



## Parent experiences and psychosocial support needs 6 months following paediatric critical injury: A qualitative study



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### ABSTRACT

**Introduction:** Parents of critically injured children can experience high levels of psychological distress post-injury, however little is known about their experiences and needs following injury. This study aimed to explore parent experiences and psychosocial support needs in the six months following child critical injury.

**Methods:** An interpretive qualitative design was used. Semi-structured interviews were conducted with 30 parents of 23 critically injured children. Interviews explored parent experiences and psychosocial support needs. Qualitative data were managed using NVIVO 10 and analysed thematically.

**Results:** Four themes were identified: integrating back into home life; adjusting mentally and emotionally to injury; coping with injury as a family; and navigating resources to meet family needs. Parents and families experienced substantial ongoing emotional impacts at 6 months following child injury. Parents were unprepared for the negative changes in their child's psychological wellbeing and behaviour post injury, and parents' mental health was negatively impacted, with mothers more likely to seek emotional support than fathers. Parents reported receiving no psychosocial follow-up from the hospital and limited information about community services and accessing local community resources on returning home.

**Conclusions:** There is a need to include all family members in discharge planning, and to use a family-centred continuity-of-care approach from the time of child injury through to post-discharge recovery. To strengthen parent and family wellbeing, a biopsychosocial holistic approach is recommended, including cognitive-behavioural and other psychological strategies to help reduce distress for parents and all family members and strengthen their coping capacity. A dedicated family support coordinator role to facilitate care over the child recovery trajectory, and development of accessible online and e-psychosocial support resources for parents and families are recommended.

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### Introduction

Globally, tens of millions of children are hospitalised every year for non-fatal injuries [1]. In Australia there were 686,409 injury hospitalisations of children aged 16 years or younger between 2002–12 [2] with around 520 children critically injured and admitted to major trauma hospitals annually [3]. These injuries

often result in lifelong physical and/or psychosocial disabilities [4]. Following critical injury, children rely heavily on their parents and community networks for physical, emotional and social support. In the initial acute period, child injury can be extremely stressful for parents who can develop significant levels of psychological distress [5–10]. Between 15–27% of parents experience moderate-severe depression and anxiety, and 49–54% report symptoms of acute stress disorder four weeks following child illness or injury [8]. Several studies have measured psychological distress between 3–6 months post-injury with parents of children with specific forms of injury: traumatic brain injury [11–13], burns [14], and traffic-related injury [10]. Findings included high levels of parental anxiety [13,14], moderate levels of depression [14] and that one in

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six parents at 6 months after their child's injury experienced persistent post-traumatic distress [10].

Less is known, however, about parents' psychosocial adjustment to their child's injury in the six months following injury. In the post-injury period and following hospital discharge, parents have identified concerns about changes in their child's behaviour including cognition deficits, inattention, and planning and impulse control difficulties [11,15,16]. Parents report concerns about the impact of the injury on their partner and other family members, with parents of children with more severe injuries reporting higher caregiver burden and distress than those with less severe injuries [12]. Wade et al. [12], in a study which assessed families at baseline, 6 months, 12 months and at an extended follow up period at 4.1 years (on average) post injury, found that difficulties for families peak during the initial months following severe child traumatic brain injury. Other quantitative studies focusing on children with burns [14] and traumatic brain injury [11,13] examined the support and coping strategies used by parents in the first six months following their child's discharge, finding that emotion-focussed strategies such as acceptance and reframing as well as using humour, exercising and seeking family support were often used by parents. No reported studies, however, have included a range of child injuries reflective of the context of care delivery or explored parents' subjective experiences and psychosocial needs in the 6 months following child injury.

## Aim

To explore parent experiences and psychosocial support needs in the 6 months following child critical injury. Research questions were:

- 1) What are parents' experiences of child critical injury in the 6 months following injury? and;
- 2) What are the parent and family psychosocial needs in the 6 months following child critical injury, and how and by whom are these needs met?

## Methods

This study forms part of a prospective longitudinal multi-centre study investigating the experiences and support needs of parents of critically injured children 0–12 years over a two-year period following child injury. A purposive sample of parents were recruited from four hospitals across three Australian states [17]. This paper reports findings at six months following injury. An interpretive qualitative design was used to explore parents' subjective experience of having a critically injured child. This naturalistic form of inquiry is useful for studies investigating how people make meaning of a situation, and employs an inductive approach to collection and analysis of data [18].

### Setting and participants

Thirty parents participated in the study at 6 months. Eligibility criteria were: (1) aged over 18 years of age; (2) able to speak, read and write English; (3) had a critically injured and hospitalised child 0–12 years with an Injury Severity Score (ISS) > 15 [19] and/or requiring admission to the Intensive Care Unit (ICU).

### Data collection

Semi-structured telephone interviews were conducted with 30 parents. Interviews ranged up to 63 min in length, with an average of 35 min. Three main topic areas, with prompts, guided the

interview conversation: parent experiences in the six months following their child's injury; parents' and family's main needs during this time; and how these needs were/not met and by whom. While the interviews were semi-structured, participants were also able to raise issues important to them, allowing for better understanding of the meaning they made of their experiences [20].

### Ethical considerations

Ethics approval was gained from each site: HREC/13/SCHN/404; HREC/14/QRCH/149; and 34089A. Participants provided written informed consent for an audiotaped interview and interviews were conducted by a trained interviewer. Participants were provided with verbal support if they became distressed during interviews and interviews only continued with their consent. No interviews were discontinued and all participants were provided with follow-up psychosocial support information.

### Data analysis

Interviews were audio recorded and transcribed verbatim. Data were analysed using the six step process of inductive thematic analysis by Braun and Clarke [21]. The QSR International software, NVIVO 10, was used to manage data. Data analysis included data familiarisation where transcripts were read multiple times and then initial codes developed. Each transcript was coded in a data-driven process, with detailed written memos. Initial broad themes were identified and reviewed by two researchers (AY and KF) in an iterative process for internal coherence within each theme and external distinction between themes. Final themes were then refined and described with exemplar quotes.

## Results

### Parent and injured child characteristics

There were thirty parents at six months. Of the parents who provided this information, 86.4% were partnered or married and 86.4% had two or more children. The majority of parents were born in Australia and over half had completed a university degree. The majority of parents were in paid employment (Table 1). There were 23 critically injured children at six months (including one parent who had two injured children). Just over half (56.5%) were female with a mean age of 7.5 years. Over two-thirds were injured in a transport-related incident (Table 2).

At 6 months following injury, parent experiences were significantly influenced by the physical and emotional recovery patterns of their child. Specific factors affecting parents' psychosocial experiences and needs that were derived from analysis are outlined in Table 3. Four main themes were identified in analysis: integrating back into home life; adjusting mentally and emotionally to injury; coping with injury as a family; and navigating resources to meet family needs.

### Integrating back into home life

All children had returned home from hospital by 6 months following injury. While some had recovered well physically, others had ongoing impairments including burns, cognitive impairments, blindness, and mobility issues. For all parents, having their child come home and re-integrate back into the family was seen as a positive step, as parents felt they were back in control over their daily life and that being home promoted their child's recovery. Approximately a third of children (n = 7) had recovered physically from their injuries by 6 months. These parents described their child as being back to normal and feeling 100%. School aged

**Table 1**  
Parent demographics.

Characteristics	Participants
<b>Gender (n=30)</b>	
Male	12 (40.0%)
Female	18 (60.0%)
<b>Age (n=22)</b>	
Male	24 – 53 years (mean 42.0 years)
Female	32 – 51 years (mean 41.3 years)
<b>Marital status (n=22)</b>	
Single	1 (4.6%)
Partnered or married	19 (86.4%)
Separated or divorced	2 (9.1%)
<b>No. of dependent children (&lt;18 years) (n=22)</b>	
1	3 (13.6%)
2	11 (50.0%)
3	7 (31.8%)
4	1 (4.6%)
<b>Country of birth (n=22)</b>	
Australia	19 (86.4%)
Other country	3 (13.6%)
<b>Level of highest education (n=22)</b>	
Completed School Certificate	1 (4.6%)
Completed High School Certificate	1 (4.6%)
College/TAFE	8 (36.4%)
University	12 (54.6%)
<b>Employment (n=22)</b>	
None	4 (18.2%)
Paid employment	18 (81.8%)
<b>Gross weekly household income (n=22)</b>	
Nil household income	1 (4.6%)
\$1 – \$649	3 (13.6%)
\$650 – \$1699	7 (31.8%)
\$1700 – \$3999	11 (50.0%)

children had transitioned back to school. Parents were surprised at how quickly and well their child had recovered and felt lucky that things had worked out so well.

Sixteen children, just over two thirds of the cohort, had ongoing physical impairments which impacted their mobility and activities of daily living and required rehabilitation. While many had started transitioning back to school, most had not returned full-time. They had numerous follow-up medical appointments and parents balanced the demands of their child's rehabilitation with household tasks, caring for other family members, employment, and their own recovery if injured in the incident. This time was described as challenging and being like a 'roller coaster' (Father, 1 year old). Parents found the first couple of months post-injury to be particularly stressful, and tried to ensure nothing further

**Table 2**  
Child demographics.

Characteristic	n = 23
Boys (%)	10 (43.5)
Girls (%)	13 (56.5)
Mean age (SD)	7.5 (4.1)
Injury Severity Score (SD)	22.7 (7.7)
Mechanism of injury:	
Transport-related	
Motor vehicle collision	8
Pedestrian	5
Pedal cycle	2
Non-motorised scooter	1
Fall and other mechanisms	
Fall	2
Burn or scald	1
Inanimate object	1
Horse	1
Go-kart	1
Tractor	1

happened to their child. This time was particularly demanding for parents who had sole responsibility for their child:

*'At first it was sort of her needing that 24/7 care. It was really hard on me with my son, finding time for both of them. You had to watch her every move, to make sure she was okay'* (Mother, 1 year old).

Their child's physical injuries were initially the main focus of parent attention. However many parents also became worried about the less visible mental and emotional impacts of the injury on their child's mental health. They were anxious about their child's ability to return to their pre-injury state and to integrate back into usual daily activities. Parents reported that more than half the children experienced negative emotional reactions relating to the injury event and/or associated physical impairments, including nightmares, fearfulness, emotional detachment, and anger: *'She won't sleep alone, she can't be left alone for any period of time; she's terrified'* (Mother, 10 and 12 year old). Another mother disclosed her injured child's desire for self-harm following their injury: *'I don't want to be here, I want to kill myself and if I knew how to do it I would do it'* (9 year old).

Parents reported that nearly two-thirds of the children experienced behavioural problems which included tantrums, rapid mood swings, crying, separation anxiety and lashing out at siblings. These required adjustments in parenting style. Challenging behaviour was often interpreted by parents as the child being frustrated at not being able to participate in normal activities and as a reaction to readjusting back to family life. Some parents struggled with these behaviours and were uncertain about how best to care for their child. A few sought parenting advice through a general practitioner (GP) or counsellor. One father, with a child with a brain injury, explained:

*'Beforehand he would just come up and sit on my lap all the time. There's a lot that's changed in his personality . . . there's a lot of hoarding that goes on now. If we go out to a sushi restaurant, as you're walking out, he's got a handful of rubber bands and little soy sauces. If we go to McDonalds, he's collecting all these straws'* (Father, 7 year old).

Parents reported that psychological help had been offered to a few children by social workers and psychologists during the child's hospitalisation, but many parents had not recognised the need for such help at the time and felt ill-equipped to deal with their child's psychological needs once home. One father explained: *'what was the right approach in supporting him, was it to be sympathetic, was it to be positive, or was it both?'* (Father, 13 year old). At 6 months all parents were concerned about their child's current and future mental wellbeing. Their anxiety about the future was more pronounced where a child's physical recovery had been slow and these parents were grappling with uncertainty:

*'You just worry about everything . . . I know that a blood clot can't form or re-form now, but those thoughts have entered my mind. Is everything totally okay in her head, underneath that skull, you know, is everything working?'* (Mother, 9 year old).

#### Adjusting mentally and emotionally to injury

Almost all parents were concerned about the impact of their child's injuries and behaviours on their own mental health and wellbeing and had struggled to deal with the increased anxiety they felt since the injury event - *'that element of danger, it's in the back of my mind all the time'* (Mother, 12 year old). While around half of parents understood the importance of looking after their own mental health, others neglected their mental wellbeing because they were busy and intent on looking after everything else. Some parents actively tried to incorporate activities such as exercise, listening to music and taking time for themselves into

**Table 3**

Factors affecting parent biopsychosocial experiences and needs in the six months following child critical injury.

<b>Child factors</b>	<p><i>Injury-related</i></p> <ul style="list-style-type: none"> <li>- Severity of injury &amp; degree of physical impairment</li> <li>- Number of outpatient hospital visits required</li> <li>- Number of further operations required</li> <li>- Circumstances of injury event (e.g. caused by family member)</li> </ul> <p><i>Psychological/emotional</i></p> <ul style="list-style-type: none"> <li>- Consequences of injury on child's physical and emotional wellbeing &amp; behaviour</li> <li>- Age of child &amp; stage of development</li> </ul>
<b>Parent factors</b>	<p><i>Psychological/emotional – Self</i></p> <ul style="list-style-type: none"> <li>- Self/other blame attribution by parent (present/absent)</li> <li>- Length of time parent has been away from home</li> <li>- Level of ongoing distress in relation to impact of child's injuries on parent</li> <li>- Personal resources to deal with child's behaviours including personal skills &amp; coping mechanisms</li> </ul> <p><i>Psychological/emotional – Child and others</i></p> <ul style="list-style-type: none"> <li>- Personal understanding of how child is coping (physically and emotionally)</li> <li>- Personal understanding of how siblings/partner are coping emotionally with child post hospital discharge</li> <li>- Quality of relationship with co-parent if partnered/no longer partnered and/or significant others</li> </ul> <p><i>Social</i></p> <ul style="list-style-type: none"> <li>- Knowledge of &amp; ability to access support resources (outpatient clinics, community resources, internal &amp; external to hospital)</li> <li>- Employment concerns due to time required to attend/transport child to medical &amp; allied health services appointments</li> <li>- Financial concerns regarding payment for allied health services</li> </ul>
<b>Family factors</b>	<p><i>Psychological/emotional – Self</i></p> <ul style="list-style-type: none"> <li>- Parental relationships (partnered, divorced or separated, single)</li> </ul> <p><i>Psychological/emotional – Child and others</i></p> <ul style="list-style-type: none"> <li>- Consideration of the needs of all family members including siblings (in addition to needs of the injured child)</li> <li>- Involvement of family members in/witnessing the injury incident</li> </ul> <p><i>Social</i></p> <ul style="list-style-type: none"> <li>- Family structure (age, number &amp; developmental stage of siblings, extended family)</li> <li>- Knowledge of &amp; ability to access range of services and support for all family members (psychological and emotional)</li> <li>- Availability of support to enable parent/family members to take child to follow up appointments and rehabilitation</li> <li>- Financial and employment considerations &amp; implications (self-employed/casual/part-time/full-time employment status)</li> <li>- Ability to access insurance options to help fund rehabilitation costs</li> </ul>
<b>Social, environment and community factors</b>	<p><i>Social</i></p> <ul style="list-style-type: none"> <li>- Geographic location of family home in relation to major trauma treatment centre</li> <li>- Knowledge of and ability to access local community rehabilitation and support services</li> <li>- Level of integration of family/parents/child within their social environment and community</li> </ul> <p><i>Community resources</i></p> <ul style="list-style-type: none"> <li>- Existence of local community rehabilitation and support services</li> <li>- Willingness of community to provide ongoing help for family with injured child and siblings (transport, meals, childcare, help at home)</li> </ul> <p><i>Structural supports</i></p> <ul style="list-style-type: none"> <li>- Support of employers for parents to take leave so children can attend rehabilitation and hospital appointments and ongoing surgery as required</li> <li>- Institutional financial support for rehabilitation costs (from organisations such as Transport Accident Commission (TAC) and Life Care)</li> <li>- Navigating the legal system to pursue remedies for child injuries</li> </ul>

their routine and a few sought guidance through religion - 'you just rely on God to help you through' (Mother, 12 year old).

Most (86.7%) parents reported receiving little guidance from healthcare professionals prior to hospital discharge about what to expect on an emotional level for themselves or their children on returning home. They were not prepared when they found themselves struggling to cope emotionally when their child came home. Mothers tended to recognise and act on their need for emotional support from health professionals, while fathers usually only sought help at the insistence of their partner. The constant burden of caring for their child and family resulted in two mothers who were on anti-depressant and anti-anxiety medication prior to the injury, increasing the dose of their medication to cope better. About a third of parents sought professional help for their own emotional well-being through their general practitioner (GP), local counsellor or psychologist:

*'When you slow down, you start to feel the weight of it [the injury event] and it all catches up with you. I found that any time I thought about it or talked about it I'd get sad and teary and so that's when I decided to see someone'* (Mother, 7 year old).

How their child had sustained their injuries also impacted on parents' mental health. Around a third of parents struggled to come to terms with who had caused the injury, which in some cases included blaming their partner. As one mother explained: *'Our relationship has changed a lot because of the fact that he caused the accident'* (Mother, 12 year old). Another third of parents blamed no one for the injury event, while the remaining third felt deep self-blame for how the injuries occurred. In the latter cases the parent felt responsible for how the injury occurred, for example, by being the driver of the car, or that their action or inaction had contributed in some way to their child's injuries:

*'I feel it's my fault. I just feel as a mother your main role and only role is to protect your kids and I didn't do it'* (Mother, 1 year old).

Parents were also concerned and sometimes very worried about the impact of the injury on other family members' mental wellbeing including partners and siblings. One husband described his wife as being 'mentally missing' and 'depressed, unable to cope' (Father, 4 year old), and a wife commented: *'My husband struggles a lot . . . I don't think he'll ever get over it'* (Mother, 16 month old). The

level of concern was heightened if family members had witnessed or been involved in the injury event and needed time to adjust mentally to what they had seen, as highlighted by a sibling who witnessed a motor vehicle collision: *'he [child's brother] just went in on himself and cried and cried and couldn't face anybody'* (Mother, 12 year old) and a sibling who had provided emergency care for his burned sister:

*'My older son had her in the bath that day of the accident, so what he recalls is skin melting and falling off her body . . . he's actually never touched his sister's skin and says, 'I just don't like to touch it''* (Mother, 9 year old).

#### *Coping with child injury as a family*

Parents and families coped in various ways after the child's injury. Many parents felt their relationship with their partner had strengthened. A few however, said their relationship had been neglected due to concentrating on meeting the child's needs; *'he (husband) was very unsettled and he just sort of went into his own little world'* (Mother, 9 year old). Friction also occurred when couples differed in their views about the child's treatment:

*'Sometimes we feel closer for it, we sort of try and enjoy each other more and make time for each other; but then you know, there's the stress. That can put distance between you at times and obviously sometimes you disagree about how things need to be done'* (Mother, 9 year old).

For a few parents who prior to injury no longer lived as a couple but shared the care for their child, the injury caused further tension in their relationship. Issues arose in relation to information-sharing about the child's care, for example when one parent failed to inform the other about appointments, or hadn't discussed how the child was progressing or explained what exercises were required to promote recovery. One father contended he had been deliberately kept out of his child's rehabilitation by his former partner.

Many parents recognised the family dynamic had changed as they tried to reintegrate the injured child back into family life. A few parents now prioritised family time: *'we make good of what we've got and make sure we cherish that'* (Father, 10 year old). Sometimes though, parents considered that siblings of the injured child missed out in relation to the quality and focus of parental attention: *'it's been a lot tougher on the other two kids'; 'I do sometimes worry that they don't have my attention as much as what they used to'* (Mother, 9 year old).

Most parents of older injured children (9–12 years) with the verbal skills to discuss their situation found their relationship with the child had strengthened; *'sometimes these horrible events can give you time to spend with each other that few of us normally have'* (Mother, 12 year old) while others felt it was too early to tell. For parents of babies and younger children, many found it difficult to assess the impact of the injury on their relationship with their child given the child's limited verbal skills and early developmental stage.

As families reintegrated back into the community, some parents experienced insensitive and confronting reactions from others to their child's physical appearance and impairments. Parents were shocked by these and felt they had not been prepared by health professionals beforehand on how to respond to such unwanted and negative reactions. One mother commented: *'I kind of wanted to almost cover him with a blanket and sort of shelter him from that ridicule'* (Mother, 1 year old).

#### *Navigating resources to meet family needs*

Parents had a range of physical and psychosocial needs in relation to their injured child and family. Most parents reported no direct contact or follow-up support from hospital staff once their

child left hospital. However, when parents and children returned for outpatient visits and further surgeries, the personal relationships they developed with staff during hospitalisation continued to be important. Most parents felt a strong bond with staff with whom they had shared the initial, intense injury experience. As one noted, *'your surgeons and your nurses and your doctors become your little family when you're down there'* (Mother, 1 year old). This continuation of the care relationship with known staff at outpatient visits helped parents feel supported and confident that their child's recovery was proceeding to plan.

Discharge planning varied between hospitals as did the information provided to families about accessing local community services. Some families living in rural locations struggled with not having a support team available. A few rural families developed good relationships with regional hospital staff and felt comfortable accessing regional services, while others had a less positive experience and chose instead to use private health services. While most parents received information about follow-up medical appointments and allied health outpatient services for their child, few received details about follow-up psychosocial services for themselves, their child, or family members:

*'Sometimes she [injured child] does get a bit angry at different things. I think it wouldn't hurt for her to talk to someone else about that, the way she feels. But I don't know how you do that, us being so far from town and it would be difficult to do'* (Mother, 7 year old).

Many parents said they would contact their treating hospital if they required additional medical information for their child. However, parents acknowledged they had no single point of contact, and did not know who to call (e.g. the surgeon, or nursing staff). The parents whose child's injuries had resolved in the first six months felt they did not require hospital follow-up, but other parents whose children had more complex and ongoing needs believed they would have benefited from staff follow-up; *'just probably reassurance that things were happening and were what you'd expect to happen'* (Mother, 10 year old).

After leaving hospital, all parents used allied health services such as physiotherapy and speech therapy, to enhance their child's recovery. Most parents however, were not given any resources from the hospital to locate local services. Many experienced barriers in accessing community resources including limited knowledge of local services and the health system, being uncertain about who to contact in their local community, and not having the money to pay upfront for services. Nearly half of parents lived two or more hours from the treating hospital, making access to post-hospital services difficult. Specialised services such as paediatric occupational therapy, for example, were often not available in rural locations resulting in some parents travelling back to the treating hospital, to a regional centre or waiting for a practitioner to become available locally:

*'We haven't had any OT [occupational therapist] for a couple of months, mainly because of where we live. We're a couple of hours from [capital city], but not many OTs are available and certainly not paediatric and hand OTs'* (Mother, 10 year old).

In contrast, parents living in metropolitan areas had greater access to a broad range of allied health services through outpatient clinics, private providers or home visits.

## **Discussion**

This study provides several important findings on parent experiences and psychosocial support needs in the 6 months following their child's critical injury. The most problematic aspect of the child's injury identified by parents was the mental and emotional impact of the injury and injury event on the child, and

subsequently on the parent and family unit. Parent reports of their child's psychological wellbeing being the most challenging aspect of child injury is a fresh finding in respect to understanding parent experiences. The majority of prior literature has measured parent outcomes rather than explored their subjective experiences in the period following injury [9,11,13].

The finding that children were mentally and emotionally impacted by injury is consistent with prior literature [11,15,16] identifying that children can experience long-term emotional and behavioral problems following injury. Progress with these problems can be influenced by the family environment [15] and previous research has found a mutual association between child and parent psychological health where high psychological distress in parents correlates to poorer recovery in the child [22]. It is therefore vital to support parents' and families' psychosocial functioning in order to maintain children's wellbeing. The current study found that ongoing interpersonal relationships with hospital staff were comforting and important to parents. At medical follow-up appointments, it is recommended that a family-centred psychosocial approach is used and children are routinely screened for psychological distress and parents provided with appropriate psychosocial support service referral.

This study demonstrated that 6 months post-injury parents' own mental health remained affected. This is supported by prior literature [13,14,23,24]. Parents reported ongoing concern about their mental health and wellbeing. Mothers may be more vulnerable to psychological distress post child-injury than fathers [22] and in the current study, a key finding was that mothers more often reported seeking help for mental health concerns than fathers. To our knowledge this gender difference in help-seeking has not been reported previously with parents of injured children, however a gender difference in mental health help-seeking more broadly is well-recognised [25]. Ideally, psychosocial screening during hospitalisation and then psychological support during and post hospitalisation for all parents should be offered during their child hospitalisation for critical injury [26]. Given their reluctance to seek help for psychological distress it is important that fathers are specifically targeted for early psychological screening and intervention. Further, at 6 months two-thirds of parents in the current study were still blaming themselves or others for the injury event. Blame attribution has known negative impacts on mental health [27] and needs to be specifically identified and addressed in follow-up psychological intervention for parents.

In this study parents reported that other family members, particularly siblings and partners, also experienced mental and emotional strain related to the child's emotional problems and/or caregiving and reintegration back into the family. This finding reinforces the need to consider the needs of all family members in discharge planning, and to use a family-centred approach to follow-up post-injury [28]. Ideally, this support would include cognitive-behavioral and other psychological strategies to help reduce family distress and strengthen their coping capacity. Family psychosocial adaptation to injury is often influenced by family members' perceptions of the injury situation [29], and psychological interventions post child-injury may need to support parents and family members to cognitively re-appraise or re-frame the child's injury and related impact in order to reduce their psychological distress [29].

Parents in this study reported a lack of adequate psychosocial resources for themselves and their child and family in the 6 months following child injury. To strengthen parent psychological adaptation post-child injury, provision of psychosocial resources for them, their child, and family is vital. Parents felt unprepared for their child's and their own psychosocial challenges and reported a lack of post-discharge guidance and assistance to manage them. They reported that hospital discharge planning did not include guidance about

what to expect in regard to the child's, parent's or family's potential psychosocial impact or needs, nor were parents prepared for potential stigmatising behaviors from other people in regard to their child's changed physical appearance. Anticipatory guidance on what to expect and psychosocial resources to support parents and children is needed. This includes resources for parent management of challenging child behaviors, and information that the child's varying emotions and behaviors are an expected response to critical injury, are manageable, and are likely to improve with time and support. Table 3 provides a framework of relevant factors derived from the current study that can be used to develop anticipatory guidance resources. These findings indicate that there is a clear need for a specific coordinating role that addresses parent and family needs from time of injury through to post-discharge recovery. As a result of findings from this study, a dedicated family support coordinator role is currently being implemented in an Australian hospital. The role is performed by a pediatric-experienced and qualified social worker who provides dedicated, consistent psychosocial support for the child and their family during hospital admission and post-discharge. They coordinate the psychosocial care of the child and their family from initial treatment to societal reintegration as the child progresses through the healthcare system. The role is based on family-centred care principles and uses a case management approach to provide physical, psychological and emotional support.

Nearly half of the parents in the current study lived considerable distances from the treating hospital. Follow up from the trauma centre and family support coordinator could incorporate telehealth sessions such as online videoconferencing for psychological support. Telehealth is known to increase access to health services, be cost-effective, and improve health outcomes, quality of care and quality of life [30]. To make psychosocial support and resources accessible for all parents, the development of online and e-support resources are recommended. There are emerging reports of video-conferenced group programs to reduce parents' psychological distress [31] and web-based interventions to help parents prevent persistent psychological distress in their child [32]. It would also be beneficial to use a family-centred approach for future online or app-based interventions, where the biopsychosocial needs of parents and their child and any siblings are addressed.

### Limitations

This study is limited to one group of English-speaking parents from the Australian context. Parents self-selected into the study. Future research could include a wider group of parents from varying cultural backgrounds.

### Conclusions

The parent-reported mental and emotional impact of child injury on parents, the injured child, and family members in the 6 months following injury is substantial. There is a critical need to address parent psychosocial wellbeing as there is a known mutual association between parents' wellbeing and that of their child. The implementation of a family-centred biopsychosocial approach, beginning from the initial injury event and incorporating post-discharge and recovery care planning, would enhance parents' resilience and ability to manage daily life post-discharge and support the recovery of the child and the wellbeing of the family unit.

### Author contributions

KF, KC and RM developed the overall concept and design of the study. CV collected the data and AY and KF analysed the data. KF

and AY drafted the manuscript and KC, RM, and CV critically revised the manuscript. All authors read and approved the final manuscript.

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## Conflict of interest

All authors state that they have no competing interests to declare

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