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Individualised care and the professional practice environment: nurses' perceptions

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Aim: To describe individualised care and the professional practice environment from nurses' point of view and to explore the associations between them.

Background: There is an increasing emphasis on individualised nursing care within the literature and the health-care context. Preliminary evidence suggests that the implementation of individualised care is associated with the practice style of care, work organization and the practice environment.

Methods: An exploratory correlational survey was used. Data were collected using the Individualised Care Scale and Revised Professional Practice Environment instruments from nurses and nurse managers ($n = 207$, response rate 59%) working in in-patient wards of three acute hospitals' 13 different units in Finland in 2008. Data were analysed based on descriptive statistics and Spearman's rho correlations.

Findings: Nurses perceived that they generally support patient individuality and that the care they provided was individualised. Nurses' perceptions about the support of individuality and views on individuality of care provided were associated with handling conflict, work motivation, control over practice, leadership and autonomy, relationships with physicians and cultural sensitivity.

Discussion: The findings support the perception that individualised care and the professional practice environment are associated. There is a need for further studies to examine these associations more closely. Manipulating aspects of the environment may possibly be used to increase the ability of the nurses to provide individualised care. Patient perspectives should be included in future studies. Because of the national data, the results are indicative only.

Conclusions: The recognition of the associations between individualised care and professional practice environment elements may help to develop individualised clinical nursing care.

Keywords: Finland, Individualised Care Scale, Individualised Nursing Care, Professional Practice Environment, Questionnaire, Survey

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Introduction

Individualised care is of global interest, affecting and demonstrating values of health care (OECD 2004; Thompson et al. 2006; WHO 2007). It has been reported as an indicator of quality (Cohen-Mansfield & Parpura-Gill 2008; Suhonen et al. 2002), or

a process or specific set of nursing activities aiming to produce positive patient outcomes (Suhonen et al. 2008a). Individualised nursing care both as a concept and as a process of care appears to be influenced by various factors deriving from the professional practice environment where the care takes place (Redfern 1996; Suhonen et al. 2009; Walker et al. 1999). However, there is scarcity of studies aimed to examine the associations between the implementation of individualised care and the professional practice environment (Suhonen et al. 2009).

Individualised care acknowledges the uniqueness of the individual and the importance of providing care, which is tailored to meet individual needs (Radwin & Alster 2002; Thompson et al. 2006). Suhonen et al. (2005) defined individualised care as a type of nursing care delivery in which nurses, in order to promote patient participation in decision making, take into consideration factors such as patients' personal characteristics, their clinical condition, their personal life situation and their preferences.

Background

Theoretically, the environment in which care is delivered affects the patient, patient outcomes, nursing and the nursing staff, and the institutional outcomes (Aiken et al. 2001; Rafferty et al. 2007). Organization-related factors that affect nurses' work have been well documented in the literature (Corley et al. 2005; Lake & Friese 2006). Practice environment research has broadened to link practice environment variations directly to both nurse staffing and hospital characteristics (Lake & Friese 2006), as well as indirectly to patient outcomes (Lake & Cheung 2006; McGillis Hall & Doran 2004) and staff outcomes (Lake & Friese 2006; Rathert & May 2007).

Nurses in countries with distinctly different health-care systems report similar shortcomings in their work environments in association with the quality of hospital care (Aiken et al. 2001; Rafferty et al. 2007). There is a need to examine the professional, managerial and workforce issues in nursing, nurse staffing levels (Rafferty et al. 2007; Suhonen et al. 2007), patient care delivery models (McGillis Hall & Doran 2004; Suhonen et al. 2007), and organizational and environmental factors (Cohen-Mansfield & Parpura-Gill 2008; Ives Erickson et al. 2004).

Organization-related factors have been found to influence the ability of the nurses to know the patients and provide individualised care (Gutierrez 2005; Suhonen et al. 2009). Preliminary evidence exists that the implementation of individualised care is associated with a practice style of care, work organization and practice environment (Cohen-Mansfield & Parpura-Gill 2008; Suhonen et al. 2009). In the literature, it is evident that nurses desire to provide individualised care (Suhonen et al. 2009), while their successful provision of individualised care influences nurses' perceived work satisfaction (Perry 2006; Rathert & May 2007). Individualised care holds promise for improving patient care and creating satisfying work roles (Hall et al. 2007; Tellis-Nayak 2007). Vice versa, the feelings of a good or ethical environment or climate produce energy for individualizing nursing care. When the workplace adds quality to the life of nurses, nurses add quality to the life of the patients (Tellis-Nayak 2007). Nursing staff reported that individualised care decreased the isolation of nurses and permitted a high degree of freedom of choice for them, and increased their competence and responsiveness to the patient's perspective (Cohen-Mansfield & Parpura-Gill 2008).

Ethical climate is also perceived as an organizational variable that can be manipulated in order to improve the health-care environment and provide the context for ethical decision making. Ethical sensitivity requires nurses to be aware, and to interpret verbal and non-verbal clues and behaviours in order to identify patients' needs and offer individualised care (Corley et al. 2005). However, moral distress, conflicts and the lack of ethical climate have all been found to decrease the level of individuality in care (Gutierrez 2005).

The professional practice environment generally consists of nurses' autonomy and accountability (Aiken et al. 2002; Kramer & Schmalenberg 2003; Thompson et al. 2006), and is considered important to the organizational empowerment of nurses and to the establishment of effective work teams (Laschinger & Havens 1996; Massachusetts General Hospital 2007). The professional practice environment not only includes the structural factors of the environment (e.g. technology) but also includes human behaviour factors such as teamwork (Curry et al. 2000; Ives Erickson et al. 2004; Redfern 1996), climate, atmosphere (Redfern 1996; Walker et al. 1999), social relations, leadership and management (Ives Erickson et al. 2004; Redfern 1996; Suhonen et al. 2009).

Practice environments can be seen as a continuum from bureaucratic to professional. In bureaucratic environments, decision making is more centralized, and relationships between nurses and physicians are more hierarchical (Lake & Friese 2006). Better qualified nurses may create or demand a more professional environment, while more professional environments may attract nurses more easily and may facilitate the retention of staff (Lake & Friese 2006). Both the hospital organizational context (environment and technology) and the nursing unit structure (e.g. nurse–physician collaboration) influence outcomes (Carey & Courtenay 2007; Rafferty et al. 2007). Organizational models, such as magnet hospitals, achieve better patient and nurse outcomes by means of enhanced nurse autonomy, nurses' control over their work environment and nurses' relations with physicians (Aiken et al. 2002; Kramer & Schmalenberg 2003).

The professional practice environment has many dimensions, some of which appear to be associated with the individualised care provided (Suhonen et al. 2009). While the association between professional practice environments and individualised care is not well known, there is a need to explore this association more closely. The preceding studies present a plurality of conceptualizations in relation to the different dimensions of 'professional practice environment', an aspect that was addressed by this study through the use of the Revised Professional Practice Environment (RPPE). This study demonstrated which aspects of the practice environment, as perceived by nurses, can contribute to their ability to provide individualised care.

Aim

The aim of this study was to describe individualised care and professional practice environment from nurses' points of view and to explore the associations between them. It is part of a larger cross-national study aimed at evaluating the realization of patient individuality in different clinical settings from nurses' perspectives. The ultimate goal is to develop more individualised clinical nursing practice that is responsive to patients' diverse needs. Based on the literature, it was hypothesized that nurses' perceptions of individualised care are positively associated with perceptions of professional practice environment elements. The research questions were as follows:

1 To what extent do nurses perceive that they support patient individuality in care, based on the Individualised Care Scale (ICS) A-Nurse?

2 To what extent is the care the nurses provide individualised, based on the ICS-B-Nurse?

3 What are nurses' perceptions about professional practice environment?

4 Are perceptions of individualised care and professional practice environment associated?

Methods

Design

This study employed an explorative correlational survey design. Data were collected from nurse professionals using self-completed questionnaires.

Population, samples and research sites

The data were collected from three acute hospitals' 13 different units at 1 out of 20 hospital districts in Finland (one central hospital, two regional hospitals; clustered sampling) using questionnaires including the ICS-Nurse and the RPPE between 8 May and 13 June 2008. The participating hospitals included one inner-city central hospital with one satellite regional hospital and one rural regional hospital. The sampling frame included all nurses working in the in-patient wards of the hospitals (total sampling) as all nurses participate in the care delivery.

A research assistant distributed the questionnaire for eligible participants (registered nurses, licensed practical nurses and nurse managers, $n = 354$) working in surgical general, surgical orthopaedic, internal medical, maternity and gynaecological wards. The completed questionnaires were sealed in envelopes and left on the wards for the research assistant to collect them. A total of 207 were returned (response rate 59%). The response rate varied between the participating hospitals and wards.

Measures

The *ICS-Nurse version* (Suhonen et al. 2010) is a two-part questionnaire designed for purposes of exploring nurses' views on individualised patient care on two dimensions: The ICS-A-Nurse (support of patient individuality) is a 17-item Likert-type scale (1 = *strongly disagree*, 2 = *disagree to some extent*, 3 = *neither agree nor disagree*, 4 = *agree to some extent*, 5 = *strongly agree*) designed for exploring nurses' view on how they support patient individuality through nursing activities. The ICS-B-Nurse (perceptions of individuality in care provided) is also a 17-item Likert-type scale exploring nurses' views on the extent of individuality in patients' care received. Both scales consist of three subscales: (1) clinical situation (seven items; *physical and psychological care needs*, *fears and anxieties*, *abilities or capacities*, *health condition*, *meaning of illness*, *reactions or responses to illness*, *and feelings or affective states*), (2) personal life situation (four items; *life situation in general and daily activities*, *habits or preferences*, *cultural background or traditions*, *family involvement and earlier experiences of hospitalization*), and (3) decisional control over care (six items; *knowledge about illness and treatment*, *making choices and having alternatives*, *decision making*, *expressing own views*, *opinions*, *wishes or making proposals*).

Internal consistency reliability by Cronbach's alpha coefficient was 0.88 for the ICS-A-Nurse (subscales 0.72–0.83) and 0.90 (0.73–0.84) for the ICS-B-Nurse in Finnish nurses' data (Suhonen et al. 2010). Average inter-item correlations were all in acceptable level of $r > 0.30$ (Burns & Grove 2005). Principal components analysis (varimax rotation with Kaiser's normalization) produced a three-factor solution supporting the conceptual basis of the ICS scales, explaining about 52% of the variance in ICS-A-Nurse (55% ICS-B-Nurse) (Suhonen et al. 2010). Structural equating modelling using the LISREL (Scientific Software International Inc, Chigaco, IL, USA) supported also the theoretical model (Suhonen et al. 2010), giving evidence about the content and construct validity of the ICS scales.

The ICS-Nurse is based on the same content as the ICS-Patient Questionnaire (Suhonen et al. 2005), which has been widely used in many countries in international health-care contexts (e.g. Suhonen et al. 2008b).

The *RPPE* Scale (Ives Erickson et al. 2004) is a 39-item instrument using a 4-point Likert-type scale measuring professional practice environment characteristics: handling disagreement and conflict (nine items, three negatively worded), internal work motivation (eight items), control over practice (five items), leadership and autonomy in clinical practice (five items), staff relationships with physicians (two items), teamwork (four items, three negatively worded), cultural sensitivity (three items) and communication about patients (three items, one negatively worded). Average means scores should be used with equal weighting.

The RPPE is based on the interdisciplinary Massachusetts General Hospital Professional Practice Model (PPM) (Massachusetts General Hospital 2007) and had a previous 42-item version. The PPM's core elements are: professional staff leadership and autonomy in practice; control over one's practice; collaborative governance stressing staff participation in decision making about patient care and the environment within which care is delivered; interdisciplinary communication and teamwork; use of a problem-solving approach to handle disagreements and conflict; enhanced internal work motivation; and delivering culturally sensitive, competent care to patients of all ethnic groups (Ives Erickson et al. 2004). The original instrument was developed in the USA in English. A standard forward–back translation method was performed using two official translators. The different RPPE versions were analysed and evaluated in a group of three senior researchers. The content and clarity of the items were discussed in detail to find 100% agreement and to achieve the semantic equivalence (Beck et al. 2003).

Data analysis

The data were analysed statistically using SPSS 14.0 for Windows (SPSS Inc., Chicago, IL, USA). As there were low missing data, no returned questionnaires were dropped from the analysis, and no imputation was performed. Data were analysed using descriptive statistics [frequencies, means, 95% confidence intervals (CI) and standard deviations) on an item and subscale level. Negatively worded items of the RPPE were reversed (Massachusetts General Hospital 2007). All mean subscale scores were formed by adding the subscale items together and then dividing that sum by the number of items in the appropriate subscale, making it possible to use mean scores of the sum variables (Burns & Grove 2005). Spearman's rho correlations were computed for analysing the associations between the ICS-Nurse and RPPE subscales. The internal consistency reliability of the instruments was evaluated using Cronbach's alpha.

Ethical considerations

The study was approved by the Research Committee of the Hospital District and included an ethical evaluation. Permission to collect the data was obtained from the chief administrators of the participating hospitals. Every effort has been made to ensure the anonymity and confidentiality of the participants during and after the completion of the study. Oral and written information was given to the potential participants, and those who completed the questionnaires were considered as consenting to participate in the study. Questionnaires were returned in sealed envelopes to letter boxes situated in the units. Permission to use the RPPE instrument was obtained (from Dr Jones, Boston General Hospital, 20 February 2008).

Findings

Participants' demographics

The mean age of the participants was 43 years (range 20–64), and almost all were females ($n = 204$, 99%). Participants had a good experience of health care with the range of 1–39 and mean of 18 years. The majority of them was registered nurses ($n = 206$, 61%), followed by practical nurses and a minority of ward managers (Table S1).

Perceptions of individualised care

Nurses perceived that they supported patient individuality (ICS-A-Nurse mean 4.02, 95% CIs 3.95–4.09), and they also thought that the care they provided for their patients was individualised (ICS-B-Nurse mean 4.05, 95% CIs 3.98–4.12). Support of patients' personal life situations was least realized (mean 3.55, CIs 3.43–3.66) (Table 1).

Perceptions about professional practice environment

Nurses regarded that that their work motivation was high (mean 3.36, CIs 3.31–3.40 in a 4-point scale). They perceived that they delivered culturally sensitive, competent care to patients of all ethnic groups satisfactorily (mean 3.25, CIs 3.18–3.32). Relationships with physicians were evaluated as good (mean 3.11, CIs 3.01–3.21), and communication about patients was realized satisfactorily (mean 3.03, CIs 2.96–3.09). Nurses also perceived that they have professional staff leadership and autonomy in their practice (mean 3.04, CIs 2.96–3.11).

Nurses perceived that they used a problem-solving approach to handle disagreements and conflicts (mean 2.72, CIs 2.68–2.77) and had well-functioning teamwork (mean 2.85, CIs 2.77–2.94) to a lesser extent. Nurses believed that they do not have control over practice (mean 2.39, CIs 2.30–2.48).

Table 1 Descriptive statistics for questionnaire subscales

Subscale	*n*	*Mean*	*SD*	*95% CI*	*Cronbach alpha*
The ICS-Nurse					
Support of individuality (ICS-A-Nurse)	207	4.02	0.51	3.95–4.09	0.88
Clinical situation (Clin-A-Nurse)	207	4.29	0.47	4.22–4.35	0.79
Personal life situation (Pers-A-Nurse)	207	3.55	0.82	3.43–3.66	0.73
Decisional control (Dec-A-Nurse)	207	4.03	0.56	3.94–4.10	0.70
Perception of individuality in care provided (ICS-B-Nurse)	207	4.05	0.50	3.98–4.12	0.90
Clinical situation (Clin-B-Nurse)	207	4.23	0.50	4.16–4.30	0.83
Personal life situation (Pers-B-Nurse)	207	3.66	0.73	3.56–3.76	0.73
Decisional control (Dec-B-Nurse)	207	4.10	0.53	4.02–4.17	0.75
The RPPE					0.86
Handling disagreement	206	2.72	0.33	2.68–2.77	0.47*
Internal work motivation	205	3.36	0.35	3.31–3.40	0.69
Control over practice	207	2.39	0.64	2.30–2.48	0.81
Leadership and autonomy	207	3.04	0.57	2.96–3.11	0.71
Staff relationships with physicians	207	3.11	0.70	3.01–3.21	0.76
Teamwork	207	2.85	0.60	2.77–2.94	0.72
Cultural sensitivity	205	3.25	0.50	3.18–3.32	0.69
Communication about patients	207	3.03	0.48	2.96–3.09	0.51*

*Subscale included negatively worded items.
CI, confidence interval; ICS, Individualised Care Scale; RPPE, Revised Professional Practice Environment; SD, standard deviation.

Associations between individualised care and professional practice environment

Nurses' perceptions about the support of individuality were correlated significantly with a problem-solving approach to handle disagreements and conflict ($r = 0.193$, $P = 0.005$), work motivation ($r = 0.212$, $P = 0.002$), control over practice ($r = 0.371$, $P = 0.001$), leadership and autonomy ($r = 0.224$, $P = 0.001$), relationships with physicians ($r = 0.196$, $P = 0.005$) and cultural sensitivity ($r = 0.296$, $P = 0.001$). There were no statistically significant correlations between support of individuality (ICS-A-Nurse), and teamwork or communication about patients (Table 2).

Nurses' views about the individuality of care they provided (ICS-B-Nurse) were significantly associated with a problem-solving approach to handle disagreements and conflict ($r = 0.261$, $P = 0.002$), work motivation ($r = 0.197$, $P = 0.0058$), control over practice ($r = 0.393$, $P = 0.001$), leadership and autonomy ($r = 0.228$, $P = 0.008$), cultural sensitivity ($r = 0.334$, $P = 0.001$) and communication about patients ($r = 0.173$, $P = 0.013$), but not with teamwork ($r = 0.025$, $P = 0.720$).

Table 2 Associations between the ICS-Nurse and RPPE subscales

	ICS-A-Nurse	*ICS-B-Nurse*
Handling disagreement	0.193**	0.261**
Internal work motivation	0.212**	0.197**
Control over practice	0.371***	0.393***
Leadership and autonomy	0.224***	0.228***
Staff relationships with physicians	0.196**	0.185**
Teamwork	0.076	0.025
Cultural sensitivity	0.296***	0.334***
Communication about patients	0.128	0.173*

Spearman's rho correlation coefficient, *$P < 0.05$; **$P < 0.01$; ***$P < 0.001$.
ICS, Individualised Care Scale; RPPE, Revised Professional Practice Environment.

Discussion

This study aimed to explore the associations between the professional practice environment and individualised care provided by nurses in acute hospital settings. The findings supported the initial perception that these are positively associated (Cohen-Mansfield & Parpura-Gill 2008; Gutierrez 2005; Suhonen et al. 2009). The correlations found were statistically significant but low. There was no association between individualised care and teamwork.

These findings coincide with previous studies that showed positive associations between individualised care and various aspects of professional practice environment, such as control over practice (Carey & Courtenay 2007), autonomous practice

(Aiken et al. 2002; Kramer & Schmalenberg 2003; Thompson et al. 2006), working climate (Corley et al. 2005) and leadership (Redfern 1996; Suhonen et al. 2009). These findings provide empirical evidence for the hypothesized associations, suggesting that strategies to enhance the provision of individualised care could be focused on professional practice environment aspects.

Overall, the reported levels of individualised care were high for the participants, supporting earlier results (Suhonen et al. 2010). However, in an international context, patients have given much lower evaluations about the support of individuality and provision of individualised care in acute care settings (Suhonen et al. 2008b). In the future, there is a need for the concurrent assessment of individualised care by both patients and nurses in similar settings, thereby giving a good standpoint for the development of nursing care from the patients' point of view. The concept of individualised care is well rooted in nursing and is highlighted in diverse statements (e.g. OECD 2004; Thompson et al. 2006; WHO 2007). Nurses may therefore tend to assess care according to what they think is required by the profession.

Various aspects of the professional practice environment were evaluated differently by the participants. High evaluations were found for some subcategories of professional practice environment and low evaluations for others, e.g. a problem-solving approach to handle disagreements and conflict, teamwork and control over practice. This may be because of the different meanings of the practice environment for different nurses. Some nurses may not think that the environmental factors, such as organizational structure, impact on their work (Suhonen et al. 2009). Identifying organizational variables may help to develop clinical care as practice environment factors have been reported to affect care provision (Suhonen et al. 2009), and patient (Lake & Cheung 2006; McGillis Hall & Doran 2004) and nurse outcomes (Lake & Friese 2006; Rathert & May 2007).

There were no statistically significant associations between support for individuality and teamwork. This finding coincides with previous findings that show this to be a question about how individual nurses behave, how they commit to care and their inter-professional relationships (Cohen-Mansfield & Parpura-Gill 2008; Suhonen et al. 2009). An interpretation of this finding is that the core of individualised care lies in the person delivering the care (Gutierrez 2005; Tellis-Nayak 2007) and possibly not on how well the person can work with colleagues (Curry et al. 2000; Walker et al. 1999). A nurse who is committed to provide individualised care to patients will not be negatively affected by the practices of his/her surroundings.

Nurses reported that they lacked control over practice (or, at least, not to the desired level), which can be interpreted as lack of autonomous practice (Aiken et al. 2002; Kramer & Schmalenberg 2003; Thompson et al. 2006). This has been found to have an influence on the provision of individualised care (Cohen-Mansfield & Parpura-Gill 2008; Suhonen et al. 2009). Their lack of control over practice can be interpreted as the result of a bureaucratic environment, which limits decision making at the nurse level and instead facilitates centralized decision making (Lake & Friese 2006). This is an important finding that needs to be taken into consideration by managers, policy makers and health-care services. A growing body of literature supports that lack of control, and therefore, lack of autonomy can negatively influence the provision of quality care to patients (Mrayyan 2009; Raftery et al. 2005). Therefore, action needs to be taken towards this direction, possibly in the form of intervention studies.

International implications

The findings of this study contribute to the description of nurses' perceptions of individualised nursing care in association with the professional practice environment. Individualised care consists of an aspect of the care provided to patients that has an international dimension and can hardly be considered as a national problem solely for Finland. The findings reported in this paper are consistent with those of the other countries participating in the larger cross-national study, which aimed at evaluating the realization of patient individuality (Suhonen et al. 2008b). The findings point to the international relevance of the concept of individualization for nurse professionals in the study countries as well as the implementation of the recommendations proposed here. This information will assist in the development of nursing care in different clinical settings, taking always into consideration those factors deriving from the local practice environment in the process.

The findings suggest an implementation technique for the individualization of care processes and will also further nursing theory while testing the model of individualised nursing care in different clinical settings. The study confirmed the hypothesis that individualised care and aspects of the professional practice environment are positively correlated. Bearing in mind that the practice environment can influence clinical practice and outcomes, actions can be taken upon addressing those aspects of the environment that were found to influence individualised practice.

Limitations and methodological considerations

The Cronbach's alpha values reported in this study (Table 1) regarding the items of the used tools appeared within acceptable margins ranging from 0.69 to 0.90. Only the values of two items from the RPPE subscales were found to have very low alpha values, namely, conflict ($\alpha = 0.47$) and communication

($\alpha = 0.51$). However, these low alphas can be explained by the fact that these two subscales have negatively worded items, which can attribute to decreased alpha scores. Another limitation of the study is the fact that the various wards from the participating hospitals did not equally participate in the sample. For example, surgical general and internal medical had the lowest response rates, resulting in their underrepresentation in the sample.

The regional and national sample selected for this study was relatively small. However, total sampling was used, and a satisfactory response rate (59%) was obtained. Thus, the findings have adequate generalizability from a national perspective. However, the results can add knowledge about practice environment factors that may have an influence on the provision of individualised care for patients.

The study has taken a specific stance towards the topic under investigation, that of the nurse. As these were nurses' perceptions, they consist of only one side of the topic. Taking a more holistic approach to the topic means that the patients' point of view will also need to be investigated and compared with those of the nurses. The need to incorporate patients' perceptions in future studies is stressed by the fact that the development of clinical care cannot solely be justified by nurses' opinions.

Conclusion and implications for research

The findings stressed that the environment and the provision of individualised care to patients are closely associated. There is a further need to examine the ways that the environment, organizational climate issues and ward level influence individualised care. Based on the findings, changing care towards a more individualised approach will almost certainly require changes in working conditions, the organization of care, the structure and process of care, and the leadership and management (Suhonen et al. 2009).

Future research needs to focus on the relations between the professional practice environment and the provision of individualised care to patients. The acknowledgement of the ways that the various aspects of the environment interact to influence individuality calls for intervention studies that will address these aspects. Manipulating aspects of the environment under controlled conditions could contribute to our understanding of how nurses provide individualised care.

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Author contributions

Study conception/design: RS.
Data collection/analysis: RS, AC and JK.
Drafting of manuscript: AC and RS.
Critical revisions for important intellectual content: RS, MV and HL-K.
Supervision: RS, MV and HL-K.
Statistical expertise: JK.
Administrative/technical/material support: RS and HL-K.

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Supporting information

Additional Supporting Information may be found in the online version of this article.

Table S1 Participants' demographics

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