Research article

The needs of families of trauma intensive care patients: A mixed methods study

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A R T I C L E   I N F O

A B S T R A C T

Objective: To identify the needs of families of trauma patients in the Intensive Care Unit and to assess nurses' perceptions of those needs.
Methodology: A sequential mixed-methods study was utilised combining survey data and semi-structured interviews.
Setting: A tertiary Intensive Care Unit in Australia.
Outcome measures: The Critical Care Family Needs Inventory assessed the needs of families of general and trauma patients. Nurses were also surveyed for their perspectives on the needs of trauma patients' families. Interviews with families were analysed using an inductive thematic analysis technique.
Results/findings: 214 surveys were completed (50 family members of trauma patients; 53 family members of general patients; 111 nurses). No statistically significant sub-scale differences in survey responses between the family groups were found. However, differences on four of the five survey sub-scales (p ≤ .001) were identified between families of trauma patients and nurses. Three themes emerged identifying unique needs of families of trauma patients from the interviews and included: *Personal Distress and Adjustment*, *Guidance*, and *Care*.
Conclusion: This mixed methods study identified that families of trauma patients have different needs to families of general patients and the nurses rated the needs of the families of trauma patients as less important than the families rated their own needs. Through a collaborative partnership with these families, nurses can assist and better meet their needs. The provision of individualised patient/family-centred care is likely to have a positive influence.

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Implications for clinical practice

- It is common for families of trauma intensive care patients to feel shock and to feel they are unable to accept what has happened immediately following the trauma.
- It is important for nurses to conceptualise families of trauma intensive care patients with different emotional and practical needs to families of general patients.
- Nurses can assist family members by developing a collaborative partnership that addresses their individual needs by enacting patient/family-centred care.

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Introduction

Traumatic injuries can have lasting psychological and physical impacts requiring a lengthy hospital stay which may include an

admission into intensive care. Intensive Care Unit (ICU) health care professionals and patients rely heavily on family members for substitute decision-making, psychological support and ongoing care (Azoulay et al., 2001; Hupcey, 1999; McKinley et al., 2002). The families of trauma patients are likely to be ill-prepared for the sudden, frequently life-changing events that occur as a result of traumatic injury. This together with the uncertainty of short and long term outcomes can result in emotional distress for families (Bandari et al., 2015). The importance of the patient's family in the ICU journey is well recognised as family members frequently provide ongoing care and support throughout the illness and recovery trajectory (Wetzig and Mitchell, 2017).

One clear focus in the literature is the recognition that families of ICU patients have needs and nurses are well positioned to support many of these needs (Bandari et al., 2015; Leung et al., 2000; Takman and Severinsson, 2005; Verhaeghe et al., 2005). The premise is that by meeting a family's needs, they are better able to cope with the ICU experience and critical illness (Bandari et al., 2015; Kosco and Warren, 2000; Molter, 1979; Titler et al., 1995). The needs of families of general ICU (GICU) patients have been extensively examined over the decades and are described as having five dimensions including the need for support, comfort, information, proximity and assurance (Leske, 1986; Molter, 1979). The needs of families of trauma ICU (TICU) patients are less well reported and may differ to other families in ICU. These patients and their families are not experiencing planned admission, but rather emergency and/or unexpected ICU admission. This in association with their propensity to long term implication for employment and returning to their pre-injury roles, potentially have a significant impact on both patients' and their families' requirements for care (Bandari et al., 2015), unlike other non trauma ICU patients and families. There are limited studies which examine the needs of families of TICU patients (Wetzig and Mitchell, 2017). However, two ICU trauma sub-groups do emerge in the literature and include the needs of families of patients with a traumatic brain injury (TBI) (Bond et al., 2003; Engli and Kirsivali-Farmer, 1993; Keenan and Joseph, 2010; Mathew et al., 2015; Rotondi et al., 2007; Schaaf et al., 2013; Verhaeghe et al., 2007; Verhaeghe et al., 2010a, b) and the needs of families of burns patients (Gullick et al., 2014; Thompson et al., 1999). The recent integrated review on the needs of families of ICU trauma patients found that the need for protecting their critically ill relatives was strongly identified across the studies of families of TBI and burns patients due to the sudden and devastating nature of traumtic injuries (Wetzig and Mitchell, 2017). However, the application of these findings to families of TICU patients, inclusive of all types of injuries, has not been investigated. There were only two reviews where the researchers planned to examine the needs of families of multi-trauma patients, however, due to the paucity of research with multitrauma patients, they were limited to studies that drew from patients with a diagnosis of TBI (Friedemann-Sánchez et al., 2008; Griffin et al., 2009). The authors highlighted the need for more research as extrapolating findings from TBI studies to other forms of trauma patients and their families is unwise due to differences in the type and number of injuries (Friedemann-Sánchez et al., 2008; Griffin et al., 2009).

The manner in which nurses structure and tailor ICU family care is related to their perceptions of families' needs, which depends on how nurses can incorporate patient-family centered care (Institute for Patient- and Family-Centered Care, 2012). With limited understanding and knowledge regarding this area, critical care nurses may not be well informed to meet the actual needs of families of TICU patients. Importantly, nurses' perceptions of the actual needs of families of GICU patients have not always aligned, thus highlighting the need to have families clearly identify their needs (Kosco and Warren, 2000; Tin et al., 1999). The objective of this study was to identify and understand the specific needs of families of TICU patients and to assess nurses' perceptions of those needs.

The project aims included: identifying the needs of families of ICU patients determining the differences and similarities of families of TICU and GICU patients and identifying the perceptions of nurses about the needs of families of TICU patients.

Conceptual framework

Patient and Family-Centred Care (PFCC) provided the underlying assumptions for this study where PFCC was defined as a model of care with "*an approach to the planning, delivery and evaluation of health care that is grounded in mutually beneficial partnerships amongst health care providers, patients and families*" (Institute for Patient- and Family-Centered Care, 2012). The role of the family as a significant participant within PFCC was acknowledged and provided justification for the focus of this study. A family member was broadly defined as someone with a close and continuing relationship with the patient.

Methodology

Research design

A sequential mixed-methods study was utilised combining quantitative survey data and semi-structured interviews to contextualise and enrich understanding of the needs of families of TICU patients (Creswell and Clark, 2011). Solely qualitative and quantitative methods each provide perspectives and yet have inherent limitations (Creswell and Clark, 2011). Mixed methods offset these limitations to provide a more comprehensive understanding of the needs of the families of TICU patients (Creswell and Clark, 2011).

Setting

The study site was a metropolitan public adult teaching hospital in Australia. It has comprehensive critical care services and is an accredited Level 1 Trauma Centre. The ICU is a 25 bed mixed surgical/medical unit, which admits patients from all major specialties including medical and surgical patients and patients with spinal injuries. Patients with burns and obstetric conditions are the exception. ICU admissions are approximately 2300 per year with roughly 300 trauma patients. Patients are nursed generally on a one to one registered nurse: patient ratio but this depends on patient acuity (it can be two nurses to one patient or one nurse to two patients). The mean length of stay is approximately 2.8 days. TICU patients included all emergency admissions due to trauma and GICU patients included both emergency and elective admissions with an admitting diagnosis other than traumatic incidents.

Instrument

The Critical Care Family Needs Inventory (CCFNI) developed by Leske (1986) from Molter's earlier work (1979) was used with permission (email communication 15/1/2015, Leske, J.). The CCFNI consists of 45 multiple choice items requiring participants to rate needs statements according to their level of importance, with a four-point Likert scale (with one, not important – four, very important). It includes five sub-scale dimensions: support (15 items); comfort (six items); information (eight items); proximity (nine items) and assurance (seven items) (Leske, 1986). The CCFNI scale has both face and content validity for the five sub-scales and its psychometric properties have been studied in a general ICU population and confirmed with a high internal consistency of 0.92 (Leske, 1991). The CCFNI has been used extensively and has

reported cross-cultural validity and reliability (Bijttebier et al., 2000; Macey and Bouman, 1991). The CCFNI was adapted for the nurse survey to make all items specific to their perceptions of the needs of families of TICU patients.

Additional demographic data from family members included: sex; age; relationship to the patient; previous experience of ICU; place of residence in relation to the site hospital and frequency of visits to ICU. ICU patients' age, gender, length of stay in ICU, elective or emergency admission status, illness severity and diagnostic group were recorded. Nurse data included: gender; age; position; employment type and years working as a nurse and as an ICU nurse.

Data collection

All consenting family members of TICU and GICU patients completed the CCFNI with a purposive sample interviewed. Nurses also completed the CCFNI in relation to the needs of families of TICU patients. In order to focus the nurses' perspective they were specifically asked to complete the survey considering the needs of families of TICU patients. The study commenced in April 2015 and was completed in July 2016.

Sample and recruitment: Family members. Recruitment of family members occurred with the research nurse screening week-days for eligibility. Inclusion criteria included: family member was aged ≥18yrs; their relative [patient] was in ICU for ≥48 hrs; family member visited the patient in ICU; and was able to communicate in English. Sample size for survey completion was calculated to be 156 with equal numbers of family members of TICU patients (n = 52), GICU patients (n = 52), and ICU nurses (n = 52). Cohen's established guidelines were used (with medium effect size, power of 0.80, alpha of 0.05) in the absence of comparable studies on which to base calculations (Cohen, 1992). After establishing with the direct care nurse that a family member was willing to hear about the research, those eligible were invited to participate. They were provided with an overview of the project and the opportunity to ask questions. Consenting family members were given a self-administered survey, with return of the survey deeming consent.

Recruitment of family participants for semi-structured interviews continued until data saturation was reached. Purposeful inclusion of male and female family members who had a range of ages, who were from within and outside the city limits with both short and long-term patient lengths of ICU stay were used to gain representation of the population. The interviews occurred after at least 48 hrs following admission using a purposive sampling method (Etikan et al., 2016). A participant information and written consent form were provided. The interviews were audio-recorded with the participant's permission in a private space close to the ICU. Field notes were made at the time of interview. Interviewees did not need to have completed the CCFNI survey. The interviewer (KW) asked the families about their needs or experiences of having their relative undergoing treatment within the ICU. Some examples of questions and or prompts were: "*Is there anything that we could have done to help meet your needs better?*"; "*Can you give me an example?*"; "*What has been the most difficult aspect for you, having your family member in here?*"; "*How could we support you in this* [identified area]?"; "*Do you have any feedback for ICU staff on ways we could better meet your needs?*".

Sample and recruitment – Nurses. All ICU nurses were invited to participate. Hard-copy surveys and electronic Survey Monkey was used for the anonymous nurses' survey. A reminder email was generated two weeks after the original email communication. Return of the completed survey was deemed to indicate consent.

Data analysis

Survey data were entered into SPSS for analysis (IBM SPSS Statistics for Windows 2013) with a ten percent random check for accuracy (IBM Corp., 2013). Descriptive statistics were computed for participant demographics and the CCFNI sub-scales. For continuous variables, checks were performed on their distribution and if normally distributed, means and standard deviation were reported and if not, median and inter-quartile range were calculated. Categorical data were reported as frequencies and percentages. Cronbach alphas of the five sub-scales were calculated. To examine whether the mean scores on the CFFNI surveys, five sub-scale totals differed according to type of respondent; independent sample t-tests were conducted between the trauma and general families' scores; and the trauma families' and nurses' scores. Generally, the level of significance was set at $p < .05$. However, due to multiple comparisons in the t-test analyses, a Bonferonni adjustment was calculated to reduce the chance of increased type 1 error rates and the level of significance was set at $p < .01$.

Families of TICU and GICU patients were interviewed to ascertain their perceived needs and how, if at all, these had changed during their relative's time in ICU. The semi-structured interviews were professionally transcribed in full. The transcriptions were read and re-read in conjunction with listening to the audio files and re-reading field notes to promote recall of the context (Schneider et al., 2002). Analysis was performed independently by two investigators. Analyses occurred in an ongoing iterative way looking for common themes and sub-themes by sorting and coding using constant comparison to elicit codes based on like concepts using inductive thematic analysis (Braun and Clarke, 2006; DeSantis and Ugarriza, 2000; Graneheim and Lundman, 2004; Polit and Beck, 2008). In collaboration with all investigators, final themes were considered for trustworthiness and integrity. Auditability and integrity were maintained through clear documentation of the analysis process, on-going reflection and concluded themes. In regards to reflexivity, authors were critical care nurses, a critical care social worker and psychologist and had a common interest in the needs of families of TICU patients.

Ethics

Ethical approval was granted from both the hospital and university Human Research and Ethics Committee (HREC/15/QPAH/106, NRS/08/15/HREC). Return of family member and nurse surveys was deemed as consent. Written consent occurred prior to interviews. Survey data and semi-structured interview content were de-identified, with confidentiality maintained. All data, including audio files, were safely stored in locked premises or password protected computer and will be securely retained for five years.

Results

Surveys were distributed to 98 family members of GICU patients with 53 returned (response rate 54%) and 96 family members of TICU patients with 50 returned (response rate 52%). Of the 338 eligible family members, 120 were 'failure to capture' due to family visiting outside research nurse hours of 07:00 hrs to 15:30 hrs, Monday to Friday. Twenty-four family members declined participation. The mean age of the trauma patients was 44.78 years (*SD* = 19.64) and the mean age of the general patients was 59.51 years (*SD* = 14.9). Some trauma patients were living outside the State (14%) and Australia (4%), whereas all of the general patients were living within the State. See Tables 1 and 2 for further demographic information and medical diagnoses. Of the 111 nurses surveyed (response rate 48%), the majority were female (*n* = 83) aged between 20 and 39 years (61.3%) who worked full-time (64.9%). They had spent a median of 10 years as a nurse and seven years as an ICU nurse.

Table 1
Family and patient survey participant characteristics (N = 103).

Characteristic		Trauma (*n* = 50) N (%)		General (*n* = 53) N (%)	
		Family	Patient	Family	Patient
Gender	Male	15 (30.0)	38 (76.0)	12 (22.6)	33 (62.3)
	Female	35 (70.0)	12 (24.0)	40 (75.5)	20 (27.7)
	Missing	0	0	1 (1.9)	0
Age range in years	≤39	9 (18.0)	23 (46.0)	10 (18.9)	6 (11.3)
	40–59	29 (58.0)	13 (26.0)	23 (43.4)	20 (37.7)
	60–79	11 (22.0)	13 (26.0)	19 (35.8)	25 (47.2)
	≥80	0	1 (2.0)	0	2 (3.8)
	Missing	1 (2.0)	0	1 (1.9)	0
Relationship to patient	Mother	13 (26.0)		6 (11.3)	
	Father	9 (18.0)		1 (1.9)	
	Spouse/Partner	19 (38.0)		21 (39.6)	
	Sibling	1 (2.0)		4 (7.5)	
	Son	1 (2.0)		3 (5.7)	
	Daughter	4 (8.0)		11 (20.8)	
	Other	3 (6.0)		6 (11.3)	
	Missing	0		1 (1.9)	
Previous experience of family member in ICU	Yes	21 (42.0)		28 (52.8)	
	No	29 (58.0)		24 (45.3)	
	Missing	0		1 (1.9)	
Admission type	Emergency	47 (94.0)		44 (83.0)	
	Scheduled	3 (6.0)		6 (11.3)	
	Missing	0		3 (5.7)	
Family members' distance from hospital	<5km	4 (8.0)		6 (11.3)	
	Within City	11 (22.0)		20 (37.7)	
	Outside City	24 (48.0)		25 (47.2)	
	Outside state	7 (14.0)		0	
	Outside county	2 (4.0)		0	
	Missing	2 (4.0)		2 (3.8)	
Usual interaction between family member and patient	Lives with patient	28 (56.0)		25 (47.2)	
	Visits weekly	12 (24.0)		15 (28.3)	
	Visits monthly	5 (10.0)		1 (1.9)	
	Visits 4–6 times/year	1 (2.0)		5 (9.4)	
	Visits 2–3 times/year	2 (4.0)		4 (7.5)	
	Visits yearly or less	2 (4.0)		2 (3.8)	
	Missing	0		1 (1.9)	

Table 2
Medical diagnoses (N = 103).

Trauma patients (*n* = 50)	N (%)	General patients (n = 53)	N (%)
Spinal trauma	12 (24.0)	Medical – respiratory, medical, surgery, cardiac	9 (17.0)
Head trauma	20 (40.0)	Medical – sepsis	8 (15.1)
Abdominal trauma	6 (12.0)	Medical – other	18 (34.0)
Other trauma	12 (24.0)	General surgery – elective	3 (5.7)
		General surgery – emergency	7 (13.2)
		Missing	8 (15.0)

Critical care family needs inventory

Item results. Means, standard deviations and rank order of items from the CCFNI for each group are displayed in Table 3. The two items that the families of TICU and GICU patients commonly ranked in the top five needs were 5. *To have questions answered honestly* and, 43. *To be assured that the best care possible is being given to the patient.* Both items were also ranked in the top five needs by the nurses considering families of TICU patients.

The families of TICU and GICU patients agreed on the rank order of eight of the 45 items (17.8%) with a significant correlation on one item (*p* < .001). Most notable was the agreement on the rank order of the first item under the assurance sub-scale 5. *To have questions answered honestly*, which was also the item with a significant correlation. Families of TICU patients and nurses agreed on the rank order of only one item, which was 18. *To have a place to be alone while in the hospital.* There were four items with significant correlations (Items 1, 24, 33 and 37; *p* < .05). See Table 3 for further details.

Sub-scale results. Internal consistency for the sub-scales of the CCFNI are reported in Table 4. These findings are broadly consistent with the alpha coefficients (α = .62 to .88) reported for a CCFNI validation sample (Bijttebier et al., 2000). However, it is of note that internal consistency of the assurance sub-scale for the family members of TICU patients was low with confidence interval including negative values. Importantly however, all scores were high for the assurance sub-scale with family members ranking the items as either "important" or "very important".

Independent sample *t*-tests revealed no significant differences in sub-scale survey responses between families of TICU and GICU patients. However, as shown in Table 5, the comparisons between the families of TICU patients and nurses revealed statistically significant differences on four of the five sub-scales. Specifically, for the sub-scales assurance, information, proximity and comfort, nurses had significantly lower total mean scores than the trauma families ($p \leq .001$ for all).

Table 3
Rank order of needs as identified by families of TICU and GICU patients; and nurses' perception on needs of families of TICU patients.

Item	TICU families' rank (N = 50) Mean (SD)	GICU families' rank (N = 53) Mean (SD)	Nurses' rank of TICU families (N = 111) Mean (SD)
5. To have questions answered honestly (A)	**1, 3.98 (.14)***	**1, 3.94 (.23)***	**2, 3.78 (.44)**
17. To be assured that the best care possible is being given to the patient (A)	**2, 3.96 (.20)**	**4, 3.85 (.41)**	**4, 3.75 (.53)**
19. To know exactly what is being done for the patient (I)	**3, 3.96 (.20)**	**9, 3.77 (.42)**	**11, 3.29 (.73)**
43. To know specific facts concerning the patient's progress (A)	**4, 3.94 (.24)**	**6, 3.81 (.40)**	**14, 3.23 (.70)**
16. To know how the patient is being treated medically (I)	**5, 3.92 (.27)**	**8, 3.77 (.51)**	**8, 3.35 (.64)**
40. To be called at home about changes in the patient's condition (P)	**6, 3.88 (.33)**	**3, 3.87 (.39)**	**12, 3.25 (.75)**
1. To know the expected outcome (A)	**7, 3.88 (.33)** †	**2, 3.88 (.32)**	**3, 3.76 (.47)** †
44. To see the patient frequently (P)	**8, 3.82 (.39)**	**13, 3.72 (5.3)**	**16, 3.23 (.79)**
14. To feel there is hope (A)	**9, 3.80 (.57)**	**10, 3.75 (.59)**	**7, 3.41 (.63)**
42. To feel that the hospital personnel care about the patient (A)	**10, 3.78 (.47)**	**5, 3.85 (.36)**	**5, 3.54 (.62)**
13. To know why things were done for the patient (I)	**11, 3.76 (.43)**	**11, 3.74 (.52)**	**6, 3.42 (.58)**
35. To have explanations given that are understandable (A)	**12, 3.76 (.56)**	**7, 3.79 (.41)**	**1, 3.79 (.43)**
41. To receive information about the patient at least once a day (P)	**13, 3.70 (.58)**	**12, 3.72 (.57)**	**10, 3.31 (.63)**
3. To talk to the doctor every day (I)	**14, 3.66 (.56)**	**19, 3.32 (.89)**	**18, 3.15 (.67)**
39. To be told about transfer plans while they are being made (P)	**15, 3.61 (.64)**	**14, 3.53 (.64)**	**21, 3.07 (.65)**
45. To have the waiting room near the patient (P)	**16, 3.54 (.76)**	**17, 3.40 (.84)**	**30, 2.82 (.96)**
21. To feel accepted by the hospital staff (C)	**17, 3.51 (.65)**	**16, 3.42 (.60)**	**20, 3.07 (.82)**
15. To know about the types of staff members taking care of the patient (I)	**18, 3.50 (.74)**	**18, 3.34 (.73)**	**33, 2.98 (.74)** †
25. To talk about the possibility of the patient's death (S)	**19, 3.47 (.58)**	**15, 3.52 (.83)**	**15, 3.23 (.71)**
4. To have a specific person to call at the hospital when unable to visit (I)	**20, 3.42 (.91)**	**23, 3.17 (.92)**	**38, 2.61 (.83)**
32. To have a bathroom near the waiting room (C)	**21, 3.41 (.67)**	**21, 3.23 (.85)**	**27, 2.94 (.87)**
38. To help with the patient's physical care (I)	**22, 3.27 (.88)**	**28, 3.09 (.86)**	**41, 2.45 (.76)**
31. To be told about other people that could help with problems (S)	**23, 3.27 (.79)**	**31, 2.96 (.90)**	**24, 3.01 (.74)**
22. To have someone to help with financial problems (S)	**24, 3.22 (.87)**	**39, 2.64 (1.11)**	**19, 3.15 (.62)**
6. To have visiting hours changed for special conditions (P)	**25, 3.22 (.89)**	**25, 3.17 (1.0)**	**13, 3.25 (.69)**
11. To know which staff members could give what type of information (I)	**26, 3.18 (.90)**	**20, 3.30 (.87)**	**32, 2.80 (.81)**
12. To have friends nearby for support (S)	**27, 3.18 (.90)**	**22, 3.21 (.79)**	**17, 3.15 (.65)**
20. To have comfortable furniture in the waiting room (C)	**28, 3.12 (.88)**	**35, 2.77 (.89)**	**36, 2.69 (.82)**
2. To have explanations of the environment before going into the critical care unit for the first time (S)	**29, 3.12 (1.0)**	**34, 2.89 (.87)**	**26, 2.97 (.76)**
28. To be assured it is alright to leave the hospital for a while (C)	**30, 3.10 (.87)**	**27, 3.11 (.78)**	**9, 3.33 (.67)**
30. To feel it is alright to cry (S)	**31, 3.10 (.98)**	**29, 3.09 (1.0)**	**22, 3.06 (.74)**
10. To visit at any time (P)	**32, 3.08 (1.0)**	**26, 3.17 (.73)**	**34, 2.72 (.85)**
23. To have a telephone near the waiting room (C)	**33, 3.06 (.99)**	**36, 2.75 (1.13)**	**29, 2.81 (.91)**
34. To be told about someone to help with family problems (S)	**34, 3.04 (.96)**	**38, 2.66 (1.0)**	**25, 2.98 (.74)**
8. To have good food available in the hospital (C)	**35, 3.04 (.88)**	**33, 2.94 (.95)**	**40, 2.53 (.91)**
9. To have directions as to what to do at the bedside (S)	**36, 3.02 (.96)**	**32, 2.94 (.80)**	**31, 2.81 (.74)**
7. To talk about feelings about what has happened (S)	**37, 3.02 (.90)**	**30, 3.00 (.83)**	**23, 3.01 (.69)**
36. To have visiting hours start on time (P)	**38, 3.00 (1.02)**	**24, 3.17 (.88)**	**28, 2.91 (.89)**
18. To have a place to be alone while in the hospital (S)	**39, 2.90 (1.02)**	**37, 2.74 (1.08)**	**39, 2.53 (.81)**
27. To have someone be concerned with your health (S)	**40, 2.69 (.96)**	**40, 2.58 (.95)**	**35, 2.70 (.82)**
26. To have another person with you when (S)	**41, 2.53 (1.12)**	**41, 2.54 (1.15)**	**37, 2.45 (.76)**
33. To be alone at any time (S)	**42, 2.53 (1.04)** †	**43, 2.34 (1.0)**	**43, 2.32 (.83)** †
24. To have a pastor/chaplain visit (S)	**43, 2.39 (1.10)** †	**44, 2.18 (1.13)**	**44, 2.32 (.77)** †
29. To talk to the same nurse every day (P)	**44, 2.39 (1.08)**	**42, 2.45 (1.05)**	**45, 2.07 (.92)**
37. To be told about chaplain services (S)	**45, 2.39 (1.04)** †	**45, 2.12 (1.50)**	**42, 2.36 (.85)** †

Note: * denotes a significant correlation [p < .05] between families of TICU and GICU patients' items. † denotes a significant correlation [p < .05] between families of TICU patients & nurses' items. A = Assurance; P = Proximity; I = Information, S = Support, C = Comfort

Table 4
Internal consistencies of the CCFNI sub-scales.

Group	Assurance (7 items) α (CI)	Support (15items) α (CI)	Information (8 items) α (CI)	Proximity (9 Items) α (CI)	Comfort (6 Items) α (CI)
Trauma (n = 50)	.23 (−.17 to .52)	.88 (.82–.92)	.73 (.60–.83)	.81 (.72–.88)	.79 (.68–.87)
General (n = 53)	.65 (.48–.78)	.89 (.84–.93)	.72 (.59–.82)	.68 (.52–.79)	.69 (.53–.80)
Nurses (n = 111)	.71 (.62–.79)	.87 (.82–.90)	.74 (.66–.81)	.79 (.72–.84)	.71 (.62–.79)

CI = Confidence Interval.

Qualitative analysis of interviews

Semi-structured interviews were conducted with ten family members from each of the family groups. Table 6 outlines their respective characteristics.

Needs of families – themes and subthemes. The inductive thematic analysis process was conducted for families of TICU and GICU patients deriving five themes that coincidently were applicable to both family groups: *Personal Distress and Adjustment, Guidance, Care, Information* and *Comfort*. The derived themes were then compared to identify the unique needs of families of TICU patients. Sub-themes differed between groups as summarised in Table 7. We compared the two groups of families under themes and sub-themes thus highlighting the unique needs of families of TICU

Table 5
A comparison of the CCFNI sub-scales between families of TICU and GICU patients, and families of TICU patients and nursing groups (N = 214).

Subscale	Trauma (n = 50)		General (n = 53)		Nurses (n = 111)		GE-TR		TR-NU	
	M	SD	M	SD	M	SD	t	p	t	P
Assurance	3.87	.17	3.84	.23	3.61	.33	-.75	.46	6.56	<.001*
Support	2.92	.58	2.76	.62	2.82	.45	-1.38	.17	1.30	.20
Information	3.58	.39	3.44	.43	2.98	.44	-1.78	.08	8.33	<.001*
Proximity	3.36	.49	3.36	.40	2.96	.49	-.06	.96	4.84	<.001*
Comfort	3.21	.58	3.04	.55	2.90	.54	-1.53	.13	3.27	.001*

M: Means, *SD*: Standard Deviation, GE: Families of GICU patients TR: Families of TICU patients NU: Nurses *p*-values are based on *t*-test comparisons of mean values.
* denotes a significance level of *p* < .01.

Table 6
Family characteristics (N = 20).

Characteristic		Trauma (n = 10)	General (n = 10)	Total (n = 20)
Gender	Male	3	2	5
	Female	7	8	15
Age range in years	40–49	5	0	5
	50–59	4	3	8
	60–69	0	5	5
	70–79	1	2	3
Relationship to patient	Parent	2	2	4
	Spouse/partner	7	5	12
	Sibling	1	2	3
	Daughter	0	1	1
Previous experience of having families in ICU	Yes	4	4	8
	No	4	5	9
	Missing	2	1	3
Admission type	Emergency	10	9	19
	Scheduled	0	1	1
Distance from hospital	<5km	0	0	0
	Within city	5	5	10
	Outside city	4	4	8
	Outside state	1	1	2
	Outside country	0	0	0
Usual interaction with patient and families	Lives with patient	7	5	12
	Weekly	1	1	2
	Monthly	0	0	0
	4–6 times per year	0	1	1
	2–3 times per year	1	2	3
	Yearly or less	1	1	2

patients that was not highlighted in the quantitative study. The themes below are italicised, and sub-themes in square brackets.

Personal distress and Adjustment. Both families of TICU and GICU patients expressed some level of distress when asked about their current needs. There were three unique causes of personal distress for families of TICU patients. Firstly, the unexpected costs associated with hospitalisation and a subsequent reduced capacity for a critically ill patient to work resulted in [financial hardship]. Additionally, family members were often not able to work due to their high levels of emotional distress or their need to be with their critically ill relative in hospital. Reduced income made the cost of consumables, hospital parking and accommodation, an added stressor. The burden of financial stress is expressed by a TICU family member, who stated, *"…how do I go to work? How do I survive? What do I do? Mortgage repayments and such and such… (T3001)".*

Secondly, TICU family members were reflective of events that precipitated their relative's injuries and wishing that things were different. This wish is exemplified by this quotation: *"If he'd have left a minute later. I said it's always if. If he hadn't gone up (A) Street, if he'd gone the roundabout in (B) Street, much better. I never go that way, dangerous way, it's a terrible corner. (T3005)".* Another family member of a TICU patient was trying to comprehend how the incident could have occurred on a street that she was so familiar with: *"…Mum's been on that road 5 million times, why did that happen?"*

Thirdly, a family member of a TICU patient appeared to be emotionally shocked [shock] and was unable to articulate his needs at all. For example: *"… because once that form of fear or fright sets in, on top of the trauma, which we're not going through by rights, but we are…(this is a situation where you do not even know what your needs are) (T3001).*

Both family groups had similar stress-related concerns in relation the need for role transition [role change] and assumption of new responsibilities as exemplified by this quote: which negatively impacted upon some family members' psychological well-being as stated here: *"(Patient) was my primary carer, so him being put in …ICU, was a dramatic change at home, dramatic …I'm more depressed, since he's been in, depression… I think also some of the other relatives can get very depressed"* (G3006).

The impact of watching their critically ill relative experience severe pain was stressful for families [watching patient suffer]. One family member of a TICU patent said: *"Absolutely, watching his discomfort, it was the hardest thing standing in ED* (Emergency Department) *watching his face flapping in the breeze and he was gagging on his own blood as it was dripping down the back of his neck, so, that for me, was the hardest thing about this, the treatments and stuff.* (T3003)". Additionally, the uncertainty around not knowing the prognosis [unknown outcome] of their relative added to both groups of families' personal distress. For example, a family member

Table 7
Thematic analysis of families' needs of TICU and GICU patients (N = 20).

Theme	Trauma		General	
	Sub-theme	Examples	Sub-theme	Examples
Personal Distress and Adjustment	[Role change]	- Practical changes (house chores, paying bills); - Family dynamic changes/ Family support)	[Role change]	- Practical changes (house chores, running the business); - Family dynamic changes/Family support
	[Financial hardship]	- Hospital related expenses - Bills/Mortgage	Nil	
	[Wishing that things were different]	Comprehension	Nil	
	[Watching patient suffer]		[Watching patient suffer]	
	[Unknown outcome]		[Unknown outcome]	
	[Shock]	Not knowing their needs due to emotional trauma	Nil	
Guidance	[Access to available services]	Social worker, counsellor	[Access to available services]	Social worker, counsellor
	[Hospital orientation]		Nil	
	Nil		[Discharge planning]	
Care	[Patient-centred care]	Patient-centred focus Nil	[Patient-centred care]	Patient-centred focus Patient orientation
	Nil		[Patient/Family centred care]	Family presentation at rounds
	Nil	Preparing before the first visit		Nurses to help family to know what they can do (talking/caring)/Family inclusion in patients' care Sense of loss
	[Protecting the family]	Family wellness	Nil	
	[Protecting the patient]	Protecting patient from over visitation/caring patient's emotional/mental health	Nil	
	[Proximity]	Visiting flexibility	[Proximity]	Visiting flexibility/to be included in their care
Information	[Access to information]	With request/prompt Nil	[Access to information]	Updating without prompting Keeping promise to inform
	[Understanding the information]		[Understanding the information]	
	Nil		[Honesty]	
Comfort	[Access to amenities (tea/coffee/food/parking, accommodation)]		[Access to amenities (tea/coffee/food/parking/bedside chairs)]	

of a Day 18 TICU patient said: "*. . . the hardest thing and because this has been ongoing for so long, it's the time frame you just don't know, no one knows unfortunately. (T3016)*".

Guidance. Guidance emerged as a theme with differing emphasis between the two family groups. The guidance needs for families of TICU patients primarily emerged during the acute phase around the time of admission [hospital orientation]. However, for families of GICU patients, guidance was more related to future care and planning, such as [discharge planning] from ICU. Only families of TICU patients voiced frustration around knowing where to go to find their relative. This is not unexpected considering patients are admitted via ambulance with family members delayed by circumstance. A common need for both groups was the need for [accessing available services] such as social workers and counsellors.

Patient/family-centred care. Many families of TICU patients voiced the need for their relative's care to be prioritised and individualised [patient-centred care]. One said; "*My main concern is that they will look (*after*), well I know you will, you look after* (patient's name) *and that's what I want. (T3005).* On the other hand, families of GICU patients were expressing the need for [patient/family-centred care (PFCC)], where they, the family, could be included in some way to maintain an important connection with their critically ill relative. For example, one voiced their sense of loss of role and purpose. They said: "*. . . you hand your loved one over and then you are no longer. . . it's like they own them and. . . (G3017)*". This need to contribute to care included the need for direction and support from nurses. For example one family member of a GICU patient said: "*He can't talk very well, and he doesn't want to talk a lot. I don't know how to talk to him properly about what's going on. That's my hassle. (G3011).*

Only families of TICU patients stated their need to care for other family members by protecting and preparing them before they saw their relative for the first time [protecting the family]. One said: "*Especially with younger people* (family)*, that's what I was more worried about, his daughter being only 17. Never had to experience anything like that. . . (T3008)*". They also extended their care to [protect the patient] from what they felt could be too many visits by extended family members. The following quotation exemplifies this sentiment: "*It's going to take him a while to recover. . . because his people* (extended family) *are down south. I said not to come up because I want to give him time to recover. He needs that, he doesn't need a lot of people around him* (right now) *I don't feel anyway. (T3005)*". Caring for their sick relative's emotional wellbeing was important, "(Patient has) *been teary today because she's now waking up and thinking . . .what about my job? I said, well, you'll still have a job. . . (T3008)*".

Both family groups voiced the need for proximity, such as flexibility in visiting hours, permitting a real connectedness as described by a family member of a TICU patient "*I think the access is important obviously . . . being in their presence even though you have no control. . . Definitely being there for them. (T3003)*".

Information. Both family groups expressed the need for being well informed by the ICU staff [access to information]. For example, a family member of a TICU patient said: "*Just to keep us well informed of course, that's just normal. (T3005)*". However, families of GICU patients expressed more exacting needs regarding information. They wanted ICU staff to instigate information sharing, both when they were present at the bed-side and when they were not there. When staff did not contact them, as they had indicated that they would, the family members were upset. This sentiment is supported by the following: "*. . .more medical opinion to come freely rather than having to insist on it. . . (G3002)*" and, "*They promised me that night, that they would ring me to tell me how he went, they never rang. In fact that was the second time they promised to ring, and I never got the phone call . . . and that's upsetting. I would say don't say you're going to ring, if you have no intentions really*

(G3006)". Both sets of families expressed the need for information to be delivered in understandable language and to be explained in a way they could understand [understanding the information]. [Honesty] was highlighted as a particular need by families of GICU patients: "*I'm just trying to think, what I needed was truth about the patient's condition from the start and just support (G3004)*".

Comfort. The need for comfort was similar for both family groups and these included needing basic facilities in the waiting room, such as tea, coffee, and food options [access to amenities]. Parking was a major stressor for families driving long distances from home as frequently occurs in tertiary referral hospitals.

Discussion

This is the first study that we have found that distinguishes between the distinct needs of TICU families and those of the families of GICU patients. A further objective was to identify ICU nurses' perceptions of the needs of families of TICU patients, with the premise being that nurses direct their care to areas they consider being relevant or important. Interestingly, the top need nominated by families of TICU and GICU patients in our study, Item 5. *To have question answered honestly,* was also the top need for the families of unplanned admissions in two earlier smaller studies in a mixed medical and surgical Australian ICU (N = 58, Kinrade, 2009) and in a GICU in a small community hospital in U.S.A (N = 20, Maxwell et al., 2007). Still other studies had different top needs perhaps due to geographical, cultural, and socioeconomical differences (Omari, 2009; Shorofi, 2016). Although single item comparisons can be useful to help direct changes in practice in a clinical setting, the CCFNI was developed and validated from the perspective of the five-subscales and not for single item differences (Leske, 1986; Molter, 1979).

There were statistically significant differences between the way nurses and families of TICU patients rated the needs of the families of TICU patients on four of the five sub-scales (Assurance, Information, Proximity and Comfort) of the CCFNI. This is an important finding as on all four of these sub-scales, nurses rated the needs of the families of TICU patients as less important than the families rated their own needs. Similar discrepancies have been documented in descriptive analytical studies of family members of GICU patients and ICU nurses (Kinrade, 2009; Maxwell et al., 2007; Shorofi, 2016).

The mixed methods approach and inclusion of interviews allowed for a more in depth understanding of the differences in needs between family members of TICU and GICU patients than the quantitative survey results, which can potentially be influenced by families' mood at the time of survey completion and it can only provide the measures within the limited scope (Creswell and Clark, 2011). Testament to this is the identification of needs which emerged from the qualitative interviews that were not part of the CCFNI survey items. The interview analysis identified unique needs of families of TICU patients within the three themes: *Personal Distress and Adjustment* [finance and wishing that things were different]; *Guidance* [hospital orientation], and *Care* [protecting the patient and family]. Financial burden experienced by families of TICU patients was also reflected in the survey responses where they rated item *22. To have someone help with financial problems* much higher at 24th than did families of GICU patients (ranked at 39th). Family members of TICU patients were younger and likely more vulnerable to financial stressors, hence highlighting the need for access to support services early in their ICU admission (Verhaeghe et al., 2005).

Families of TICU patients showed evidence of processing the traumatic event and questioned how it could have been avoided. The need for information and comprehension of the information have also been identified by families of burns and TBI patients,

(along with the need for hope, support, and involvement) (Wetzig and Mitchell, 2017) together with being rated a high priority amongst GICU families (Al-Mutair et al., 2013). When a loved one has been involved in a traumatic event, it is anticipated that family members may experience a variety of emotional reactions. These reactions can vary from immense distress to feeling numb. These are normal reactions to abnormal events (Bonanno, 2004; Truswell et al., 1988). Emotional states can vary between individuals with some showing signs of depression, anxiety, or acute stress disorders, to other individuals displaying signs of resilience and post-traumatic growth (Sottile et al., 2016). A recent multicentre study ($n = 170$) indicated that resilience was associated with fewer symptoms of depression, anxiety, and acute stress in family members of medical ICU patients (Sottile et al., 2016). However as yet, no study has identified and measured resilience in a broader population of families of TICU patients.

There were similarities and difference between family groups regarding their perceptions of patient care. Both family groups wanted flexible visiting and close proximity to their relative. Families of TICU patients were reliant on staff to individualise optimum patient care, however family members of GICU patients wanted to be more actively involved in their relative's care including their desire to be involved in bedside rounds (Au et al., 2017); Jacobowski et al., 2010; Mangram et al., 2005). One explanation for differences between the two family groups could be due to variability in the age of the patients. The GICU patients were notably older and thus potentially more familiar with the health care system due to the potential for increased engagement. In contrast, the trauma patients were younger and potentially healthier prior to admission thus the hospitalisation experience had a greater impact (Verhaeghe et al., 2005). The degree of uncertainty for families of TICU patients may also have influenced their needs and thus families of TICU patients may require more support by health care professionals.

Families of TICU patients highlighted the need to protect the patient and other family members. They wanted to protect the patient from over-visitation and protect their younger family members from the potential emotional trauma of seeing their critically ill relative for the first time. This need to protect has also been identified in two earlier studies of families of TBI and burns patients (Gullick et al., 2014; Verhaeghe et al., 2010a, b) and with a much earlier study conducted with a general ICU sample (Burr, 1998). This need to protect is not captured in the CCFNI and further research is needed to clarify if this need should be considered for future iterations of the CCFNI.

The CCFNI failed to discriminate between the needs of families of TICU and GICU patients in this study, however interview data demonstrates how the families of TICU patients were significantly distressed by the unexpected adversity in their lives. This is a normal reaction when one faces a traumatic event or crisis. Therefore, it is important to assist families to develop their resilience and coping capacity by providing timely interventions and by focusing on the physical, practical and emotional needs of TICU families in particular (Truswell et al., 1988). Nurses can assist family members in developing a collaborative partnership that addresses their individual needs by enacting PFCC (Wetzig and Mitchell, 2017).

Limitations

Families were interviewed at varying times during their relative's ICU admission. It may be that families have different needs at different points during their ICU experience. However, care was taken to ensure we invited families across the spectrum of time. We also did not ask the nurses to rate the needs of GICU families to make a comparison with the nurses' perception of the needs of families of TICU patients. Another limitation was that no nurse interviews were completed, which could have provided a better understanding of their survey results.

Conclusion

This mixed methods study identified that families of TICU patients have some different needs to families of GICU patients. The well-used CCFNI sub-scale results highlighted that ICU nurses rated the needs of TICU families significantly less than the families of TICU rated their own needs. It is important for nurses to conceptualise and understand the different needs of families of TICU patients. Three important areas were identified as unique needs of families of trauma patients: *Personal Distress and Adjustment*, *Guidance*, and *Care*. This indicates that nurses' lack some awareness and understanding that families of TICU patients need practical guidance while experiencing such personal distress and the need for rapid adjustment, together with assurance that the best care is given to their critically ill relative. The provision of individualised patient/family-centred care is likely to have a positive influence. Incorporating family members in ways that are meaningful to them will assist in establishing collaborative partnerships which will enable us to better meet their individual needs.

Conflict of interests

The authors declare no conflicts of interests.

Author contributions

Marion Mitchell [MM] conceived the study.

MM and Krista Wetzig [KW] designed the study and the data collection methods.

MM and KW performed data collection.

MM, KW, Toni Dwan [TD], and Mari Takashima [MT] were involved in data management.

All authors were involved in data analysis, drafting and revising the paper. All authors have approved the final version.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at https://doi.org/10.1016/j.iccn.2018.08.009.

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