

Evaluation of a Trauma Service: Patient and Family Perspectives

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ABSTRACT

Background: Patient satisfaction is an indicator of the quality of care that underpins a patient's health care experience. A focus on both the patient and the family is important when evaluating satisfaction from the perspective of patients with trauma and is consistent with delivery of patient- and family-centered care. Using the literature to guide development, we designed and implemented a questionnaire to evaluate attitudes and experiences of patients and families case managed by the trauma service. This article reports the findings of this quality improvement project.

Methods: A cross-sectional cohort pragmatic design was used. The questionnaire was conducted with 142 trauma patients and 49 family members. Data included hospital admission data, application of a satisfaction tool, and free text comments.

Results: Both patients and their family members rated the trauma service highly in the satisfaction scoring. Differences in the communication practices encountered by patients and families were identified.

Conclusions: Strategies to involve family members and promote family-centered care are required in the context of trauma patients to improve the safety, quality, and satisfaction of the care they receive while being managed by the trauma service.

Key Words

Family-centered nursing, Multiple trauma, Patient-centered care, Patient satisfaction

Patient satisfaction is an indicator of the quality of care that underpins a patient's health care experience (Muntlin, Gunningberg, & Carlsson, 2006). Patient satisfaction is usually gauged by surveying patients to understand their views and perspectives on the quality of care they receive (Sacks et al., 2015). Using patient experiences is a valuable strategy to inform practice and the development of services and is consistent with a patient-centered approach to care (ACSQHC, 2012). Patient satisfaction data can be collected through a wide array of validated tools (Al-Abri & Al-Balushi, 2014). However, using generic tools that are not specific to patient groups can result in valuable information going undetected (Janssen, Ommen, Neugebauer, Lefering, & Pfaff, 2007). Furthermore, the lack of "personalization" can affect the level of patient engagement, which suggests that a "one-size-fits-all approach" may not yield optimal results (Jerofke-Owen, & Dahlman, 2019). As a result, patient or condition-specific tools have been developed to evaluate multiple concepts, including patient experience, hospital quality, patient expectations, and patient-centered care (PCC; Hibbard, & Greene, 2013).

Within the area of trauma, the reduction of trauma-related mortality, due to advances in trauma care delivery (Gabbe et al., 2007), means the focus has shifted to patient-reported outcomes as a marker of quality care. Multitrauma patients can require complex coordinated care by multiple clinical teams and frequently experience long periods of hospitalization; therefore, understanding their perceptions of satisfaction is essential to ensure the delivery of high-quality PCC (Ardolino, Sleat, & Willett, 2012).

Determinants of satisfaction of trauma patients with acute hospitalization were explored by Janssen et al. (2007). Using validated tools (Cologne Patient Questionnaire and SF-36), they determined that the perceived quality of psychosocial care had a significant effect on a patient's satisfaction with his or her hospital stay. Although this study highlights key factors influencing the satisfaction of seriously injured patients, the use of generic tools may not have captured all relevant information related to their experience through their recovery.

Bobrovitz, Santana, Ball, Kortbeek, and Stelfox (2012) developed and validated a quantitative survey instrument (Quality of Trauma Care Patient-Reported Experience

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Measure [QTAC-PREM]) to measure patient and family experiences with care following major injury. They found overall ratings of satisfaction to be high; however, issues such as information and communication were highlighted as areas for improvement. Gabbe et al. (2013), using in-depth, semistructured interviews of 120 trauma patients, identified communication, information provision, and postdischarge care as areas that patients identified requiring improvement highlighting that a single point of contact for coordinating postdischarge care was desirable.

Although the aforementioned work has helped develop our understanding of the experiences of trauma patients, they provide limited information on satisfaction with care from the perspective of the patient's family. However, many patients who experience trauma may not be able to effectively engage because of the ongoing burden of injury (de Jongh et al., 2017). Furthermore, family members can experience negative effects of unexpected hospitalization of a relative with reports of post-traumatic stress disorder occurring in family members up to 3 months after the patient has been discharged from the intensive care unit (ICU; Azoulay et al., 2005).

Therefore, a focus on both the patient and the family is important when evaluating satisfaction from the perspective of patients with trauma and is consistent with the delivery of patient and family-centered care, which is an expectation of public, government, and health care providers worldwide (ACSQHC, 2012; Frampton, Pelikan, & Wieczorek, 2016). Kellezi et al. (2015) explored the information needs of both trauma patients and their carers and found that this altered over time. Although this study recognized and provided insight into the needs of family members of trauma patients, the evidence remains sparse.

PURPOSE

In 2013, we established a trauma service at our institution, and case management of patients commenced in February 2014. The function of the trauma service is to case manage and coordinate the care of the multitrauma patient. The service sees patients if they receive a trauma call activation, sustain injury to more than one body system or injury involving chest or abdomen, and/or where the mechanism of injury was significant. The trauma service reviews the patient twice daily and collaborates with the wider multidisciplinary team on the care delivery to the patient. Trauma case management has been shown to decrease complication rates, increase allied health referral rates, and decrease the time to allied health intervention (Curtis, Zou, Morris, & Black, 2006). In 2015, we evaluated the service from the perspective of multitrauma patients and their families. Although the QTAC-PREM was an appropriate tool to use, we did not have adequate resources to administer a survey of this

length and were concerned with the potential participant burden owing to a large number of response items. Using the literature to guide development, we designed and implemented a questionnaire, which encompassed both quantitative and qualitative items, to evaluate the attitudes and experiences of patients and families case managed by the trauma service. This article reports the findings of this quality improvement project.

METHODS

Design

A cross-sectional cohort pragmatic design was used with both quantitative and qualitative data collected to enable assessment of patient and family satisfaction with the trauma service.

Setting

The study setting was a 750-bed tertiary health service located in Australia. The institution receives more than 1,500 trauma call activations annually. Approximately 300 of these presentations are classified as major trauma, which for the purposes of this study is defined as an injury severity score (ISS) of 12 or greater.

Sample

A convenience sample of trauma patients older than 16 years who were admitted to hospital by the trauma service with an ISS of 12 or above (major trauma) was approached and invited to participate, along with their family members. We did not approach patients or family members unable to speak or write in English and patients without cognitive capacity (as assessed by a health professional). Following discharge from the hospital, ISS coding was applied to the patients' injuries by a member of the trauma service (trained in ISS coding) to ascertain the minor and major trauma patients. Fifteen percent of the minor trauma group were randomly selected to remain within the project as evidence suggests that focusing on major trauma alone underestimates the burden injury has to patients (Richmond et al., 2014).

Following the initial review of the patient by the trauma service, patients and their family members were provided with a detailed explanation of the project and an information summary sheet before obtaining informed verbal consent to be contacted after discharge. A national ethics application form was assessed by the institution's human research ethics committee and the need for ethical approval was waived as this was deemed a quality activity.

Data Collection

Data were collected for all participants from January to December 2015. Patient demographic data collected from the trauma database included age and gender; clinical

data included diagnosis, mechanism of injury, ISS, length of ICU stay, length of hospital stay, and hospital discharge disposition. Demographic data for the family included age, relationship to the patient, residential location, and whether they cohabited with the patient.

Measurement Tools

Questionnaire items were selected and adapted from the validated Family Satisfaction ICU (FS-ICU) survey tool (Heyland & Tranmer, 2001); item responses used a 5-point Likert scale (1 = Excellent, 2 = Very good, 3 = Good, 4 = Fair, 5 = Poor, 6 = NA). The FS-ICU tool was selected as it aligned closely with the care components relevant to the care of trauma patients. The "Provision of Information" and "Satisfaction with Care" sections were selected for inclusion as they contain items that have been previously identified problematic for trauma patients (Bobrovitz et al., 2012; Gabbe et al., 2013).

Participants were asked to describe whether they initiated contact at any time with the trauma service during hospitalization or after discharge. Participants were also asked whether they had any comments or suggestions they felt would be helpful (see Supplemental Digital Content Figure 1, available at: <http://links.lww.com/JTN/A14>). Responses were collected via telephone within 2 months of patient discharge from acute care services. Participants were asked for consent at the start of the survey and whether they recalled the trauma service from their time in the hospital. For participants who could not remember the trauma service or were unable to provide consent, the survey was discontinued. The surveys were undertaken by an experienced research assistant who was not involved in patient care. All responses were documented on the survey forms. Calls lasted between 4 and 17 min in duration and were audio-recorded to allow for a quality audit of the data and transcribed verbatim to capture responses to the open-ended questions. Participants who were unable to be contacted after three attempts were deemed lost to follow up.

Data Analysis

Descriptive statistics were used to analyze demographic data and survey responses. Normally distributed continuous variables were described according to mean and standard deviations. Where the data were not normally distributed, median values and interquartile ranges (IQRs) were reported. Categorical variables were summarized using counts and percentages. IBM SPSS Statistics for Windows (Version 24) was used for statistical analysis.

Qualitative data from interview transcripts were reviewed for accuracy and completeness prior to data analysis. Responses to open-ended questions were analyzed using inductive content analysis methods (Braun &

Clarke, 2006). The first and second authors read all transcripts to obtain an overview of the data. The first author (E.W.) then inductively analyzed the data applying coding to paragraphs in the transcripts based on the content to identify themes. The first and second authors (E.W. and T.B.) then grouped the developed themes to construct a complete picture of the data. Themes were agreed to by team consensus, and disagreements were discussed and resolved through a reexamination of the transcripts.

RESULTS

Recruitment

A total of 1,114 patients older than 16 years were case managed by the trauma service in 2015. Based upon the ISS scores, a convenience sample of 320 patients were approached for consent to be contacted after discharge. Two hundred four patients were classed as minor trauma (ISS <12); 30 patients (15%) were randomly selected to remain within the project. Four of the 204 patients were classed as major trauma (ISS ≥12) but were missed from inclusion. One hundred forty-two patients and 49 family members were contacted following discharge; 112 patients were classed as major trauma (ISS ≥12, 78.9%) and 30 patients were classed as non-major trauma (ISS <12; 21.1%). A detailed patient flow is depicted in Figure 1.

Response Rates

Ninety-three patient interviews were completed (65.5%). Of the 49 patients who were not interviewed, 44.9% ($n = 22$) were lost to follow up despite multiple contact attempts. Twenty patients (40.8%) were unable to recall the trauma service, so the interview was ceased at this point, and three patients were undergoing cognitive assessment, and therefore consent for the interview could not be gained. Relative's interviews followed a similar pattern, with 67.3% ($n = 33$) interviews conducted. Sixteen interviews were not completed (32.7%); three family participants (18.8%) were unable to recall the trauma service and 11 (68.8%) were unable to be contacted after hospital discharge. Twenty-eight patients had a family member participate whereas five family participants participated where the patient was unable to provide data.

Patient Characteristics

Patient characteristics are summarized in Table 1. Ninety-six patients (67.6%) were male, and their median age was 42 (IQR: 29–55) years. Blunt force trauma was the major cause of injury ($n = 135$; 95.1%), and the median ISS was 14 (IQR: 12–21). The most frequent cause of injury was motor vehicle accidents ($n = 45$; 23.9%) and motorbike accidents ($n = 33$; 23.2%). The median hospital length of

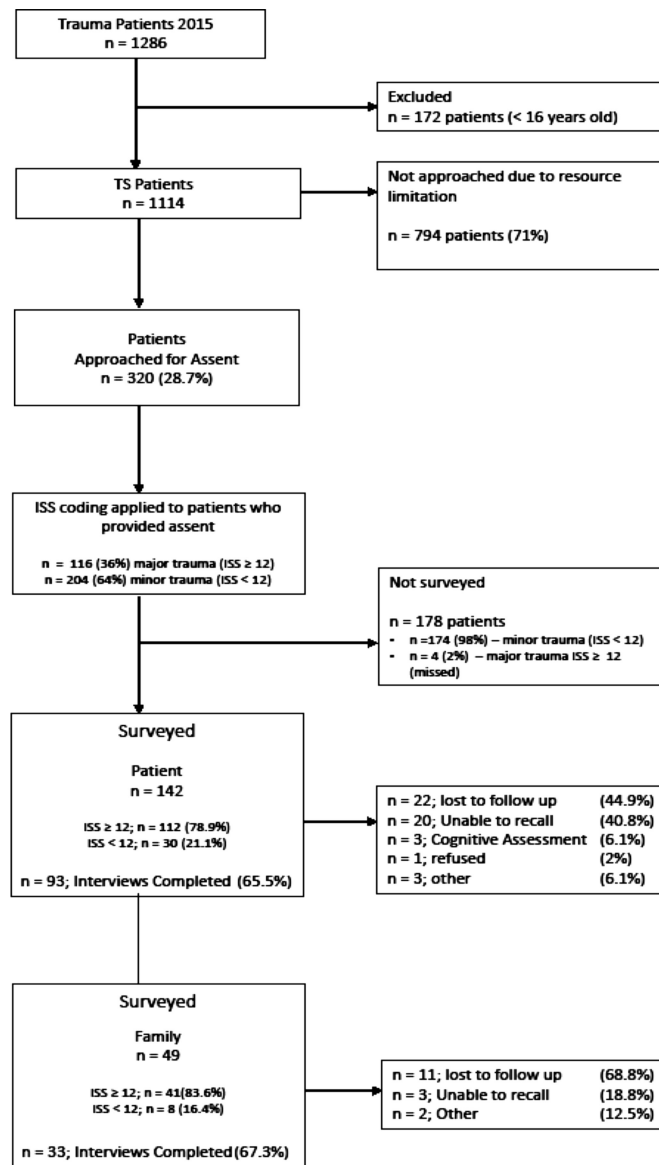


Figure 1. Flow diagram of recruitment and follow-up rates. ISS = injury severity score; TS = trauma service.

stay (LOS) was 7.5 (IQR: 2–19) days. Forty-nine (34.5%) patients had an ICU admission with a median LOS of 24 (IQR: 24–28) hr. The majority of patients ($n = 118$; 83.1%) were discharged home and required inpatient rehabilitation ($n = 8$; 5.6%). Despite the small sample size, results were largely reflective of patients who were case managed by the trauma service during 2015. Age, gender, ISS, and hospital LOS varied little between interviewed and lost to follow up patients. However, ICU LOS in the lost to follow up group was almost double that of patients who were interviewed. Participating families were mainly female ($n = 38$; 77.6%) and the wife ($n = 13$; 43.3%) or mother ($n = 8$; 26.7%) of the patient; the majority cohabited with the patient ($n = 26$; 89.7%).

Interview Data—Likert Responses

Patients and family responses to the questions are detailed in Table 2. Across all the six items, responses indicated that the majority of participants rated the communication by the trauma service to be excellent or very good, with overall patients rating it higher than family. A difference between patient and family responses was noted within the category of “Provision of consistent information,” with 81.8% of family rating the trauma service excellent/very good compared with 89.2% of patients. Within the category of “Providing links to other services,” responses were the lowest rated with both patients and family rating excellence 59.1% and 45.5%. This category had the highest respondents for not applicable (11.8% and 24.2%).

TABLE 1 Patient Demographic Information

	Survey Group (<i>n</i> = 142)		Lost to Follow Up (<i>n</i> = 49)		All 2015 TS Patient ≥ 16 (<i>n</i> = 1,099)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Age (median, IQR), years	42 (29–55)		39 (27–54)		37 (25–53)	
Gender: Male	96	67.6	30	61.2	788	71.7
ISS (median, IQR)	14 (12–21)		14 (12–22)		5 (1–12)	
MOI						
Blunt	135	95.1	47	95.9	1,012	92.1
Penetrating	4	2.8	1	2	61	5.6
Burn	0	0	0	0	13	1.2
Other	3	2.1	1	2	13	1.2
Cause of injury						
MVA	45	31.7	16	32.7	352	32
MBA	33	23.2	7	14.3	172	15.7
Bicycle	10	7	5	10.2	107	9.7
Fall	28	19.7	12	24.5	229	20.8
Other ^a	26	18.3	9	18.4	239	21.8
Hospital LOS days (median, IQR)	7.5 (2–19)		8 (2–18)		1 (0–4.0)	
ICU LOS hours (median, IQR)	68.5 (44–150.25)		129.5 (60.75–230)		49 (22–140)	
Discharge disposition						
Home	122	85.9	46	93.9	920	83.7
Acute care	7	4.9	0	0	55	5.0
Rehabilitation	9	6.3	1	2	49	4.5
Died	0	0	0	0	36	3.3
Other	4	2.8	1	2	39	3.5

Note. ICU = intensive care unit; IQR = interquartile range; ISS = injury severity score; LOS = length of stay; MBA = motorbike accidents; MOI = mechanism of injury; MVA = motor vehicle accident; TS = trauma service.

^aAssault, self-harm, water sports, animal.

Interview Data—Open Responses

The responses to open-ended questions were organized into the following themes: (1) coordination and integration of care, (2) emotional and physical support; and (3) information, communication, and education. Both patients and family members reported overwhelmingly positive feedback regarding the trauma service, with the majority referring to how the service had assisted in providing them with information and explaining what was to happen.

Patients reported that the service provided “a consistency across my care” (*female patient, aged 41 years, nontransport injury, #39*) and felt “the service was the linchpin” (*female patient, aged 55 years, nontransport injury, #P8*) of the care they received; “They (trauma service) were brilliant, they explained everything to me, what was happening” (*male patient, aged 25 years, nontransport injury, #P62*) and “they helped me get an overview of

what was actually happening” (*male patient, aged 59 years, road traffic injury, #P46*).

Feedback described that the service provided emotional and physical comfort to patients; “they really paid attention and were nice and caring” (*male patient, aged 46 years, nontraffic injury, #P29*) and “they took a personal interest” (*male patient, aged 69 years, nontraffic injury, #P54*). Family members were reassured by the care implemented by the service to their loved ones by referrals made to other disciplines such as physiotherapy and social work. They appeared to take comfort in how the service cared for the patient “making sure that the pain relief was in place so he didn’t experience discomfort” (*wife of male patient, aged 64 years, nontraffic injury, #P19*) and “I was very aware they were supporting him in the next stage.”

The feedback on communication practices from other health professionals within the hospital was highlighted

TABLE 2 Patient/Family Responses

	Excellent		Very Good		Good		Fair		Poor		NA	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Patients: <i>n</i> = 93												
Family: <i>n</i> = 33												
Frequency of communication												
Patient	68	73.1	20	21.5	2	2.2	3	3.2	0	0	0	0
Family	23	69.7	7	21.2	2	6.1	0	0	0	0	1	3.0
Provide links to services												
Patients	55	59.1	17	18.3	5	5.4	4	4.3	1	1.1	11	11.8
Family	15	45.5	6	18.2	3	9.1	1	3	0	0	8	24.2
Explanations provided												
Patients	74	79.6	13	14.0	1	1.1	4	4.3	1	1.1	0	0
Family	24	72.7	7	4.9	0	0	1	7	1	7	0	0
Information provided												
Patients	69	74.2	15	16.1	4	4.3	2	2.2	0	0	3	3.2
Family	24	72.7	6	18.2	0	0	0	0	1	3	2	6.1
Courtesy and respect												
Patients	84	90.3	4	4.3	0	0	1	1.1	1	1.1	3	3.2
Family	30	90.9	3	9.1	0	0	0	0	0	0	0	0
Consistent information												
Patients	68	73.1	15	16.1	5	5.4	0	0	1	1.1	4	4.3
Family	19	57.6	8	24.2	2	6.1	0	0	0	0	4	12.1

Note. NA = not applicable.

by all participants but differed in nature. Patients found the numerous medical teams who provided them with information about their condition and treatment confusing stating “too many people talking about different things” (*male patient, aged 19 years, nontraffic injury*) and “there was miscommunication between specialists” (*male patient, aged 27 years, nontraffic injury, #P27*); “I didn’t know if I was coming or going” (*male patient, aged 51 years, road traffic injury, #P11*). Family members raised concerns regarding trying to access the information that led to feelings of frustration and annoyance; “I just wanted some information about his injuries which I wasn’t getting” (*mother of male patient, aged 26 years, road traffic injury, #P7*) and “I would ask questions and didn’t really get told anything” (*partner of male patient, aged 26 years, road traffic injury, #P57*).

Differences impacted how participants felt about the discharge process. Patients found that communication around the discharge caused apprehension, stating they felt “confused” (*male patient, aged 33 years, road traffic injury, #P60*; *male patient, aged 56 years, road traffic injury, #P25*) and wanted clarity regarding discharge instructions and follow-up appointments. Whereas, the

lack of access to information caused family members to experience anxiety when the patient was discharged stating that they felt that it was “too early” (*wife of male patient, aged 40 years, nontraffic injury, #P118*; *husband of female patient, aged 67 years, nontraffic injury, #P15*; *partner of male patient, aged 53 years, road traffic injury, #P21*; and *mother of male patient, aged 26 years, road traffic injury, #P7*) and “been in hospital for two months and found out they were being discharged two days before” (*son of female patient, aged 81 years, road traffic injury, #P80*).

DISCUSSION

To our knowledge, this study is novel for the qualitative approach to understand both the trauma patient and his or her family’s experiences. The results of our study found overwhelmingly positive feedback, by both patients and their family members, associated with the introduction of a trauma service at our institution. Communication practices demonstrated by the trauma service were rated highly by all participants with open-ended responses indicating that the trauma service provided a vital role not only with the coordination of the trauma patient’s

care but also in providing emotional and physical support to both patients and their families.

Our data demonstrate that the experience of communication practices differs for families to that of their injured relative. Families rated communication lower than the patients, highlighting dissatisfaction in accessing information from the health care team as an area that can be improved. Also, within the category of “providing links to other services,” almost one-quarter of families responded with “not applicable”; this suggests that they were unaware that the trauma service provided this function.

Patients found that the information provided to them was more consistent when compared with the families, which is likely due to the increased opportunities for communication to occur with the clinical teams. In contrast, families reported that they had difficulty accessing the information, which was supported by Kellezi et al. (2015), who found that carers often lacked opportunities to talk to health professionals. Despite the information provided being rated as more consistent, the involvement of multiple clinical teams caused confusion for patients. Braaf et al. (2018) suggest that engaging with large numbers of health professionals from various specialties can result in variable communication effectiveness and impact the quality of care received.

The literature documents that family members of trauma patients often experience high levels of anxiety and stress, which may impact on the ability to understand the information provided to them (Newcomb & Hymes, 2017). This was highlighted in our study by the number of families who failed to recall the trauma service visiting the patient during their hospital admission. In addition, poor communication with families may increase the burden that they feel regarding decision making on behalf of the patient, which may predispose family members to fatigue, anxiety, and posttraumatic stress disorder (Anderson, Arnold, Angus, & Bryce, 2008). Developing strategies to include and inform the family of referrals to other services could help alleviate some of the stress and anxiety they experience. It may also provide support for families during the discharge process, thus reducing the caregiver burden. One such strategy is the inclusion of families in bedside handover, which has increased the appreciation shown by families as they have the opportunity to listen and interact as partners (Tobiano, Chaboyer, & McMurray, 2013). This should occur when family members are present but also ensure that families are contacted and provided with opportunities to engage in shared decision making (IPFCC, 2017) when they are not able to attend. There are issues with privacy and confidentiality in involving families in the handover, and therefore patient consent should be obtained. However, previous studies have indicated that this is felt more by the nursing staff

(Chaboyer et al., 2009) than patients and families (McMurray, Chaboyer, Wallis, & Fetherston, 2010).

Families are an essential part of the trauma patients' recovery with some evidence to suggest that if patients and families are treated liked a dyad, then outcomes are improved (Schulz et al., 2002). With the development of PCC, there is growing recognition that incorporating patient and family perspectives into care represents an important untapped quality improvement opportunity (Boyd et al., 2017). The absence of guidance for patient- and family-centered injury care likely reflects the limited research to date in this area (Boyd et al., 2017).

Communication is an essential part of providing safe patient care (Kitson & Muntlin Athlin, 2013) and has been highlighted to be a factor in determining satisfaction (Janssen et al., 2007). To improve the patient and family experience, we must understand what patients and families want and value (Byczkowski et al., 2016). Patient-reported outcome measures (PROMs) have a valuable role in routine clinical practice to promote PCC and can improve communication and a patient's satisfaction (Turner et al., 2019). The RESTORE study protocol by Gabbe et al. (2015) aims to explore prospectively over 5 years injured patients' views regarding trauma care delivery and PROMs. Although this study will assist in understanding the long-term patient experience, routine engagement with families to understand their needs has not been addressed, leaving a potential gap within the evidence base.

Limitations

This single-center project with limited resources prevented the use of a previously validated tool (Bobrovitz et al., 2012), which may have limited the external validity of our findings. However, the pragmatic approach used allowed us to collect the data to inform our practice. Despite the limited numbers of participants, the evaluation of the service within the context of the clinical area supports the uptake and rapid practice change of identified areas of concern. The exploration of family views is also limited by the number of family participants and the depth to which their experiences were explored. The convenience sampling method used may prevent comparison to the broader trauma population, yet when compared with the annual trauma service patient data (2015), we found it to be representative. The high loss to follow up rates experienced may have been due to the prolonged duration of time between hospital discharge and patient contact (66 days for patients vs. 52 days for family). During the study period, ISS coding was applied after discharge from acute care, which caused a delay in contacting participants. We have since changed to a prospective ISS coding model that addresses this shortcoming, and we believe that it will reduce lost to follow up rates in the future. Although

this article has identified that the needs of trauma patients and their family members differ, further in-depth exploration will be required to understand this phenomenon more comprehensively.

CONCLUSION

This study demonstrated that patients and families were highly satisfied with the service provided by the trauma service but encountered differences in the communication practices received. Recognition and identification of the different experiences and needs following trauma can assist the development of both patient and family-centered care, which in turn can increase satisfaction and promote the safety and quality of health care delivered to this population. Future work should explore how the trauma service can build upon the results of this project and help engage both the patient and the family members more effectively.

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KEY POINTS

- The trauma service teams are highly valued by both patients and their families in delivering care to trauma patients and their families in terms of their high-level communication skills; their ability to coordinate care; and provide emotional and physical support.
- Involving trauma patients and their families in the care they receive may help reduce the stress and anxiety often experienced by this patient group throughout their hospital admission and increase satisfaction with the care they receive.
- Engaging with trauma patients and their families in ascertaining their needs remains an underexplored area of trauma care delivery literature.

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