

ORIGINAL ARTICLE

A grounded theory investigation of life experience and the role of social support for adolescent offspring after parental brain injury†

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Abstract

Primary objective: The purpose of this study was to explore the experiences of adolescent offspring following parental acquired brain injury (ABI) and the role of supportive relationships in offspring coping.

Design: The study was qualitative using grounded theory methodology.

Methods and procedure: Nine adolescent offspring of parents with ABI were interviewed individually. For the purposes of triangulation, three of their noninjured parents were interviewed individually.

Results: Findings indicate that following the shock of the ABI, adolescents appeared to go through a dynamic process of reevaluation of life priorities, a sudden realization of the fragility of life, and an increase in their appreciation of the family's needs. The study's findings also show that adolescent offspring can have a protective role in the family, assisting the family with the long-term challenges that ABI may present. Alternative parental figures and peer friendships appeared to have a central role for participants, providing a sense of normality and stability to their lives, and acted as an important connection with their lives prior to their parents' ABI.

Conclusions: Findings indicated that supportive relationships were crucial as a coping strategy for adolescent offspring. Assessment of adolescents' coping strategies and support networks should be conducted by the best-placed clinician working with the family. Preventative interventions are recommended. A strength-based view of the adolescent may be beneficial.

Keywords: *acquired brain injury, head injury, traumatic brain injury*

Surviving an acquired brain injury (ABI) is an increasingly common phenomenon, mainly due to medical advances in recent decades. The peak incidence of ABI is in men of child-rearing age (15–35): therefore, high numbers of children and adolescents will grow up in families affected by ABI [1]. Consequently, the UK government recently [2, 3] recommended the provision of services for children and adolescents in families with a parent with ABI. Despite growing recognition of the needs and impact of parental ABI on families and their offspring [4, 5], the latter subgroup, in particular, has remained considerably

neglected in the literature, and the evidence base remains sparse [6, 7].

ABI impact on the family

Consistently, researchers have found that adult relatives of people with ABI experience high levels of depression and anxiety [e.g., 8, 9], as well as increased feelings of burden as much as 5 years post-ABI [10, 11]. ABI can present particular challenges for the noninjured parent, which can have a deleterious impact on the family, such as disharmony

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and high rates of divorce [12, 13], financial strain [14], and increasing social isolation [8]. The availability of social support has been shown to be a prominent factor in adult relatives' satisfaction with their increased care-giving role [15, 16] and a moderator in adult relatives' life satisfaction following ABI [17]. Support systems have been described as "an important determinant of postinjury family adjustment," [18, p. 212]. Although little is known about offspring

social support, results of studies have shown that, similarly to their adult counterparts, they might experience a reduction in this area following parental ABI [19, 20].

When considering the holistic effects of ABI on the family, many researchers have found difficulties in family functioning after ABI [8, 21]. However, some researchers have reported contrasting findings, suggesting that a percentage of families adjust positively to ABI. Carnes and Quinn [22] found that, despite high levels of distress in relatives, family functioning increased and was positively related to family coping. Similarly, Frank et al. [23] found that family cohesion increased after ABI. These outcomes represent a small but growing interest in developing family adjustment and coping models after ABI [24] as opposed to the dominant trend in research of focusing on stress and burden.

These findings are important for the whole family because family coping appears to have a positive impact on the rehabilitation progress of the ABI survivor [25], which in turn is associated with reduced caregiver distress [24]. This is relevant for the offspring's ability to cope with parental ABI, given that an earlier study based on reports from the noninjured parent suggested that changes in parenting capacity (both parents) and depression in the noninjured parent negatively impacted children's behavior [26].

In turn, ABI studies suggest that children's adjustment difficulties represent a significant source of stress for adult relatives of ABI survivors [27]. Family systems theory can offer a theoretical understanding for these findings, since it proposes that one family member's behavior and coping will influence other family members [28, 29]. Due to the potential impact on the offspring's coping and vice versa, it seems imperative to further understand the complex interface and interactions between individual family members' coping, family coping, and family functioning after parental ABI. In particular, as we argue next, it is crucial to understand the role of adolescent offspring in the family and how their adjustment and coping simultaneously influences and is influenced by the family's coping.

Impact of parental ABI on child and adolescent offspring

While a small body of literature on offspring exists, this is dominated by clinical observations and case studies with limited empirical rigor. In addition, this research relates almost exclusively to younger children, rather than adolescents. Results of several studies have indicated that children of parents with ABI are at risk of developing significant emotional difficulties and behavioral problems [26, 30, 31]. Perlesz et al. [32] reported that one-third of family members not involved in care giving (siblings or children) experienced high levels of emotional difficulties and family dissatisfaction. However, another study showed that children had higher but not statistically significant levels of depression or behavior problems when compared to a comparison group [33].

Pessar et al. [26] stated that after their parent's ABI, children experienced difficulties in their social functioning. However, this finding was based on parents' reports only and has not been widely researched. Consequently, additional research on the impact of parental ABI on young people's peer relationships is warranted. Findings from other studies have shown that offspring living with parents with physical or psychiatric problems were at risk of developing psychosocial and emotional problems [34], especially when parental difficulties were chronic [35] or unpredictable [36], which is usually the case for a parent with ABI.

As previously indicated, an additional limitation of the ABI literature is that most of the findings on offspring have been reported only by parents. In three small studies, researchers elicited experiences directly from offspring after parental ABI. Butera-Prinzi and Perlesz [19] interviewed 4 pre-adolescent children who reported changes of roles and relationships within their family unit, struggles in dealing with the loss of a changed parent, high intrafamilial conflict, loss of external social support, and negative impact of ABI on daily activities. Children also reported helpful relationships with a nurturing relative but neither these relationships nor coping strategies were further investigated.

Kirk [20] and Harris and Stuart [37] conducted small phenomenological studies that corroborated previous themes. Recommendations for future research included investigation of offspring's coping and the role of supportive relationships as a coping strategy. Since these studies limited their recruitment to families referred for extended counseling, they recommended the inclusion of families not currently involved in counseling to ensure that children of families who may have adjusted positively to ABI were also represented.

When findings indicating that offspring experienced psychosocial difficulties and reduction of social support after parental ABI are taken into account, it is clear that adolescents deserve specific investigation. Firstly, adolescence per se is a complex developmental transition with inherent psychosocial dilemmas, including identity development and peer-group relationships [38, 39]. Secondly, adolescents' appraisal and coping with interpersonal conflict may be different from younger children's and adults' coping and they may take more personal meaning from it [40]. The authors of the current study aimed to build an initial theory, discussing developmental and emerging categories of how adolescents respond following moderate to severe parental ABI and the impact of parental ABI on the offspring's relationships.

Methodology

Participants and design

The main aim of the researchers was to build an initial model, grounded in the experiences recounted by adolescent offspring of a brain-injured parent, with the aim of enabling new understandings to arise from the data. Therefore, grounded theory methodology [41] was used. However, we recognize that the understandings put forward here are a combination of participants' articulation of their experiences and of our interpretations of them, which are influenced by our prior knowledge of relevant research and theory. The findings of the study are also affected by the assumption that while mental and social processes occur in a real sense, it is also possible to construct a partial understanding of these processes. To this extent the epistemological position of this study can be understood as "critical realist" [42], a standpoint located between the positivist and social constructionist that assumes that psychological phenomena exist in reality but interpretation of them is influenced by the researchers' expectations and previous knowledge.

The main sample comprised 9 adolescents who met a number of inclusion criteria. Firstly, participants had to be between the ages of 13 and 20 years ($M = 16.7$). Secondly, they had to have a parent with severe nonprogressive acquired brain injury (ABI) as measured by post-traumatic amnesia (PTA) of more than a week in the case of traumatic brain injuries (TBI) or by severe memory impairment and psychosocial deficit for nontraumatic brain injuries. Parental ABI had to have occurred between 1 and 4 years previously ($M = 2$ years and 6 months), so that adolescents would be expected to have gained insight into living with the parent with ABI while retaining good memory of life before ABI. Siblings

were included, as their experiences may differ considerably, providing important variation in perspectives [12].

Six families participated in the study: 6 girls and 3 boys. There were three sets of two siblings, and all but one parent were fathers with traumatic brain injury (TBI). The most common cause of injury among fathers was a road traffic accident. The remaining parent was a mother who had sustained a severe nontraumatic subarachnoid hemorrhage. PTA does not strictly apply to brain hemorrhage but the severity of memory impairment and psychosocial deficit were considered sufficient as inclusion criteria. Three noninjured mothers accepted the offer of being interviewed and their interviews took place after their offspring's interviews. These mothers formed a supplementary sample used to triangulate data from the main sample. These data are presented in the results section alongside the adolescents' data but in a different format. All participants were white British. Names used are fictitious. Table 1 shows patient characteristics.

In contrast to previous research, the majority of the families in the current study represent a community-based sample with little history of contact with mental health services and no current contact. Furthermore, this study recruited adolescents across the age range as defined by Erikson's revised version of psychosocial stage of adolescence [31]. The purpose of such inclusion criteria was to fill a gap in the research knowledge by offering a reflection of adolescents' coping mechanisms and use of supportive relationships in the context of their role in the family. Besides participants' age several other factors added to the diversity of the sample, for example, gender of the parent with ABI, time since injury, nature and degree of injury, and socioeconomic status based on the parents' previous occupation.

Interview schedule

The core interview schedule included the young person's experience at time of injury, when their parent was discharged from hospital, present experience, relationships with family members, and supportive relationships. The interview schedule was developed by the first author in consultation with a child clinical psychologist, the second author, who is experienced in grounded theory research, and the third author, who works with families with ABI.

Procedure

Ethical approval was granted by an NHS Multicentre Research Ethics Committee and relevant research and development departments. Adolescents were identified by professionals from

Table 1. Participant characteristics.

	Family 1*	Family 2*	Family 3	Family 4*	Family 5	Family 6
Adolescent's fictitious name, gender	Hannah F	Lucy F	Carla F	Amy F	William M	Tom M
age	17	17	17	12	14	19
Average age: 16.1						
Cause of ABI	TBI Car accident	TBI Car accident	TBI Car accident	TBI Sports accident	Subarachnoid hemorrhage	TBI Ran over by a car
Injured parent's gender	Father	Father	Father	Father	Mother	Father
Severity post traumatic amnesia (PTA)	4 weeks	10 weeks	3 weeks	4 weeks	4 months very severe long and short term memory problems	3 months
Time since injury (months)	24	32	49	19	16	49
Average time: 31.5						
Time in hospital	4 months	5 months	2 months	4 months	5 months	7 months
Mean = months					(4 months in secure BI unit)	
Injured parent's employment status	Retired on ill health grounds	Retired on ill health grounds	Retired on ill health grounds	Retired on ill health grounds	Retired on ill health grounds	Part time charity work
Injured parent's previous employment	Self-employed	Computer engineer	Qualified builder	Postman	Senior sales executive	Managing director of large company

NHS brain injury teams (1 participant), an independent day care centre (3) and the charity Headway (5). Two procedures were in place. For participants requiring parental consent (under the age of 16 years), an invitation letter was sent to the parents with a user-friendly information sheet for adolescents and reply form. For older adolescents the information pack was sent directly to older offspring. If they did not reply within a month, one reminder letter was sent. Interviews were conducted at participants' homes. Interviews lasted between 40 and 90 min and were audio taped. Before each interview adolescents were reminded about their right to withdraw at any point and confidentiality and risk issues were discussed. They signed two copies of the consent form and kept one. They also signed a written form if they consented for the noninjured parent to be interviewed. Participants were debriefed individually after their interview. Due to the sensitivity of the topic discussed, the aim of the debriefing interview was to provide the participants with the space to reflect on the process of their interview as well as their experience of it and their feelings in relation to it. The debriefing interview was one element of a broader risk management plan agreed on with participants in advance.

Data analysis and quality assurance

The analysis of this study drew on procedures described by Strauss and Corbin [41] and Charmaz [43]. The first three interviews with adolescents were coded using a "line-by-line analysis" to generate emerging patterns [44]. Theoretical memos were used to aid conceptual development of categories, and axial coding was used to create links between categories and subcategories [41].

After collecting and analyzing four interviews with older girls, a younger girl was theoretically sampled [41] to test emergent categories. The author's intention was to then recruit male adolescents with a father with ABI; however, due to recruitment difficulties this was not possible and two brothers with a mother with ABI were recruited next. Lastly, two older adolescents (male and female) were interviewed, which allowed us to further refine the categories that had emerged in previous interviews.

The current study stopped at 9 participants mainly because, although the last 4 participants added variability to the emerging categories, the pattern found in their data was comparative to previous participants, offering explanatory power and refining the emergent model but not adding any further categories. This decision was taken based on Strauss and Corbin's [41] definition of theoretical saturation: "the point in category development at which no

new properties, dimensions, or relationships emerge during analysis" (p. 143).

The data from the three noninjured parents' interviews were used for the purpose of triangulation, as a quality assurance method. Only after appropriate categories from the adolescents' data had been developed were the three interviews with parents coded. The first author conducted and transcribed all interviews using a semi-structured interview style based on the interview schedule. Nvivo software [45] was utilized as a tool to aid the analysis of the data by facilitating its management.

Mays and Pope's [46] recommendations were followed, with reflexivity maintained through the use of a reflective diary and discussions with supervisors. Higher-order categories, categories, and subcategories were grounded in participants' quotes to illustrate model development. Credibility checks included line-by-line coding of three interviews, supervisor audit of categories and model development, audit trail on two participants' transcripts with further discussion about any difference of opinions, and triangulation by interviewing both adolescents siblings and, where possible, parents. Participants' validation was used and feedback from 4 participants influenced the final model. Seven adolescents requested a summary of the results hence they were sent a simplified taxonomy of the model with definitions alongside a feedback form. Hannah, Lucy, Hope, and Carla provided some feedback and overall agreed with the model. There were just two differing comments about one of the categories, by two participants, which led me to review all the transcripts related to this particular category and adjust it accordingly.

Results

A taxonomy of the model is presented, including higher-order categories, categories, and subcategories iteratively generated from the data. Categories have been cross referenced using letters.

Overview of the model

The model (Figure 1) illustrates the hypothesized process of adolescents' responses to the ABI and use of supportive relationships following it. A concern for all participants appeared to be protecting the family from further stress, which in turn was interrelated with their attempts to provide a sense of "normality" to their lives and with changes that occurred in their peer relationships. There are several levels to this model: three higher-order categories and constituent categories are represented in the middle. The fourth higher-order category—reevaluation of life and self—is represented on a

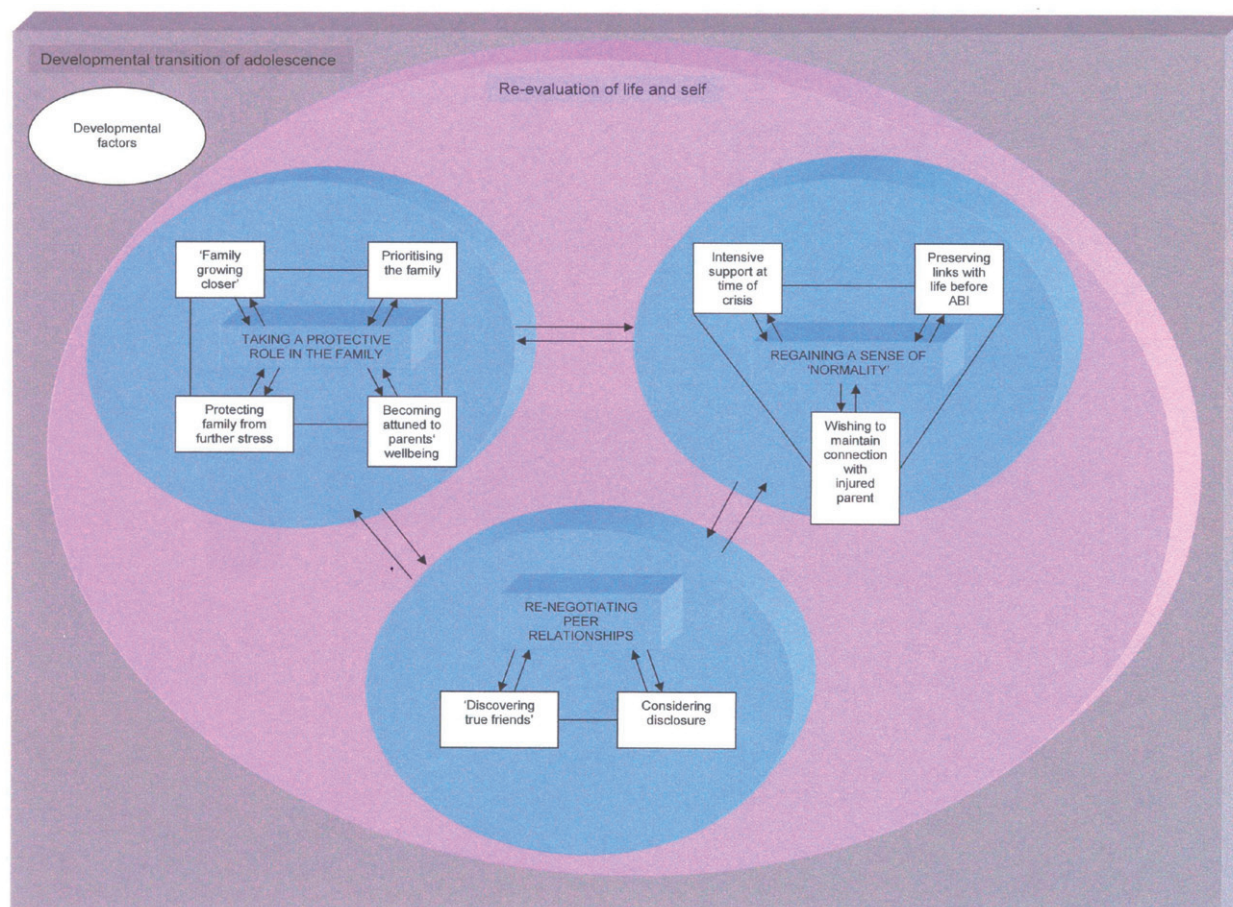


Figure 1 Model of adolescent offspring's process of coping and use of supportive relationships following parental acquired brain injury.

wider level because it constitutes the context for the other categories. An even wider contextual level represents normative developmental processes and external factors inherent in the transition of adolescence, arising from the data.

Higher-order category 1: Reevaluation of life and self

This higher-order category is a meta-concept that captures the reassessment of adolescents' fundamental beliefs about life and their sense of self after their parent's ABI.

"Making the most of life" (A). All adolescent participants, except Martha, described some change in their outlook on life, which appeared to be influenced by the realization of the vulnerability of life, in turn, leading to a wish to move on and make the most of life, "[ABI] shocked everyone who didn't realize that you gotta make the most of it [life]" (Lucy). Influence from the noninjured parent's own outlook on life after their partner's ABI also was frequently discussed by offspring as a factor influencing their adjustment.

Acknowledging the fragility of life appeared to infuse a sense of urgency in 6 adolescents to accept the new situation and move on, and there was a sense of not wanting to waste precious time. Lucy, Hope, Carla, and Amy expressed a positively biased perception of life after ABI: *"I look on the bright side of everything now"* (Carla).

Acceptance and moving on appears to be influenced by their close relatives' adjustment: *"It's not helpful to dwell on the past: I got that from my nana"* (Carla); *"I have probably put it (keep going forward) into them"* (Lucy and Hope's mother). These 6 adolescents appeared to be influenced by their relative's positive adjustment and this process may have facilitated adolescents' acceptance. The following quotation captures the possible influence of outlook on life between adolescents and parents. *"She (mother) stays so positive [...] makes me more positive about the whole situation"* (Lucy).

Development of sense of self (B). Eight participants took over many new roles and responsibilities in the family that involved learning new skills related to their parent's ABI, e.g., using equipment to support

their parent, as well as having to become more self-reliant and responsible. Participants appeared to suggest that these new roles allowed them to discover different aspects of themselves that may have contributed to their developing identity.

All adolescents provided numerous examples of ways in which they helped their families and seemed to have developed a strong sense of duty toward their families. One particular participant (Hope) captures the essence of the sense of duty shared by all participants, in the following quotation: *"We do try to help her [noninjured parent] with things but I don't think we do that much really,"* implying that Hope believes that she and her sister should do even more to help. This is despite abundant evidence of her thoughtfulness and helpfulness toward her family from her mother's and sister's reports.

Much of the adolescents' attention was directed at the noninjured parent but they also became vital assistants to their injured parent. This is strongly linked to subsequent categories illustrating the protective role adolescents seemed to take in their families (G–I).

The need to mature quickly appeared to be influenced by adolescents' realization of their family's needs. Hannah, Lucy, and Carla expressed ambivalence about their rapid maturation process: *"There was no more time to focus on ourselves [...] We had to grow up so fast, which was kind of wrong I suppose"* (Carla). However, they made attempts to reframe their experience positively. *"I think it is a good thing (having a caring role in the family) because when I move out and I have to look after myself and they (friends) move out they won't know what to do"* (Hannah).

All three parents also seemed very aware of their adolescents' rapid maturational process. *"She has become a young lady before her time"* (Amy's mother); *"I think (after ABI) ... they are thoughtful in a more grown-up way"; "They would not have had to learn on their own, yeah probably a bit sooner than they may have done"* (Hope and Lucy's mother).

After parental ABI, the additional responsibilities adolescents had to take in their families seemed to have promoted a journey of self-discovery: Martha and Carla uncovered a vulnerable side to themselves, while Hannah, Lucy, Hope, Tom, and Carla described uncovering new strengths that impacted positively on their confidence to overcome future challenges; *"It's because the impact of the trauma and stuff that we got through has made my character ... I'm more independent, I'm a more self-reliant person [...] It makes you a stronger person"* (Tom).

This category (and its subcategories) is especially relevant when considering the degree to which the adolescent seemed to take a role protecting the

family from further stress and remain in that role long term. The way in which adolescents made sense of the fragility of life, invested in their relationship with loved ones, and prioritized their family's needs over their own appeared to influence the degree to which adolescents also took a "protective role" in their families that safeguarded the family and its members from further stress. Those adolescents who perceived the ABI as a *"wake-up call"* (Lucy) and prioritized their family's needs also appeared to hide their distress from family members, especially the noninjured parent, as will be shown later.

Higher-order category 2: Regaining a sense of "normality" intensive support at time of crisis (C)

All adolescents described the aftermath of ABI as a frightening and uncertain time. It appears that reassurance, comfort, and hope from parental figures and availability of support provided a sense of stability and security that enhanced their ability to manage their daily lives. The degree of support offered by extended family members at that point appears to determine the degree in which those relationships will be strengthened (I).

Preserving links between life before and after parental ABI (D). All parents and adolescents (except for William) thought that peer relationships were a central support and fulfil many functions for adolescents, for example by providing a sense of continuity to their lives. The following quote captures the essence of this category: *"Support from other people has enabled them to have their lives relatively normal, like before the accident. In their little world they still got most of what it was before but the foundations just had to be changed where M (injured parent) and I are concerned"* (Lucy and Hope's mother).

In order to maintain "normality" 6 adolescents chose not to talk about their parent's ABI with certain peers. Hannah and Tom wanted to avoid sympathy, while for Carla and Patrick it was a question of protecting their friends or themselves from difficult feelings and for Hope and William it was to maintain their privacy. Maintaining family activities and rituals provided a sense of continuity for 5 adolescents: *"We still celebrate things together in the same way as we did before"* (Amy).

Wishing to maintain emotional connection with parent with ABI (E). Six participants described feelings of loss about their relationship with the parent with ABI. Hannah, Tom, and Martha described difficulties in knowing how to relate to a changed parent: *"We have clashes because he is just a different*

person" (Hannah; E). Despite sometimes feeling rejected by their parent (ABI), Amy felt hopeful about regaining closeness: "I have gone further away from dad but we are hopefully gradually getting closer" (Amy; E). Carla, Hope, and Amy treasured activities that maintain an emotional connection with their parent with ABI: "He's still my dad [...] what's left of your relationship you can grab a hold of" (Carla). Carla was the only adolescent who felt her relationship with her father improved after the injury. "I was the loudest person in the house but now he has more of a tolerance... we've just got so much closer, which I love." (Carla).

The descriptions of Hannah, Hope, and Lucy's mothers' were consistent with the adolescents' feelings of loss. Efforts to nurture the relationship between the adolescents and their father and the positive impact on their sense of self were expressed.

Higher-order category 3: taking a protective role in the family

It is hypothesized that adolescents' choice of coping strategies would be influenced strongly by a desire to protect their family from further stress. The degree in which adolescents desired this appeared to influence whether the adolescents disclosed their distress to family members or sought alternative ways to manage their feelings.

Prioritizing the family (F). There appears to be a close link between the higher-order category reevaluation of life and self and the category of prioritising the family's needs. Six adolescents expressed their new awareness of the value of their relationship with their family members: "The time that we spend now [...] everyone appreciates it more" (Hope), and their prioritization of their family's needs: "They (family) come first with anything" (Carla).

Lucy, Amy, Patrick, and Tom reported ways in which the ABI strengthened their relationships with relatives who provided support during the crisis. The increased frequency of contact by relatives appears to suggest that extended relatives may have also conducted a reevaluation of family priorities. "The rest of the family also got closer [...] they make the effort to meet up more" (Lucy).

Becoming highly attuned to parents' well being (G). Most of adolescents' protective roles were directed at their parents' well being and all adolescents became highly sensitive to their parents' needs: "I always think that what makes Mum's life easier or Dad [...] if I or my sister can make that easier then we clearly must" (Hope; G).

All adolescents except William and Patrick showed high awareness of the impact that the mood of the parent with ABI had on their own psychological state and that of the whole family, "when dad is unhappy sets up a horrible atmosphere" (Lucy; G). Hannah, Lucy, and Hope's mother also perceived a qualitative change in their adolescents' thoughtfulness after the injury. Similarly, 5 adolescents' descriptions suggested that the roles they assumed in their families were often held by their parents prior to the injury, which appeared to have flattened the family hierarchy. "My oldest sister became Mum's best friend [...] my oldest brother became Mum and Dad at the same time" (Carla).

Again, all adolescents except siblings William and Patrick appeared to be highly aware of what their noninjured parent had to cope with. This appears to have had an impact on their degree of disclosure about their difficulties and on their protective role as their parent's best friend. "I am a support to my mum because I've got friends to talk to about things [...] I just rather her not worry about me" (Martha; G). William and Patrick's family had a professional care giver, which may explain their lower level of concern about their injured parent's well being.

All adolescents except William demonstrated their appreciation for the noninjured parent's support by fitting in with the parent's limited availability. For Hannah, Amy, Lucy, Hope, and Patrick their relationship with the noninjured parent was mutually supportive, while for Carla, Tom, and Martha, they seemed to be the ones providing support to their mother. All three parents had noticed a change in their relationship with their adolescents: "It's like she is my friend and that is good" (Hannah's mother; G).

"Family Growing Closer Together" (H). All adolescents' descriptions suggested that the ABI had a positive impact on family closeness. Five adolescents thought it was because all family members were experiencing the same difficulties: "We were in the same boat we sort of became closer together" (Patrick; H); "We all must have something in common; I suppose that's why we're close" (Martha; H).

Five adolescents described a sense of teamwork in the family that appeared to help them unite against challenges: "stick together and, deal with our problems together" (Patrick; H); "We just work together" (Lucy; H). William wondered if increased communication was a possible connection between family's teamwork and increased sense of closeness: "Because you help out you have to talk to each other more" (William; H). Patrick expressed other ways of looking after each other, e.g., ensuring each other's safety, which to a degree links with adolescents' awareness of mortality previously described (A).

Protecting family from further stress (I). The desire to protect the family from stress appeared to have a vital influence on how adolescents responded to the ABI. All adolescents showed high awareness of the needs of their relatives that led them to hide their own distress to protect others from further stress: *"I was protecting my family by not telling them what I was going through"* (Carla; I). All parents described a sense of protection from adolescents: *"She is pretty well adjusted [...] but I think there is a lot of underlying...that she doesn't want to burst me"* (Amy's mother).

Adolescents expressed a wealth of strategies that appeared to help them self-regulate their distress. Some seemed to be aimed entirely at releasing emotions ($N=9$) through catharsis: *"Scream and no-one can hear you over the music"* (Hope; I) or creativity ($N=4$): *"Do some painting"* (Lucy; I); *"Music helped me through a lot of it"* (Carla; I);

Seven adolescents retracted from conflict in the family, especially with the parent with ABI and learnt from their siblings' experience: *"I know that if you shout back it ends up in a big argument and I don't really want that to happen,"* (Hannah; I).

At times adolescents ($N=6$) were left with strong feelings of anger and frustration, which appeared to be redirected elsewhere: *"At home, I would be able to help out, but at school for some reason I couldn't really...I just seemed to be angry at school, not home"* (Lucy; I).

Six adolescents gave positive descriptions of school. School provided them with a routine (D), a break from home, and a supportive space. Knowing that staff would be understanding appeared to enable participants to express their distress: *"You can let stuff out during the school day as well, rather than at home"* (Amy; I); *"I feel sometimes she can't load me with something else so she won't talk to me but she will talk to other people (teacher and friends) about it"* (Amy's mother; I).

Six adolescents described taking time out when they felt they could not deal with the stress at home on their own. At one end of the spectrum they described what seemed to be distraction techniques while at the other end adolescents physically removed themselves: *"got out of the house for a bit"* (Hope; I) and *"went out with a group of friends"* (Tom; I). The subcategory taking time out appears to link closely to the role of supportive relationships as support from others was sought in order to deal with high levels of distress. Adolescents' age appears to be an influential factor on the type of contact as older adolescents (possibly due to having greater independence) were able to go out with friends while younger participants (Amy) relied on instant messaging systems to seek peer support.

Higher-order category 4: Renegotiating peer relationships

"Discovering True Friends" (J). Friendships appeared to have central roles in adolescents' lives after parental ABI. All adolescents' descriptions suggested a process of renegotiation of peer relationships that allowed them to discover true friendships. *"It's very good in a strange way 'cause I know who I can depend on no matter what"* (Carla; J). For 3 adolescents there was not a clear sense of change to their friendships but friends nonetheless remained vital because their existing friends had always been supportive and continued to be, *"she's always been there for me really"* (Amy). The other 4 adolescents attributed loss of contact with friends to external factors: *"I kind of lost track of these two people and then moved on to college"* (Tom). The subcategory "loss of support" links back and emphasizes the importance of considering the normative developmental context of adolescence.

For 7 adolescents availability support was an important feature of real friendship, i.e., the perception that supportive friends would be available if and when needed. Hannah, Tom, and Martha expressed their dissatisfaction with people they perceived as sympathetic and they valued friends who showed genuine acceptance and understanding of their distress: *"It was never approached as if it was a charity case"* (Tom). The degree to which adolescents' friends were perceived as nonjudgmental appears to have had a strong impact on adolescents' decision on disclosure.

Indeed, good friends became a crucial source of reciprocal support and protection for all adolescents: *"All my real good friends took over [...] they took a big decision to like coat me in bubble wrap"* (Carla; J). For 5 adolescents their relationship with friends became closer and 4 adolescents described especially closer relationships with friends they could identify with: *"H and me are closer because she has got a lot of problems as well and she talks to me about them"* (Hannah).

Considering disclosure to friends (K). Of the adolescents who talked about disclosure of their parents' ABI or their feelings about it, 8 adolescents indicated there was a real sense of active selection regarding what, when, and to whom to disclose. Five adolescents described a need to feel in control of disclosure as not disclosing allowed adolescents to maintain normality, avoid sympathy, and safeguard their privacy. Hannah, Carla, and Tom talked about negative experiences when friends did not show understanding, which appeared to have discouraged future disclosures.

Discussion

The present findings appear to be in accordance with theoretical tenets from Family Systems Theory, which highlight that family functioning is an interactive and multidirectional process [28]. This study's findings corroborate previous studies, suggesting that support from the noninjured parent may have a positive influence on the offspring's ability to adjust [26]. Most importantly, an original finding here is the new protective role adolescent offspring assumed in the family, in that this may have a positive impact on family functioning or at the very least a stabilizing effect on the family. This may be relevant, as previous research has shown that family functioning and adjustment is related to rehabilitation progress for the parent with ABI [25] and the noninjured parent's psychological well being [4, 24] and previous research has tended not to view offspring as making a positive contribution.

The present study challenges the dominant trend in the ABI literature suggesting that negative effects on families are universal [10, 11] and supports the growing ABI strengths-based literature, which proposes that despite the ongoing challenges of living with a parent with ABI some families adjust positively [22]. In fact, most participants in this study felt their families were more united and worked better together than before the injury, even 4 years postinjury.

As a result of participants' emotional concealment toward their families, most adolescents in this study developed skilful ways to manage their feelings using a wide range of strategies consistent with existing theoretical constructs of coping, such as avoidance, positive reframing, using humor, and expressing emotions through catharsis, e.g., art and writing in a diary [47, 48]. There is a general recognition in the coping literature that in circumstances perceived as uncontrollable, which certainly characterizes many of the aspects of a parent's ABI, emotion-focused coping can be helpful [49, 50].

Like their adult counterparts [51] studies focusing on children found that social support was reduced after parental ABI [19, 20]. The present study provides an interesting contribution to understanding peer relationships after parental ABI, which differs somewhat to previous studies. Adolescents in this study described some friendship losses due to distancing from judgmental, uninterested peers but overall friendship loss could have been due to normative developmental factors like finishing school. Extant developmental literature corroborates the high instability in social relationships during adolescence [52].

Adolescents showed their ability to positively reframe negative circumstances, e.g., friendship

loss, by describing their discovery of friends they could fully rely on. Friends offered an essential source of emotional support, which at times was the participants' only sounding board. Listening, comforting, protecting from intrusive attention of other peers, reassuring, using humor to reframe situations, providing hope, and providing a source of self-esteem were supportive functions mentioned by participants. A comparison of the trauma literature versus everyday coping literature corroborates these findings, since confiding relationships play a more central role in coping with traumatic circumstances such as those in the present study [53].

Another interesting finding is the fact that peer relationships appear to have a crucial function as a link between adolescents' lives before and after ABI, enabling them to maintain a sense of normality and continuity. Lastly, friends provided practical support in the form of "time out" when adolescents needed a break from home. Peer support has been shown to have moderating effects in adolescents living in families with high marital conflict [54].

Additionally, alternative parental relationships such as relationships with relatives and teachers appeared to provide emotional and practical support to adolescents. This is consistent with previous studies in the ABI literature [19] and the resilience literature [55, 56]. The current study suggests that a crucial characteristic of supportive relationships was adolescents' perception of how available to them those relationships were when they needed help. This finding has been well documented in the research on social support [53, 57].

This study suggests that assuming additional responsibilities in the family may have accelerated adolescent offspring's maturation and that may have impacted on adolescents' developing identity. According to Newman and Newman's [39] psychosocial developmental model, older adolescents [19–22] go through a stage of identity experimentation before they develop a strong commitment to vocational, social, political, and religious values. Interestingly, even the younger participants demonstrated a strong sense of responsibility and duty. Social and vocational commitment was also evident in Tom and Carla's strong wish to help others through voluntary work after ABI.

This study was not deliberately designed to uncover gender differences in adolescents' coping and social support after parental ABI. However, findings suggest that differences may exist. In line with gender differences found in the wider literature on adolescent coping and social support [58, 59], the present study found that generally females appeared to use more emotion-focused coping and sought more support, while males appeared to be more

cautious about disclosing their parent's ABI and seeking support. However, there were only 3 boys in the current sample and 2 of them are siblings, which could imply a reflection on family rules, so this is merely a hypothesis that needs further empirical investigation. Conversely, the exploration of differences in disclosure and support-seeking uncovered a variety of reasons behind adolescents' decision making process concerning disclosure, which were not gender specific, e.g., maintaining normality, predicting negative responses, protecting others' emotional well being.

Consistent with the requirements of the grounded theory methodology utilized in this study, the variability of the sample with regards to the wide age range of adolescents is considered a particular strength of the present research. It provides a broad range of experiences in relation to a parental ABI across adolescence. For example, there was a variety of support-seeking mechanisms that seemed to accord with an increasing degree of independence held by adolescents. This informs and enriches current understandings of adjustment and its impact on social support of adolescent offspring after parental ABI. However, this strength must be seen alongside the corresponding criticism that the sample overall was relatively small and homogeneous in terms of demographic characteristics. For this reason the suggestion of differences being due to developmental stage is a hypothesis rather than a firm finding, although it does appear consistent with the findings of other studies [e.g., 60].

Limitations of the study and areas of further research

Compared to previous qualitative studies, this study sampled a diverse group of adolescent offspring, in terms of age range, gender, and time since parental ABI, from a community sample rather than a clinically based one, and offered an explanatory rather than descriptive model of adjustment and use of social support. However, recruitment difficulties in this study meant that it is limited by a relatively small main sample of 9 adolescents and a secondary sample of 3 parents for triangulation purposes. Hence, results should be viewed with caution. Additionally, it is acknowledged that there may be a possible recruitment bias in which families coping better felt more willing to take part and expose their lives to scrutiny. Future research could replicate this study using an even more heterogeneous sample, i.e., families from ethnic minorities and more male adolescents, which would allow further refinement of categories.

Implications for clinical practice

Neuro-rehabilitation services are increasingly combining neuropsychological and systemic approaches involving the whole family [7]. Therefore, the findings reported in this study provide valuable insights that can inform the work of professionals working with families, when involving young relatives in the family work. It also places the work in a theoretical framework that synthesizes different strands of adolescents' responses to parental ABI and the interactions within and outside the family, which may help to bring about a clearer understanding of the whole family's functioning. It is crucial to acknowledge that each family will have different needs or wishes and essential to individualize the intervention to the family's needs. However, therapeutic sessions with the whole family, individual counseling sessions for offspring, educational and counseling groups for adolescents with educational materials may be helpful interventions.

Peer relationships appeared to be a central source of support and protection for adolescents in this study. However, research has suggested that adolescents whose main source of support is peer support can be vulnerable to adverse peer influences, for example, drug taking and delinquency [61]. Therefore, it is imperative to routinely assess the role of adolescent offspring in the family and the impact of adolescents' coping strategies, range of support sources, and understanding of disclosure.

Various participants described school as a supportive space but also as a place to redirect their frustrations. It is therefore, important to liaise and consult with schools. Lastly, in the United Kingdom, the National Institute of Health and Clinical Excellence recommend in their guidelines [3] that child relatives should be included in the parent's rehabilitation, therefore, service providers will benefit from research using a bottom-up approach as employed by the present study, which can inform policy development around involvement of child and adolescent relatives.

Conclusions

In keeping with the aims of the study, this research provides a novel contribution to the ABI literature, offering an explicatory model of adolescent offspring's responses and use of social support after parental ABI. However, due to the limited sample size findings need to be treated with caution.

Peer support appears to have a central role for adolescents after parental ABI. It seems likely, therefore, that there will be benefits if more efforts are made by those working with families to assess the range and nature of relationships available to

adolescent offspring, both within the extended family and outside it. It may also be necessary to develop preventative and normalizing interventions, such as peer support groups and online networks.

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