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Measuring the outcomes of nursing practice: A Delphi study

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Measuring the outcomes of nursing practice: A Delphi study

Abstract

Aims and objective: To develop nursing-sensitive patient indicators to measure the outcomes of nursing practice.

Background: Nurses play an important role in the healthcare system, yet there is no consensus on how the impact of nursing work should be evaluated. Limited research has previously examined the views of clinical nurses on the important concepts for measuring nursing practice.

Design: A four-round modified Delphi survey sought opinions from patients and nurses about the relevant concepts and their relative priority as indicators of quality nursing practice.

Method: Round 1 comprised semi-structured interviews with patients and nurses to identify key concepts. Nurses were then asked to participate in three rounds of Delphi survey to identify and rate key concepts from which indicators were developed. Thematic analysis and descriptive statistics were used to analyse the data.

Results: By the end of Round 4, the process had generated 103 concepts and participants had agreed on eight overarching constructs, namely care and caring; communication; coordination and collaboration; safety; patient characteristics; workload; Nurses work environment; and organisational characteristics.

Conclusions: Consensus was achieved between nurses on the most important concepts, which can provide the basis for measuring the quality and safety of nursing practice in a comprehensive and holistic way.

Relevance to clinical practice: The identification of concepts that patients and nurses consider important for measuring nursing practice will guide the development of methods for evaluating nursing in the future. Ensuring that nursing practice is rigorously evaluated has the potential to identify opportunities to improve nursing quality, patient safety and improve health outcomes.

Disciplines

Medicine and Health Sciences | Social and Behavioral Sciences

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Conclusions. Consensus was achieved between nurses on the most important concepts which can provide the basis for measuring the quality and safety of nursing practice in a comprehensive and holistic way.

Relevance to clinical practice. The identification of concepts that patients and nurses consider important for measuring nursing practice will guide the development of methods for evaluating nursing in the future. Ensuring that nursing practice is rigorously evaluated has the potential to identify opportunities to improve nursing quality, patient safety and improve health outcomes.

Keywords: quality, safety, patient outcomes, nursing-sensitive outcomes, nursing-sensitive indicators, Delphi technique

What does this paper contribute to the wider global clinical community?

- The 103 concepts and 8 constructs identified by this study provide the basis for evaluating the safety and quality of nursing practice.
- The constructs of care and caring, communication, and coordination and collaboration provide important information about the actions of nurses and the outcomes of their work. The aforementioned constructs can be used to complement the construct of safety to evaluate nursing practice.
- Measuring nursing outcomes has the potential to support and improve nursing in all areas of practice. Evaluation of nursing practice in a comprehensive way can facilitate improvements in nursing quality, patient safety, the patient experience of care and health care outcomes.

INTRODUCTION

Measuring nursing practice is challenging. Nurses practice in a variety of roles and clinical settings, working with other health care professionals to deliver health care to patients. Despite attempts to measure nursing practice commencing with Florence Nightingale (Marek 1998), there has been no agreement within the nursing profession on how the quality of nursing care should be measured. Similarly, there is no agreed set of indicators or performance measures that comprehensively capture the unique contribution that nursing makes to patient outcomes. This does not mean that there have not been attempts to measure the outcomes of nursing practice. On the contrary, a large volume of literature has been published on this topic. Various sets of indicators have been developed, including the National Quality Forum (NQF) set of endorsed Nursing-Sensitive Care Performance measures (Kurtzman & Corrigan 2007), the NDNQI indicator set (Press Ganey 2017) and the CALNOC database (CALNOC 2017). However, these indicators do not measure the impact of nursing practice in a comprehensive way. In addition a plethora of empirical studies have examined nursing outcomes (for example: Griffiths *et al.* 2016, Twigg *et al.* 2016). Most of these studies examine only limited aspects of care, such as safety and nurse staffing (for example: Unruh & Zhang 2012).

BACKGROUND

Research which examines the contributions that nursing makes to patient outcomes is usually referred to by the term nursing-sensitive (patient) outcomes (NSPO) or nursing-sensitive (patient) indicators (NSPI) (Doran 2003). These terms are often used interchangeably and for simplicity, the term NSPO will be used in this paper.

The term *nursing-sensitive* refers to the notion that nurses and nursing care are not wholly responsible for the patient outcome being examined, but rather, that nurse's contribution to the outcome is significant and measurable. Doran (2003) describes NSPOs as "those that are relevant, based on nurses' scope and domain of practice and for which there is empirical evidence linking nursing inputs and intervention to the outcomes" [for patients] (p. viii).

There are a variety of methods for exploring NSPOs. In the USA, datasets such as NDNQI or CALNOC are used by many organisations to collect unit level data from hospitals for analysis, benchmarking and feedback (CALNOC 2017, Press Ganey 2017). Cross-sectional surveys are also used to gather data on the impact of nursing care using a variety of instruments and foci (Sermeus *et al.* 2011). Nurse metrics have been developed in some organisations or specialty groups to collect agreed indicators (Maben *et al.* 2012). Nursing minimum data sets and electronic health care records have also enabled the development of systems of nomenclature such as the International Classification of Nursing Practice (ICNP) (International Council of Nurses (ICN) 2009) or the Nursing Intervention Classification and Nursing Outcomes classification that complements the North American Nursing Diagnosis Association (NANDA) diagnostic codes (Maas *et al.* 1996). Data abstraction from large administrative data sets and coded medical records is also frequently used in NSPO research (Needleman *et al.* 2002). Each of these methods have their relative advantages and disadvantages and have evolved over time based upon data availability (Clarke 2009, Doran 2003). The variety of methods used in NSPO research, however, illustrates that there is no clear and agreed *right way* to measure the unique contribution that nurses make to patient outcomes.

Most NSPOs (for example: falls, pressure injuries, mortality) are focused on patient safety and the linkages between quantity and quality of nurse staffing. Safety measures (mostly focusing on adverse events) dominate all other NSPOs; and quality of care is rarely examined. Some argue that this focus on safety is justified (Liu 2012), after all, one of a nurse's primary objectives is to keep their patients safe and prevent or at worst, minimise any harm occurring. It seems reasonable to argue however, that as NSPO research evolves and the measurement of the impact of nursing practice on patient outcomes is expanded and refined, it is time we, (that is all nurses) focused on the *quality as well as* the *safety* of care. A focus on quality of care indicators has increasingly been seen in recommendations from reports on health care failures (Francis 2013, Garling 2008) and standards (Australian Commission on Safety and Quality in Health Care 2010) and is mirrored in research around patient care experiences (McCance *et al.* 2016).

Research on what constitutes a *good* nurse has also been undertaken. From a nurses' perspective: personal characteristics (caring, being present, showing compassion and respect); professional characteristics (being patient-centred, respecting professional standards and codes); knowledge base (strong professional and situational knowledge, using critical thinking); and professional skills (demonstrating safe and competent care) are seen as important (Arman & Rehbsfeldt 2007, Bassett 2002, Lynn & McMillen 1999, Miller 2006, Smith & Godfrey 2002). Patients, in contrast have differing views on what good quality nursing involves. They are more likely to care about the communication, kindness, listening and responsiveness of the nurses that are caring for them (Burhans & Alligood 2010). These differing views make measurement of nursing practice even more complex. Given the differing views of these key stakeholders, it is appropriate to

involve patients and nurses working in clinical practice settings in research to identify NSPO's.

To identify the most important concepts for measuring nursing practice, a four round modified Delphi study was conceptualised. This study sought to identify important concepts for measuring nursing practice, gain consensus of nurses on the importance of those concepts, and identify how those concepts could be conceptualised. This research is seen as important in being able to identify, conceptualise and eventually measure, the impact nursing care has on patient outcomes in a holistic and comprehensive way.

METHOD

Design

The Delphi technique is an iterative multi-stage process designed to combine the opinion of many individuals into consensus (McKenna 1994). The Delphi technique was chosen for the following reasons: 1) the research problem benefitted from subjective judgements on a collective basis; 2) the research population came from diverse backgrounds; 3) more subjects were needed than could effectively interact in interviews / meetings; 4) time, cost and logistics made frequent meetings of all subjects unfeasible; and 5) group conflict or domination needed to be prevented (Duffield 1993, McKenna 1994).

In Round 1 key concepts were identified by patients and nurses via interviews. The subsequent three rounds used an online survey tool to examine the key concepts from Round 1, identify additional concepts, evaluate the importance of these concepts and confirm constructs developed from the important concepts. A

maximum of four rounds was set prior to commencement of the project. This is consistent with approaches used by other researchers (Crisp *et al.* 1997, Hasson *et al.* 2000, Keeney *et al.* 2006, McKenna 1994).

Participants

Round 1 – qualitative interviews

Round 1 participants were either recipients of nursing care (patients) (n=7) or Australian nurses who had published a peer-reviewed paper about nursing outcomes or nursing quality (Nurse authors) over the previous 10 years (n=6). Patients were recruited via the Consumer Advisory Panel of two Local Health Districts within NSW, Australia. Nurse authors were identified via searches of electronic databases for relevant papers. A total of twelve potential participants were identified and invited to participate via an email introduction.

Rounds 2 to 4 – consensus building

Participants in Rounds 2-4 were nurses (R2 n=196; R3 n=169; R4 n=128) drawn from two Local Health Districts within NSW, Australia and a private sector healthcare organisation. These organisations were chosen due to their large size, the geographical spread of their services and to incorporate both public and private sector organisations. A sampling frame was used to target a broad range of different nursing roles and specialty areas which included inpatient and outpatient settings. Participants were recruited via promotional flyers, email communications or following information sessions conducted by the researcher at their workplace.

Data collection and analysis

Round 1 – qualitative interviews

The semi-structured interview schedules were developed following a comprehensive literature review (Sim 2015). The focus of the patient interviews was on understanding what quality nursing care is and how it is identified and valued by patients. The consumer group interviews aimed to answer the following research question: what are the key elements of quality nursing care from the perspective of patients / consumers? All participants were asked the same questions.

The focus of the nurse author interviews was on building knowledge regarding how nursing care can be measured. This included discussion about what nursing-sensitive outcomes are; exploration of how nursing-sensitive outcomes are used; identification of conceptual frameworks that are used to identify and measure nursing-sensitive outcomes; and developing knowledge on specific nursing-sensitive outcomes and how data could be collected on them. Specifically the expert nurse interviews aimed to answer the following research questions: (1) what nursing-sensitive outcomes are currently being used in Australia to measure the outcomes of nursing practice? (2) what conceptual frameworks are used to guide the measurement of nursing-sensitive outcomes in research and practice? (3) what concepts should be considered when measuring the outcomes of nursing practice?

All interviews were conducted over a three month period. Each interview was digitally recorded and transcribed verbatim by one author (JS). Transcripts and accompanying field notes were reviewed and coding verified by two authors (KW and PC). The data were analysed using Braun and Clarke's (2006) thematic analysis framework. Thematic analysis is a method used for identifying, analysing and

reporting patterns within qualitative data and has six phases (Braun & Clarke 2006): 1) Familiarising yourself with your data; 2) Generating initial codes; 3) Searching for themes; 4) Reviewing themes; 5) Defining and naming themes; and 6) Producing the report.

A conscious decision was made to adopt Donabedian's (1966) framework of structure, process and outcome (SPO) measures to identify key concepts for the round 2 survey. Donabedian's SPO framework describes three categories for measuring the quality of care (Donabedian 1980). Structure relates to the attributes of the settings in which the care occurred (Donabedian 1980, 1988). Process relates to what actually occurred in giving and receiving care (Donabedian 1980, 1988). Outcome relates to the changes that are observed in a patient or client's health and/or condition that result from the care that has been provided to them (Donabedian 1980, 1988).

Data from Round 1 was used to identify the key concepts to be measured in the round 2 survey. The key concepts were identified and clustered together using concept mapping techniques under each of the structure, process and outcome categories.

Rounds 2 to 4 – consensus building

The fifty-six concepts identified in round 1 were used to develop the round 2 survey. The online survey was pilot tested with a convenience sample of 10 nurses from a local University. The pilot testing resulted in minor modifications to the wording of a few concepts to improve clarity.

The survey, delivered online via Survey Monkey software (Survey Monkey Inc 2011), was distributed to participants as a hyperlink within an individualised email. The use of individualised emails facilitated a structured reminder process, which included a maximum of three reminders to complete the survey over the two-week study period. Participants were asked to rank the importance of each concept for evaluating the outcomes of nursing practice on a five point Likert scale (where 1=very important and 5=totally unimportant). Consensus was defined as 75% of participants rating the concept as important (Likert scale 1 or 2). Qualitative fields allowed respondents to provide suggestions on additional concepts that should be considered.

Data were downloaded from Survey Monkey (Survey Monkey Inc 2011) into SPSS Version 17.0 (SPSS Inc 2008). Descriptive statistics were used to analyse the perceived level of importance of concepts. Qualitative data were imported into Microsoft Word and analysed using Braun and Clarke's (2006) phases of thematic analysis. The qualitative data was analysed to identify additional concepts for consideration in subsequent rounds (Hasson *et al.* 2000)(Hasson *et al.* 2000).

The round 3 survey was developed following analysis of the round 2 data and included any concepts that did not achieve consensus agreement in round 2; and additional concepts suggested by participants in qualitative data from the round 2 survey. Feedback was provided to all participants on the mean, standard deviation and level of consensus agreement for all statements within round 2. Analysis of the round 3 survey determined that 103 concepts had achieved consensus. Round 4 was then conducted to seek agreement on the grouping of the identified concepts into constructs. Using data from rounds 2 and 3, the research team themed the 103 concepts and similarly themed concepts were categorised together under broad constructs. Names were given to each construct based on data from the round 1

interviews where possible. A total of eight constructs were identified during this conceptual mapping process. During round 4 participants confirmed this analysis and grouping.

Ethical considerations

This study was approved by the Human Research Ethics Committee of the University of Wollongong and South Eastern Sydney and Illawarra Area Health Service (Approval No HE10/059). All participants volunteered to participate and received a participant information sheet explaining their rights and responsibilities and the voluntary nature of their involvement. All participants provided informed consent. All data was de-identified during data analysis and stored securely.

RESULTS

Round 1

Seven patients took part in qualitative interviews in Round 1. The patient interviews were conducted with individuals who responded to a promotional flyer and all were aged over 65 years. Two participants were male. All participants were either retired or no longer able to work full-time. All participants used English as their first language. Patients identified four key themes around what they perceived to be quality care, namely: *Ask the patient if they feel 'cared for'!*; *feeling safe is complex*; *caring should be person-centred*; and *nursing knowledge is visible*. Patients identified that they wanted to provide feedback on nursing care, as *caring* was seen to be a fundamental component of nursing care. All participants discussed the

requirement to *feel safe* when in hospital but it was evident from these discussions that what it means to *feel safe* was complex and varied between participants. Patients also described in varying ways the concepts of person-centred caring. Patients discussed their experiences in hospital and used the following words to describe them: “*lack of control*”; “*power imbalances*”; “*loss of usual home environment*”; issues of identity; and “*feeling involved*” in their own care. All participants discussed how these experiences were enhanced when nurses communicated with them, involved them in decisions about their care and empowered them to take an active part in their healthcare. Participants also described how nursing knowledge is visible. One participant said:

You can actually see it [knowledge] in how they [nurses] go about things [pause] you can see in their hands how intelligent they are [pause] how they manage their work. (Patient Interview - Participant 6).

Six nurse authors agreed to participate in qualitative interviews in Round 1. Five of the six participants were female. All participants used English as their first language and all worked in academic positions within a University or in co-joint appointments between a health service and an academic organisation. The nurse authors raised four key themes around the measurement of nursing outcomes: *safety is the first priority; positive measures are absent; methodological rigour is fundamentally important; and the visibility of nursing care*. All nurse authors described the importance of measuring the safety outcomes of nursing care; for some measuring safety was the only focus of their research endeavours. Most nurse authors discussed how positive measures of nursing were absent from existing indicator sets. All nurse authors explored the need to ensure that nursing-sensitive outcome measures accurately and reliably measure the impact that nursing care has on patients/patient outcomes. The visibility of nursing care was discussed by some of

the nurse authors. One nurse author described the work of nurses as invisible because the cognitive components of nursing work are frequently not documented or acknowledged. In contrast to this another nurse author described the visibility of nursing care and talked about the “*panoptical role of nurses*” in preventing adverse events and linked this with the concept of “*failure to rescue*”. This participant also reflected on their own experiences as a recipient of nursing care:

I used to know if the nurse who arrived at my door was senior or junior and I used to describe it as the nursing gaze because they would stand at the door and if they were an experienced nurse they would do that sort of sweep of the room and they'd say, hi, I'm coming to take your blood pressure, but they'd walk forwards picking up this, moving that, lifting that, checking this, looking at that, fiddling with the other. If it were a junior nurse she would come in and stare at the blood pressure cuff on the wall and say, I am coming to take your blood pressure, and that's what she would do and then she would leave [pause] but by and large the more inexperienced they were the more task focused they were and the less safe you felt. (Nurse Author Interview - Participant 4).

At the completion of Round 1, Donabedian's (1980) framework of structure, process and outcomes was used to organise the data and identify individual concepts from the interview data. This process resulted in lists of key concepts that were then organised into structure, process and outcome categories under headings to group similar concepts together. The first draft of the conceptual framework was developed at the completion of Round 1 and is presented in Figure 1.

***** Insert Figure 1 here*****

Round 2

One hundred and ninety-six participants completed the round 2 survey. Most participants were female (n= 172, 87.8%), were aged over 35 years (n=169, 86.2%), worked in the public healthcare system (n=165, 84.2%), and had over 15 years

nursing experience (n=143, 73.0%). The demographic characteristics of participants is summarised in Table 1.

***** Insert Table 1 here*****

Fifty-five of the 56 concepts achieved consensus agreement (>75%) on their importance. Most concepts (n=45; 80.4%) achieved higher than 90% agreement on their importance and 4 (7.1%) of these reached unanimous consensus. Only the item, 'number of referrals' failed to achieve consensus as important, with only 134 participants (68.4%) rating this item as 'important'. The concepts examined in round 2 are listed in table 2 by percentage agreement on importance. The concepts are organised into the framework described in Figure 1.

Round 2 participants provided significant qualitative feedback and proposed an additional 52 new concepts for consideration in the subsequent round. The qualitative feedback was related to the following domains: 1) Structural measures; patient characteristics; nurse characteristics; organisational characteristics. 2) Process measures; patient perceptions; concepts related to the process of care. 3) Outcome measures; safety outcomes; patient perceptions / satisfaction; quality of care indicators. Using Braun and Clarke's (2006) thematic analysis framework, similar comments were grouped together and collapsed where possible. Unique statements were then identified. As a result of this analysis, 52 new concepts for inclusion in the round 3 survey were identified.

***** Insert Table 2 here*****

Round 3

One hundred and sixty-nine round 2 participants completed the round 3 survey (response rate 86.2%). The concept that did not achieve consensus agreement in round 2 was relabelled from 'number of referrals' to 'caseload' based upon participant feedback. With this change, 161 participants (95.3%) rated the concept as important. Of the 52 new concepts presented in round 3, 47 concepts (90.4%) achieved consensus agreement on their importance (Table 3). Two of these concepts achieved unanimous agreement on their importance, namely: leadership of unit; and communication processes within unit, (e.g. handover). Forty-one of these concepts (78.8%) achieved higher than 90% agreement on their importance. Five of the concepts did not achieve consensus agreement, namely: patient's age (66.1%); type of presentation (68.0%); affiliation with research / academic unit (71.4%); patient's cultural background and/or language spoken at home (73.2%); and staff cultural and language background (74.0%). The concepts examined in round 3 are listed in table 3 by percentage agreement on importance. The concepts are organised into the same framework described in Figure 1 and used in Round 2.

***** Insert Table 3 here*****

Round 4

One hundred and twenty-eight of the 169 round 3 survey participants participated in round 4 (response rate 75.7%; 65.3% of original participants). Participants were presented with the eight constructs identified by the researchers and asked to indicate their agreement on whether concepts had been themed into appropriate constructs. Consensus was achieved for 97% (n=100) of the concepts being themed

in an appropriate construct. Given that the majority of participants confirmed the constructs presented in the survey, no changes were made to the conceptual groupings.

At the completion of the Delphi technique, the researchers refined the conceptual framework for measuring the quality and safety outcomes of nursing practice. A visual representation of that framework which includes the constructs agreed in round 4, is presented in Figure 2. This version of the framework builds on the framework presented in Figure 1 by conceptualising the process and outcome measures into the constructs of: care and caring; communication; coordination and collaboration; and safety.

***** Insert Figure 2 here*****

DISCUSSION

In this study patients, nurse authors and clinical nurses were used to identify the important concepts on how nursing practice can be measured and obtain consensus agreement on their importance. Participants were from a broad range of geographic areas, nursing roles & clinical specialty areas. The high response rate across all rounds demonstrates the participants' commitment to identifying appropriate concepts for measuring nursing practice; gaining consensus on the importance of those concepts; and identifying how those concepts could be conceptualised. Most participants (73%) had in excess of 15 years' experience as a nurse and is confirmation of their expertise and ability to contribute to knowledge generated in this study.

At the completion of four rounds of the modified Delphi technique, consensus had been achieved on 103 concepts seen as being important in measuring nursing practice. These 103 concepts were then organised into 8 constructs and agreement from participants on the constructs and conceptual groupings was achieved. Participants in this study identified a broad range of concepts that they deemed as important for measuring nursing practice within these 8 constructs. This is in contrast to what is seen in the literature in most NSPO research, as most indicator sets such as NDNQI (Press Ganey 2017) and CALNOC (2017) examine indicators related to patient safety as their primary focus. Indicators typically include concepts such as falls, pressure injuries and medication errors as well as measures of nurse staffing such as the quantity and attributes of the nursing staff including skill mix, educational preparation and hours of care. These indicators are included in the 103 concepts identified in this study, but the contrast between this research and existing datasets (such as NDNQI and CALNOC) comes when exploring the concepts of caring, communication and the coordination and collaborating roles of the nurse (which might be seen as indicators of quality). Some may argue that safety is the most important construct in healthcare, and it is indeed, very important. However, if the only component of nursing practice that is evaluated relates to safety then other components of the nursing role become devalued and nurses may cease to provide comprehensive care that is focused on the unique and varying requirements of each individual. This would have significant implications for nursing as a caring profession and for patient outcomes when the caring components of the nursing role and the need for high levels of communication to avert poor outcomes are seen in most health care enquiries (for example: Francis Report; Garling report; To Err is Human)(Francis 2013, Garling 2008, Institute of Medicine 2001)

Some large scale research initiatives such as RN4CAST use patient experience data from tools such as HCAHPS (Aiken *et al.* 2016) to provide a broader context to NSPO research. Inclusion of patient reported outcomes is increasingly being seen as pivotal in evaluating nursing practice. The National Nursing Research Unit (NNRU) at King's College London (Maben *et al.* 2012) promoted this approach in 2012. The NNRU identified the need to link nursing quality measurement to patient experiences of care and suggested that patient experiences of dignity, respect, involvement in decision making and information provided to them about their treatment, should be examined as part of evaluating nursing practice (Maben *et al.* 2012). Including patient experiences within NSPO research is relatively new and has not been reported in existing indicator sets such as NDNQI and CALNOC (CALNOC 2017, Press Ganey 2017). The indicators identified in this study embrace the concept of person-centredness as a foundational element of high quality, safe nursing care (McCormack & McCance 2017). Focusing on person-centredness is consistent with recommendations from a number of organisations and individuals (for example, Australian Commission on Safety and Quality in Health Care 2010, Berwick 2008, Institute of Medicine 2001) but has not been reported in NSPO research to date.

Similarly, most of the published conceptual frameworks which examine nursing outcomes have a primary focus on either safety outcomes or nurse staffing (Stone *et al.* 2007, Unruh 2008). Only, a small number have a broad focus on the quality and safety of nursing practice from the perspective of the person receiving nursing care. The most notable of these are: the Quality Health Outcomes Model (Mitchell *et al.* 1998); the Nursing Role Effectiveness Model (Doran *et al.* 2006); the ANA Nursing Report Card (Jones *et al.* 1997); the AHRQ Nurse staffing and quality of patient care

(Hughes 2008); the Outcomes Assessment Tool for Acute Care (Cranley & Doran 2004); and the Nurse staffing, Quality of care and Outcomes conceptual framework (Clarke & Donaldson 2008). The conceptual framework developed within this project expands on these previous approaches in the following ways. Firstly, it categorises nursing care into constructs that describe the actions of nurses which relate directly to the work that nurses undertake within their clinical practice. Examination of these constructs enables conceptualisation and measurement of the work nurses do. Secondly, this conceptual framework has used a person-centred lens to develop and conceptualise the framework (McCormack & McCance 2006). This means that it seeks to examine indicators and outcomes that relate to the person receiving nursing care. Thirdly, the conceptual framework uses language that the recipients of nursing care can understand and interpret. This was a deliberate decision to ensure that the nomenclature used to describe nursing could be understood by the recipients of nursing care, the healthcare team, all nurses and the general public. Finally, this conceptual framework explicitly uses structure, process and outcome measures (Donabedian 1988) to ensure that the link can be made between what nurses do and the outcomes they achieve.

Limitations

In Round 1, there were a number of limitations related to sampling. All patient participants responded to a promotional flyer and as a result were self-selected. Self-selection may have resulted in some degree of bias due to a person's desire and willingness to participate. The consensus rounds within this study involved a purposeful sample of clinical nurses in a single region of New South Wales,

Australia. While the sample was large when compared to other Delphi surveys, care needs to be taken when transferring findings to other health services. International comparison would need to consider the health care system and the role of nurses in their context. Another limitation of this research is that it has not identified how data from the 103 concepts identified in this project would be collected or whether it is feasible to measure nursing practice from the 8 domains identified in the conceptual framework. These will need to be tested in future research.

CONCLUSION

Consensus was achieved by nurses on the most important concepts which can provide the basis for measuring the quality and safety of nursing practice. These concepts examine patient outcomes that occur as a result of nursing care in a holistic and comprehensive way and can be used to develop indicators of nursing practice. This research provides a conceptual framework that can be used by nurses, units and hospitals to explore the important constructs in nursing practice and provides guidance on the important concepts that can be used to examine the quality and safety outcomes of nursing care. Further testing is required to determine how the concepts identified within this study can be measured and the feasibility and efficacy of such a tool.

RELEVANCE TO CLINICAL PRACTICE

The findings of this study demonstrate that nurses want more than the safety outcomes to be used to evaluate their practice. Traditional NSPO's such as falls, pressure injuries and medication errors were identified by participants in this study.

However, patient experiences and the characteristics of the working environment achieved close to 100% agreement on importance by participants. The concepts of providing care and *being* caring, effective communication and the important skills of coordination & collaboration of the care experience were all recognised as pivotal to measuring the outcomes of nursing practice. Reliable and feasible ways of examining these concepts must now be identified so that both the safety and the quality of nursing practice can be evaluated.

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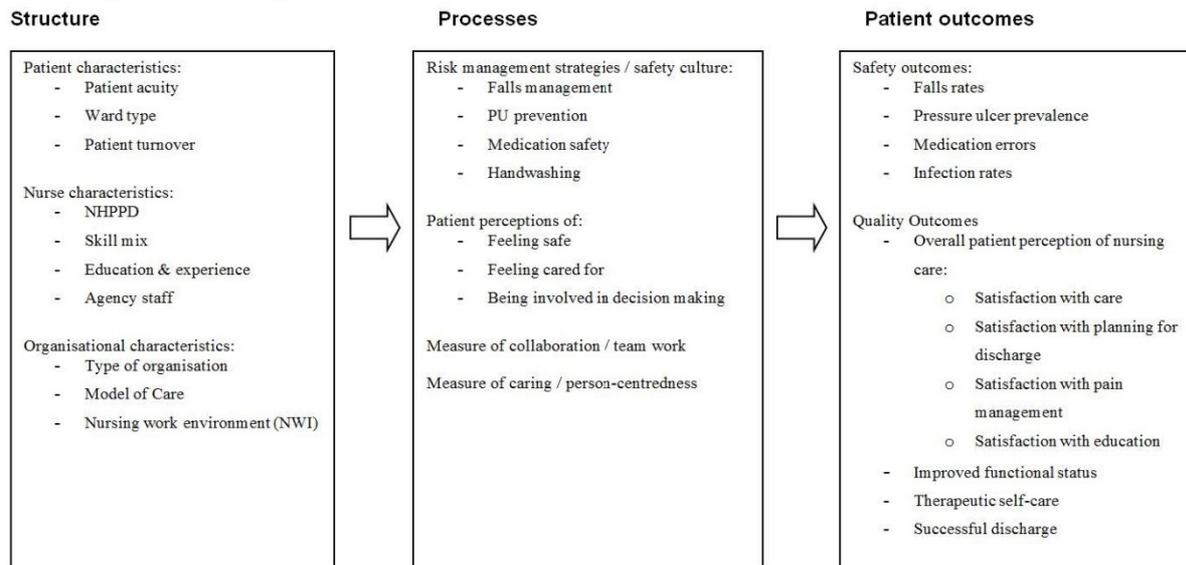


Figure 1: Summary of concepts identified in Round 1

Table 1: Characteristics of Round 2 participants

Characteristics	n (n=196)	%
Sex		
Male	23	11.7
Female	172	87.8
No answer	1	0.5
Type of organisation		
Public	165	84.2
Private	31	15.8
Role		
AIN (Assistant in Nursing)	2	1.0
EN / EEN (Enrolled Nurse / Endorsed Enrolled Nurse)	6	3.1
RN (Registered Nurse)	48	24.5
CNS (Clinical Nurse Specialist) / CNC (Clinical Nurse Consultant)	62	231.6
CNE (Clinical Nurse Educator) / NE (Nurse Educator)	20	10.2
NUM (Nurse Unit Manager) / NM (Nurse Manager)	58	29.7
Age		
18-24	8	4.1
25-34	19	9.7
35-44	44	22.4
45-54	78	39.8
55-65	46	23.5
Over 65	1	0.5
Years of nursing experience		
0-5	17	8.7
6-14	36	18.4
15-24	47	24.0
Over 25	96	49.0

Table 2: Round 2 Agreement on importance

Item	Level of agreement on importance (%)	Mean	Std. Deviation
Structural measures: Patient characteristics			
Patient acuity	98.0	1.28	0.51
Diagnosis Related Group (DRG)	83.7	1.80	0.76
Patient turnover	83.1	1.88	0.84
Ward / department type	82.0	1.90	0.76
Casemix information	79.6	1.95	0.77
Structural measures: Nurse characteristics			
Skill mix of nursing staff	99.5	1.16	0.38
Education of nursing staff	99.5	1.28	0.46
Experience of nursing staff	99.0	1.27	0.47
Hours of available nursing care	98.5	1.27	0.53
Number of casual staff	84.0	1.74	0.78
Number of agency staff	76.2	1.95	1.12
Number of referrals	68.4	2.19	0.92
Structural measures: Organisational characteristics			
Management support	99.5	1.20	0.44
Nursing work environment	97.9	1.33	0.51
Relationships with nursing colleagues	97.9	1.35	0.59
Relationships with other health professionals	97.4	1.42	0.55
Model of care in use	89.7	1.65	0.66
Type of organisation	76.7	1.99	0.69
Process measures: Patient/client perceptions			
Patient/client perceptions of feeling 'safe'	100	1.16	0.37
Patient/client perceptions of being involved in decision making	100	1.25	0.43
Patient/client perceptions of feeling 'cared for'	99.0	1.19	0.42
Patient/client perceptions of care	99.0	1.31	0.51
Process measures: Concepts related to the process of care			
Presence of caring attitudes and actions	100	1.18	0.39
Presence of collaboration between healthcare professionals	100	1.35	0.48
Processes for safe administration of medications	99.5	1.19	0.47
Presence of teamwork	99.5	1.21	0.42
Presence of a safety culture	99.0	1.35	0.50
Hand hygiene practices	98.5	1.22	0.45
A person centred approach to care	98.4	1.20	0.44
Falls prevention strategies	97.9	1.42	0.58
Pressure ulcer prevention strategies	95.9	1.45	0.69
Risk management strategies	95.9	1.47	0.60
Outcome measures: Safety outcomes			
Medication errors	99.0	1.17	0.40
Hospital acquired infections	96.4	1.33	0.59
Pressure ulcer prevalence	95.8	1.57	0.65
Hospital acquired pressure ulcers	95.3	1.38	0.65
Number of falls with injury	95.3	1.46	0.6
Number of patient / client falls	94.8	1.56	0.59
Central line associated blood stream infections	93.2	1.38	0.73
Peripheral IV associated blood stream infections	93.2	1.38	0.72
Failure to rescue	89.1	1.57	0.80
Mortality rates	87.5	1.69	0.81
Outcome measures: Patient/client perceptions or satisfaction			

Patient/client satisfaction with pain management	98.4	1.24	0.46
Overall satisfaction with nursing care	97.9	1.42	0.58
Patient/client satisfaction with individual focus of care	97.9	1.43	0.54
Patient/client perceptions of nursing care	97.4	1.42	0.59
Patient/client satisfaction with education from nurses	97.4	1.46	0.60
Patient/client satisfaction with planning for discharge	96.9	1.52	0.65
Outcome measures: Quality of care indicators			
Reduction / relief of symptoms	98.4	1.28	0.48
Improved quality of life	98.4	1.34	0.51
Timely and successful referral to other health professionals	98.4	1.40	0.52
Patient/client participation in self-care	98.4	1.44	0.53
Chronic disease management strategies in place and understood	97.9	1.46	0.54
Patient understanding of disease process	97.4	1.55	0.55
Improvements to functional status	95.3	1.56	0.58
Successful discharge	95.2	1.45	0.63

Table 3: Round 3 Agreement on importance

Item	Level of agreement on importance (%)	Mean	Std. Deviation
Structural measures: Patient characteristics			
Patient's willingness to participate in care	98.8	1.46	0.58
Cognitive status of patient	95.9	1.47	0.65
Pre-admission level of independence / dependence	95.9	1.52	0.60
Pre-admission quality of life	92.9	1.65	0.67
Patient expectations regarding healthcare intervention	92.9	1.67	0.71
Family involvement in care	91.7	1.72	0.68
Patient's cultural background and/or language spoken at home	73.2	2.08	0.89
Presentation to hospital e.g. emergency, elective	68.0	2.14	0.87
Patient's age	66.1	2.13	0.90
Structural measures: Nurse characteristics			
Leadership of unit	100	1.16	0.37
Competency of staff	98.2	1.20	0.47
Nurse to patient ratio	98.2	1.21	0.5
Nursing culture	98.2	1.32	0.51
Well-being of nursing staff	97.6	1.29	0.51
Caseload	95.3	1.41	0.60
Staff turnover (e.g. resignations and recruitment)	93.5	1.57	0.63
Nursing overtime worked	89.9	1.59	0.72
Physical fitness of nursing staff	82.8	1.96	0.66
Staff cultural and language background	74.0	2.03	0.83
Structural measures: Organisational characteristics			
Organisational commitment to providing best practice	98.8	1.29	0.48
Organisational commitment to providing person-centred care	97.0	1.39	0.55
Organisational culture	97.0	1.45	0.56
Utilisation of evidence based practice within organisation	96.4	1.44	0.59
Presence / availability of members of the multidisciplinary team	95.8	1.44	0.58
Management experience and qualifications	94.6	1.55	0.62
Presence / availability of after-hours education and support	92.9	1.69	0.64
Presence / availability of auxiliary staff in unit	88.0	1.84	0.63
Affiliation with research / academic unit	71.4	2.10	.731
Process measures: Patient perceptions			
Patient perceptions of 'being heard'	99.4	1.25	0.45
Patient perception of 'being informed' about nursing care	99.4	1.26	0.45
Patient perceptions of communication with nurses	99.4	1.31	0.48
Family perception of being involved in decision making (where relevant)	98.9	1.44	0.58
Patient perception of trust in nurses	98.2	1.28	0.49
Patient perception that care is appropriate / best practice	95.2	1.47	0.59
Process measures: Concepts related to the process of care			
Communication processes within unit (e.g.	100	1.18	0.39

handover)			
Documentation of nursing care within medical record	98.8	1.26	0.49
Documentation of a comprehensive physical and mental health assessment	98.8	1.37	0.57
Continuity of care provided to patient	98.8	1.39	0.51
Documentation of nursing assessment within medical record	98.2	1.28	0.49
Delirium prevention strategies	93.4	1.62	0.66
Outcome measures: Safety outcomes / Quality of care indicators			
Patient education about discharge medications	97.0	1.36	0.56
Number of clinical incidents / near misses	95.2	1.46	0.59
Incidence of self-harm post admission	88.7	1.68	0.69
Incidence of delirium post admission	88.1	1.73	0.68
Unplanned readmissions	85.6	1.74	0.73
Length of stay	79.8	2.00	0.80
Outcome measures: Patient perceptions / satisfaction			
Patient satisfaction related to communication with nurses	98.8	1.43	0.58
Family satisfaction with information provided by nursing staff (where relevant)	97.6	1.53	0.57
Patient perception of whether their expectations of their healthcare intervention have been met	97.6	1.55	0.55
Family satisfaction with involvement in care (where relevant)	97.6	1.55	0.60
Patient satisfaction with management of incidents and / or complaints	97.0	1.46	0.58
Patient satisfaction with support provided to family / carers	95.8	1.58	0.62
Patient satisfaction with cultural awareness of nursing staff	94.0	1.70	0.68

Nursing-sensitive patient outcomes

Structure

Processes + Patient Outcomes

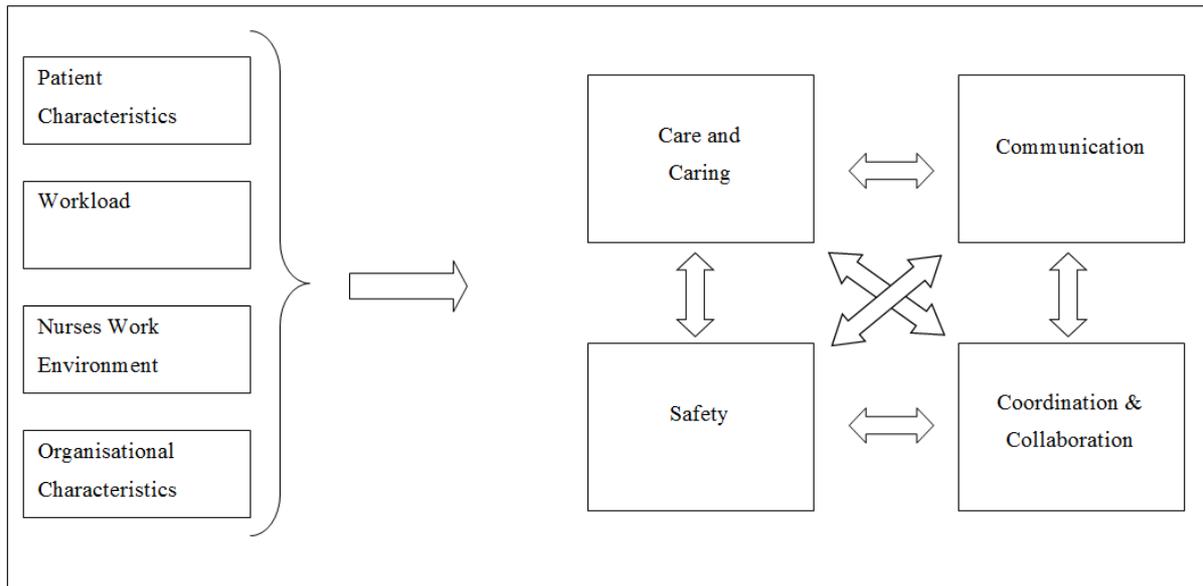


Figure 2: A conceptual framework for measuring the quality and safety outcomes of nursing practice.