professional's. We might say that nobody understands better the patient’s perspective than the patient itself, therefore it is necessary to look through his/her own eyes.
The study

Aims

Main aims:

1. To explore and understand the satisfaction of patients admitted to the Intensive Care Unit of a Level III hospital towards the nursing care, identifying the dimensions of the concept of satisfaction based on their own experience.

2. To build and validate a questionnaire that allows assessing the satisfaction of patients with nursing care in the context of a critical patient.

Secondary aims:

1.1. To explore patient perceptions about nursing care during their time in the Intensive Care Unit.

1.2. To identify the different dimensions of the concept of satisfaction according to the patients perception.

1.3. To understand the expectations of the patients about the nursing care during their time in the Intensive Care Unit.

2.1. To compile a satisfaction questionnaire regarding nursing care specific to Intensive Care patients.

2.2. To validate said satisfaction questionnaire.

2.3. To assess the satisfaction of nursing care according to said questionnaire.
**Design / Methodology**

A dual methodology will be applied in two stages, the first is qualitative and the second is quantitative. In order to achieve aims 1.1, 1.2, 1, a qualitative methodology has been chosen in conjunction with the theory-based method by the perspective of Strauss y Corbin (Strauss & Corbin 2002). This method provides the patients with the opportunity to explain and predict certain events, to progress in the understanding of a new way of social life, to create new ways of understanding the world and to express them theoretically. This is something that will provide useful tools for the future. In our opinion, this method will be very useful in conceptualising the phenomenon from the patients’ own experience (the satisfaction of critical patients about the nursing care in the context of intensive care).

In order to achieve specific aims 2.1, 2.2 and 2.3, a quantitative methodology has been chosen along with a transversal descriptive design, by creating an instrument to measure patient satisfaction with nursing care in the Intensive Care Unit based on dimensions emerging from the research process from the qualitative part of the survey.

The validation process for the instrument will be carried out according to the description of Martín (Gómez 1997) for judging the capacity of the instrument and evaluate all aspects of the phenomenon being studied. This process includes a cognitive pre-tests and the evaluation of the metric properties of the scale through the following steps:

1. Validation of the content. The questionnaire will be revised by a group of experts and will be assessed by patients taking part in the qualitative part of the survey;

2. Contrasting the validity of the construct through factorial analysis

3. Validation of the criteria by measuring the satisfaction level using two validated scales (see the section about data collection techniques);
(4) Reliability of the instrument, discriminated by the Cronbach’s Alpha (>0,8) and the test-retest approach.

Approval date for this protocol was 2010.

**Study setting**

The survey will be carried out on a third level hospital in the metropolitan area of Barcelona (Spain). Three Intensive Care units (general, heart and coronary surgery) including a total of 34 individual boxes (12, 12 and 11 boxes) will be the specific context and the nurse/patient ratio will be 1:2.

**Participants**

**Qualitative part of the survey:**

All patients admitted to the Intensive Care Unit during the period in which the survey will be carried out, according to the following acceptance criteria:

1) Patients over 18 years old.


3) Patients must be able to tell their experience and provide full and valid information of interest to the researchers (Morse & Field 1995). The presence of delirium or acute cognitive dysfunction will be assessed using the CAM-ICU (*The Confusion Assessment Method for the ICU*) (Tobar et al. 2010).

4) Glasgow Coma Score (measures the level of consciousness) must be under 15.

5) More than 48 hours in the Intensive Care Unit oriented in time, place and person with negative CAM-ICU.
6) Written and oral permission provided.

7) Able to express him/herself and able to read and write in one of the two official languages of Catalonia (Spaniard County), Catalan or Spanish.

The sampling will be theoretical and of maximal variation type (accumulative and sequential), until reaching the theoretical saturation of technical data. Therefore, the final sampling size cannot be previously established although previsions indicate a number between 27 to 36 participants including 3-4 patients in each of the 9 profiles identified based on the structural criteria of age, time in Intensive Care Unit and information prior to the stay in the Intensive Care Unit.

In order to recruit and detect potential participants, they will be assessed with the CAM-ICU once a day and both the Glasgow Coma Score and the level of orientation will be taken into account 48 hours before being discharged from the Intensive Care Unit. The evaluation of the last two and the register in the patients records will be done by the nurse in charge of the patient in each shift (morning, afternoon and evening). Those patients without cognitive alterations or delirium, who are conscious and orientated, will be asked for permission both orally and in written the week after they are discharged from the Intensive Care Unit and after a maximum period of 24 hours (Morse & Field 1995, Johansson et al. 2002). During this individual contact, they will be informed about the aim of the survey and the methodological aspects, and they will be invited to take part (Johansson et al. 2002). If the patient accepts, a day, time and place will be agreed of his/her best convenience. During the interview, the following aspect will be taken into account: CAM-ICU, Glasgow, hemodynamic and respiratory stability, orientation and lack of disabling pain measured with the VAS pain scale. Should any of these values be altered, the patient will be asked to attend the interview another day of his/her convenience.

**Quantitative part of the survey:**

The participants in the survey will be all patients admitted to the Intensive Care Unit since the start until reaching the necessary size of the sample. The size of
the sample has been estimated using proportions and averages (error \( \alpha = 5\% \)), but it might be calculated once again after the pilot and the sample loss estimation. A sample size of 200 patients has been estimated \textit{a priori} under the premise of obtaining relevant results and avoiding any possible bias. Inclusion criteria will be same to the qualitative part of the survey. The sampling will be based on convenience.

Variables in the survey will be: socio-demographic (age, genre, education, working status, civil state, profession, culture), patient clinical record (diagnostic when accepted in the Intensive Care Unit, severity index determined by APACHE/SAPS, number of days hospitalised in the ICU, days of mechanical ventilation, type of admission, days spent in the ICU), and the variable determining “Level of patient satisfaction with the nursing care received in the ICU”.

**Data collection**

In the \textbf{qualitative part of the survey}, the data will be generated during the in-depth interview, the field diary, discussion group with experts and the analysis of documents that will provide information to the survey.

First, in-depth interviews will be performed of a maximum duration of 2 hours, using a specific outline \textit{ad hoc} based on the aims of the survey. The interviews will be lead by two members of the survey team, and interviewer and an observer (none of them might have been nursing the patients interviewed), in a quiet and comfortable place (Fontana & Frey 1998, Strauss & Corbin 2002, Denzin & Lincoln 2005, Valles 2009).

Second, a discussion group will be organised (Krueger 1991, Morgan 1998, Callejo 2001) with experts (nurses with more than 10 years of experience in the ICU, with postgraduate education in intensive care and from different working shifts). A number of 9 experts is estimated, 3 from the morning shift, 3 from the afternoon shift and 3 from the evening shift (structural dimension will favour the
emergency of similar and different statements). The interview will have a maximum duration of two hours and will be carried out in a quiet room, avoiding interruptions of any kind and in an oval or round table (Callejo 2001). The field diary and a digital recorder will be used as supporting instruments for data collection in order to facilitate and guarantee the reliability in the transcription of data \textit{a posteriori}. The field diary will collect different types of notes through the process: theoretical, personal, descriptive/inferential and methodological. Finally, documental sources will be used to gather information on matters of interested and not initially planned.

The qualitative part of the survey will include the design of a questionnaire according to the dimensions emerging from the qualitative investigation. The data collection period will cover a calendar year. The three instruments used will be:

1) \textit{Critical patient satisfaction questionnaire with the nursing care} (created and validated by our group of survey).

2) \textit{The “Critical Care Patient Satisfaction Survey”} (Megivern et al. 1992), also based on a qualitative survey. This scale will be validated by a process of translation, re-translation and pilot test.

3) \textit{SERVQUAL Questionnaire} adapted to the attention of nursing that includes items for expectations and perceptions from the patient regarding the desired and received care and grouped in five dimensions (tangibility, reliability, response capacity, security and empathy) (Parasuraman et al. 1985, Parasuraman et al. 1988, Parasuraman et al. 1991, González-Valentín et al. 2005, Regaira et al. 2010).
Data analysis

Qualitative data:

The microanalysis is an important step in the construction of a Grounded Theory and consists in a meticulous examination of data and their interpretation (Strauss & Corbin 2002, Andreu et al. 2007). First, an open codification will allow for conceptualisation (identify concepts) and finding the properties and dimensions in the data. Thus we have the foundation and the initial structure to build a theory. Secondly, an axial codification consisting of matching categories to subcategories and linking categories based on their properties and dimensions:

1. Accommodating the properties of a category and its dimensions. This task begins during the open codification.

2. Identifying the variety of conditions, actions/interactions and consequences associated to the phenomenon of satisfaction.

3. Matching category with its subcategories by sentences denoting the relation among them.

4. Searching for clues in the data denoting how they can be related to the main categories.

And finally, the selective codification in the analysis will lead to the integration of concepts around a central category and completing the categories that need to be further perfected and developed, showing the depth and complexity of thought of the theory being developed. For this analysis, the computing system Nvivo8 (Cisneros 2002) will be used.

Quantitative data:

Descriptive analysis (average, standard deviation, medians, minimums and maximums for quantitative variables and frequencies and percentages for the qualitative) and inferential to evaluate answers to the questionnaire. The connection between quantitative variables will be described by an average
value (and its standard deviation) for each group and the inference with the “T” test and Pearson’s correlation to explore the connection between the global level of satisfaction and the demographic variables. The connection between quantitative variables will be described through contingency tables and the inference using the Chi-squared test, with continuity correction or exact test when appropriate. In all cases the level of statistical significance will be 5% (α=0.05) and a bilateral approximation.

The metric properties of the scale will be determined by:

1) Content validity determining the Pearson correlation for quantitative variables and the sensitivity and specificity for the qualitative;

2) Construct validity through factorial analysis of the items making up the instrument;

3) Reliability determined by the internal coherence established by Cronbach’s Alpha, and temporal stability through the test-retest reliability calculated with the intraclass correlation coefficient.

**Ethical considerations**

Participants and the information about them will remain anonymous and confidential. They will be completely free to quit the survey at any time, and all recordings will be destroyed upon completion of the research and collection of the questionnaires which will be collected in the same container in which the patient will deposit the questionnaire. The participants will be assigned a numerical or alphabetical code to avoid the use of personal names (Johansson et al. 2002). Regarding the ethical aspect of the participation process, all participants must voluntarily agree to take part in the survey and should therefore sign a written consent once they have been informed about the type of survey and its aims. This project has already been authorised by the director of nursing at the Hospital and the Ethics Committee for Clinical Investigations (CEIC) of the institution, following the Eisner (1998) recommendations.
**Rigour**

In the qualitative part of the survey, Lincoln y Guba (Guba & Lincoln 2000) reliability and authenticity criteria will be followed, along with those from Calderón (Calderón 2002) and also the criteria for ethical reflections from Gastaldo y McKeever (Gastaldo & McKeever 2002), which implies reflecting on self-criticism for investigators in an ongoing fashion throughout the whole process. This promotes honesty and transparency, increases both quality and validity, and stimulates creativity, personal growth and self-realisation. A triangulation system will be used:

(i) Data (different participant profiles, experts)

(ii) Information gathering techniques which enable to visualise the phenomenon from different perspectives, thus achieving an in-depth understanding of the satisfaction phenomenon

(iii) Investigators for data analysis. The strategy of giving back the transcription to the interviewees will also be used for them to validate the content. They might request to extend it if considered necessary and an *audit trail* of all the investigation process will be kept up to date.

**Limitations**

Possible limitations of the survey include:

1) The physical and/or animic state, or the negative development of patients discharged from the ICU, may cause the loss of participants if they are not ready for an in-depth interview process or filling out the questionnaires.

2) Recruiting participants with profiles of advanced age and long time in the ICU might take more time than expected due to the low incidence of patients with these characteristics meeting the inclusion criteria and being able to cope with an in-depth interview when discharged from the unit.
3) Due to the qualitative nature of the first part of the survey, the satisfaction questionnaire created shall be validated in other contexts and other cities.

**Discussion**

This survey will help understand self-perceptions, beliefs and experiences along with demographic, socio-cultural, epistemological and political factors determining satisfaction. This makes a questionnaire on the satisfaction of critical patients with nursing care possible. Moreover, the analysis of the results will allow us to:

1) Provide a privileged insight into understanding what critical patients really need and perceive, as well as the interrelation established with nurses.

2) Reflect upon the patient’s perception of nursing care and its impact on the life process, eventually allowing for approaches from other perspectives and rationales to nursing care.

3) Continuously improve human care from a professional perspective.

**Conclusion**

The results of this survey will be of great relevance for intensive care patients, nurses and health institutions. The design and validation of a questionnaire will improve and monitor the quality of the nursing care optimising its cost-efficiency, bearing in mind the perspective and experience of the patients in the present socio-economical context.
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