The psychological effects of road traffic accidents on children and adolescents following admission to an accident and emergency department

Thesis

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THE PSYCHOLOGICAL EFFECTS OF ROAD TRAFFIC ACCIDENTS ON CHILDREN AND ADOLESCENTS FOLLOWING ADMISSION TO AN ACCIDENT AND EMERGENCY DEPARTMENT

Volume 2 of 3

A thesis submitted in partial fulfillment of the requirements of the Open University for the degree of Doctor of Clinical Psychology

November, 2000

SAalomons
CanTerbury ChriST ChurCh UniverSiTy ColLege

20,000 Words
RESULTS

Results

The results are divided into two parts, Section One and Section Two. In Section One demographic data and descriptive statistics are given for the sample of 14 children who were interviewed, and they are presented in two groups of seven, who were identified as case or non-case on the measure of PTSD. This is to aid the reader’s appreciation of similarities and differences between the two groups and to set the qualitative data, reported next, in context. In Section Two the qualitative analysis from the interviews are presented. In addition, the results are organised around the nine research questions. The final part of the Result Section is concerned with Inter-rater Reliability and Respondent Validity. The author acknowledges that the small sample size prevents the generalisation of these results to a wider RTA population. However, they are interesting in their own right and could form the basis for further research. This aspect will be discussed further in Section 4.8.

3.1 Quantitative Data

3.1.1 Demographic Characteristics for Participants

Table 1 shows the demographic details of the fourteen children who took part in this study.
As can be seen from Table 1, with regards to Social Class there was some spread across the groupings with the majority of the cases falling within Social Class III and the non-cases in social class II. There were more girls in the case than the non-case group and in both groups, they outnumbered boys, despite more boys than girls being identified as being involved in a RTA from the hospital database. The type of RTA was varied, with the most common form being a pedestrian (57 percent) with car accidents (14 percent) and cyclist’s (29 percent) less frequent. In 14 percent of the RTA’s a parent was also involved (while driving with their child as a passenger). By chance, the percentage of children involved in the different types of RTA’s was the same for both the case and the non-cases. In addition, the length of time since the RTA between the case and non-cases was very similar. The majority of children sustained minor injuries with bony injuries to the limbs being the most common; loss of consciousness was rare and less than ten
minutes in duration when it occurred (indicating adherence to the exclusion criterion concerning loss of consciousness). Admission to hospital took place in 46 percent of the children and was usually for twenty-four hours, exceeding five days in three children. Recovery from the accident injuries in the assessment period was complete in all of the participants. None of the children received head injuries or other evidence of neurological complications. There were no fatalities in the RTA's that the children were involved in and two of the children had been in a previous RTA within one year of this study (both cases). In addition, four mothers of children had also experienced a RTA as a child.

3.1.2 Standardised Measures

All of the children for whom they and a parent agreed to be interviewed \( N = 14 \) completed five standardised measures of symptomatology and their results are depicted in Table 2 along with whether they were a case or non-case. Clinical caseness for PTSD was determined by obtaining a score equivalent to or higher than 17 on the Intrusion and Avoidance Scale of the Revised Impact of Events Scale. The standardised measures are used for descriptive purposes only.
3.2 What are the characteristics of the children scoring as PTSD cases and non-cases in the sample in relation to the standardised measures?

As might be expected, Table 2 indicates that the PTSD cases tended to obtain higher scores on the anxiety and depression measures than did the non-cases although only on the anxiety scale did any scores reach caseness (7 case and 3 non-case children). However, the small sample size meant that statistical testing of these observations would be unlikely to yield conclusive results.
3.3 Qualitative Analysis of the Data

Table 3 summarises the personal details and other relevant information about each of the fourteen participants who took part in the interview.

<table>
<thead>
<tr>
<th>Name</th>
<th>Age at Assessment</th>
<th>Status</th>
<th>Revised Impact of Events Score (RIES)</th>
<th>Injury Severity Score (ISS)</th>
<th>Type of Accident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicky</td>
<td>12 9 months</td>
<td>Case</td>
<td>27</td>
<td>5</td>
<td>Pedestrian</td>
</tr>
<tr>
<td>Caroline</td>
<td>14 4 months</td>
<td>Case</td>
<td>26</td>
<td>1</td>
<td>Pedestrian</td>
</tr>
<tr>
<td>Nigel</td>
<td>13 10 months</td>
<td>Case</td>
<td>25</td>
<td>1</td>
<td>Cyclist</td>
</tr>
<tr>
<td>Christine</td>
<td>9 11 months</td>
<td>Case</td>
<td>24</td>
<td>1</td>
<td>Pedestrian</td>
</tr>
<tr>
<td>Charlotte</td>
<td>10 11 months</td>
<td>Case</td>
<td>20</td>
<td>1</td>
<td>Pedestrian</td>
</tr>
<tr>
<td>Carol</td>
<td>13 00 months</td>
<td>Case</td>
<td>19</td>
<td>1</td>
<td>Passenger</td>
</tr>
<tr>
<td>Tamara</td>
<td>14 4 months</td>
<td>Case</td>
<td>18</td>
<td>1</td>
<td>Cyclist</td>
</tr>
<tr>
<td>Ruby</td>
<td>12 6 months</td>
<td>Non-Case</td>
<td>16</td>
<td>1</td>
<td>Pedestrian</td>
</tr>
<tr>
<td>Leanne</td>
<td>12 11 months</td>
<td>Non-Case</td>
<td>14</td>
<td>1</td>
<td>Pedestrian</td>
</tr>
<tr>
<td>Leon</td>
<td>11 2 months</td>
<td>Non-Case</td>
<td>8</td>
<td>5</td>
<td>Pedestrian</td>
</tr>
<tr>
<td>Desmond</td>
<td>13 3 months</td>
<td>Non-Case</td>
<td>4</td>
<td>1</td>
<td>Cyclist</td>
</tr>
<tr>
<td>Linda</td>
<td>9 9 months</td>
<td>Non-Case</td>
<td>1</td>
<td>1</td>
<td>Passenger</td>
</tr>
<tr>
<td>Steven</td>
<td>10 5 months</td>
<td>Non-Case</td>
<td>1</td>
<td>10</td>
<td>Cyclist</td>
</tr>
<tr>
<td>Trudy</td>
<td>11 9 months</td>
<td>Non-Case</td>
<td>0</td>
<td>1</td>
<td>Passenger</td>
</tr>
</tbody>
</table>

At the start the analysis followed methodology suggested by Smith, Jarmon and Osborn (1999) for an I.P.A., but subsequently drew more from Thematic Content Analysis (Krippendorff, 1980) as detailed in section 2.14 of the Methods. A group exploratory analysis was chosen over an idiographic one as it allows for shared themes to be identified within and between groups. Basic codes were identified and then these were reexamined in order to determine shared themes across the participants that went with the specific research questions. There were 104 basic codes identified from the interview transcripts for the children and 154 for the parents (which was the mother in every case except one, Nigel’s father). The resulting categories fell into 21 shared themes for the children and 15 for their parents’. The data were then analysed as to whether there were
any differences between the responses for PTSD case and non-case children and their parents. Exemplary quotations (for the children only\(^2\)) have been selected to illustrate the categories and themes and can be identified by quotation marks. A shortened case and non-case child and parent transcript is shown in Appendix 12 along with their codes.

3.4 Interviews

3.4.1 How do children describe their RTA experience?

In response to this question, twenty-eight basic codes were generated which were then re-analysed and grouped together into six overall themes, awareness, view of outcome, emotions after impact, explanation for the RTA, awareness of injuries and relationship with others. Each of these overall themes along with its associated basic codes is presented in tabular form and is depicted in Tables 4 - 7. In addition, specific quotes that highlight the basic codes are provided. A decision was made to report the basic codes that went with each of the research questions in order to maintain transparency to the reader in terms of the coding process.

(i) Awareness of the event

<table>
<thead>
<tr>
<th>Theme Awareness</th>
<th>Cases (N 7)</th>
<th>Non-Cases (N 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Awareness of Event</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to Describe Event</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Ability to Remember Event</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td><strong>Unaware of Event</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inability to Describe Event</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Inability to Remember Event</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Confused</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

\(^2\) Unfortunately, space did not allow quotations to be included from the parents.
RESULTS

The majority of PTSD case children (six out of seven) reported awareness of the impending RTA and were able to describe and remember it in detail. Conversely, most non-cases reported being unaware of the event and were unable to describe or remember it in detail. In addition, one case child and one non-case both reported being confused about the accident.

"I was going across the road on my bike and saw the car coming at the last minute, I tried moving faster but I couldn’t. I thought Ooch this could hurt. I was expecting the car to run over me and I was just laying there but it didn’t happen, I sort of opened my eyes and looked around and the car had stopped" Tamara (Case).

"I got off the bus with my friends and I saw some other friends and was waving to them and that is all I remember. But people tell me that I got knocked over by a ten-ton lorry. It managed to hit me somewhere on the front and then I landed on my back and hurt my head, I don’t remember any of that. I asked if it was a dream” Linda (Non-case).

(ii) View of immediate outcome at the time of accident

<table>
<thead>
<tr>
<th>Themes In Outcome</th>
<th>Cases</th>
<th>Non-cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Thoughts</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Negative Thoughts</td>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>

Cases had more negative thoughts immediately after the impact than did the non-cases.

"I thought that something bad was going to happen, I just had a feeling something bad would happen”. Nigel (Case)
"I thought I would be alright 'cos I was fine straight afterwards so I thought if you’re fine the moment after an accident I don’t see why you shouldn’t be fine afterwards" Desmond (Non-Case).

(iii) Emotions after the initial impact

All of the children, regardless of whether they were a case or not, reported various degrees of distress\(^3\). For example shock, anxiety, anger, loneliness, stress, confusion and embarrassment and two cases stated that they could not describe their emotions and one stated that she felt embarrassed.

"I was very upset and frightened" Tamara (Case).

"I saw the sky and it was blue and I rolled over and got up and I was so lonely".

Desmond (Non-Case).

(iv) Explanation for the accident

<table>
<thead>
<tr>
<th>Explanation</th>
<th>Cases (N 7)</th>
<th>Non-Cases (N 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed View</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Blamed Driver</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Inability to Attribute Blame</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Blamed Self</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Two of the non-cases had a mixed view as to the blame and four blamed the driver (or other driver if they were in the car) for the accident. On the other hand two cases and one non-case were unable to attribute the blame and five cases saw themselves as to blame for the RTA.

\(^3\) A decision was made not to report the basic codes in tabular form for this theme because there was no differentiation between the case and non-cases.
RESULTS

“I’d say it was my fault, I didn’t wait for the green man and was being my usual Teenage self” Tamara (Case).

“It was the motorcyclists fault, he was going too fast” Leon (Non-Case).

(v) **Awareness of injuries**

Irrespective of whether a child was a case or not all of the children were aware of their injuries immediately after the impact and could describe these in detail.

“The chain got stuck in my leg. I was screaming my head off. I thought I had broken my foot or something ‘cos I couldn’t walk very well ‘cos it hurt really badly. It had loads of big bruises on the top and I thought that I wouldn’t have boyfriends and stuff like that” Carol (Case).

“I got blood on my hands and my head...., my head was hurting and I thought ow the pain” Ruby (Non-Case).

(vi) **Relationships with others (including paramedics where applicable) at the time of the accident and in the immediate aftermath**

<table>
<thead>
<tr>
<th>Relationship with Others</th>
<th>Cases (N 7)</th>
<th>Non-Cases (N 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Experiences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reassured by ambulance staff</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Others helpful</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Reassured by parent</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Communication</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>- Experiences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concern re parental response</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Parent distressed</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Concern re others response</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>
RESULTS

There was a difference in the way cases and non-cases described their relationships with others at the time of the accident. The cases described more negative experiences whereas the non-cases reported more positive feelings in their relationships with others.

"My mum was too scared and she didn’t know what to do, I checked that my mother and brother were all right and then got out of the car and waited" Carol (Case).

"I was scared I didn’t know what they were going to do.... Then they took my shoes off and my feet stank.... they were laughing at me, I was so embarrassed, and that was when I laughed a bit and then I started crying again and then I just stayed there and my mum was crying as well" Charlotte (Case).

"I felt better 'cos my mum was there she said keep your head still you've just got run over" Ruby (Non-case).

3.4.2 How do children describe their hospital experience?

There were two themes in response to this question, hospital experience and the child’s view of the professionals’ role each will be addressed in turn.

(i) Hospital Experience

<table>
<thead>
<tr>
<th>Medical Interventions</th>
<th>Cases (N:7)</th>
<th>Non-Cases (N:7)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Positive Experiences</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reassuring</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Relieved pain</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Experience quick</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Negative Experiences</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Painful</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Anxiety provoking</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Long wait</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Unable to remember</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

58
With regards to the hospital experience there was some evidence to suggest that the non-cases reported more positive experiences than did the cases and two children (1 case and 1 non-case) were unable to remember any details at all.

"They put this thing on my finger and I didn’t like it, it made me go all funny and then they put this thing on my head to stop me moving. They treated my cuts with salt water and it really stung. I didn’t like that" Carol (Case).

"The horrible thing is when they did the x-ray and they started to lift my leg up, it really hurt” Nigel (Case).

"The most helpful thing is that they made sure I knew what day it was and made sure I was OK, they also put this thing on my finger to make sure my heart was still pumping” Linda (Non-case).

(ii) Child’s View of Professional’s Role

<table>
<thead>
<tr>
<th>Professionals Role</th>
<th>Cases (N 7)</th>
<th>Non-Cases (N 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unable to state</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Reduce impact of shock</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Provide comfort</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Make children feel special</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Respect children’s wishes</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Allow space &amp; time</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Medical supplies need to be at hand</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Should provide emotional support</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Staff should distract children</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

Each child was asked that if they had to tell the doctors and nurses how best to help children after a RTA what would they say. One striking theme from this question was that six out of the seven case children mentioned distraction as an important factor when dealing with children, whereas this was not mentioned at all by the non-cases.
RESULTS

They should keep talking to them and tell them what is going to happen and chat to them like about say a TV program and try to stop the children thinking about what happened”. Nigel (Case).

“Staff should try and make them happy, they should talk to them about TV programs and things to take their mind off the accident” Christine (Case).

The following quotes are from non-case children and provide other suggestions that staff should endeavor to do when working with children.

“I would say don’t rush things, like asking them lots and lots of questions after the accident ‘cos their mind will probably go and stuff” Christine (non-case).

“Medical Staff should just try and keep children calm ‘cos it’s really shocking and they’re usually shaking and give them a hot drink or something to keep them calm” Desmond (Non-case).

(iii) Leaflets

All of the children were asked what they thought about the leaflets that were sent with the letter of request to participate in the study

<table>
<thead>
<tr>
<th>Leaflets</th>
<th>Cases (N 7)</th>
<th>Non-Case (N 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unable to remember</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Not relevant</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Very useful</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Required earlier</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Received at the right time</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Without exception all of the case children stated that they found the leaflets useful but would have preferred them earlier except for one child who stated that she had received
them at the right time (1 ½ years later) because she would have been too upset if she had received them earlier. On the other hand all non-cases either could not remember them or had dismissed them altogether because they considered them not relevant.

"I got them too long after, they were useful 'cos it wasn't just me in that situation” Nicky (case).

“I thought that they could have been interesting to other children who were affected by the accident, but I just put them out of my mind, I just didn’t think about them” Nigel (Non-case).

3.4.3 How do children describe the effects that the RTA has had upon their self and relationships?

The basic codes that were generated in response to this question are illustrated in Tables 11-12.

<table>
<thead>
<tr>
<th>Self</th>
<th>Cases (N 7)</th>
<th>Non-Cases (n 7)</th>
<th>Self</th>
<th>Cases (N 7)</th>
<th>Non-Cases (n 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotions</td>
<td></td>
<td></td>
<td>Cognitions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Change in Emotional Expression</td>
<td>7</td>
<td>6</td>
<td>Concentration Affected</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Fear repetition</td>
<td>5</td>
<td>1</td>
<td>Indelible Memory</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>More vulnerable, anxious &amp; cautious</td>
<td>5</td>
<td>4</td>
<td>Activity Levels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changes in Personality</td>
<td>1</td>
<td>0</td>
<td>No Changes</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Behaviour</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Behavioural Changes</td>
<td>5</td>
<td>4</td>
<td>Less Sport &amp; Hobbies</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Negative Behavioural Changes</td>
<td>1</td>
<td>0</td>
<td>Less Energy</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Changes</td>
<td></td>
<td></td>
<td>Not as Motivated</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Avoidant Action Taken</td>
<td>4</td>
<td>3</td>
<td>Positive Outcome</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physiological Difficulties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulties in Sleeping</td>
<td>1</td>
<td>1</td>
<td>More Aware of others</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Physical Difficulties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effected by RTA</td>
<td>1</td>
<td>1</td>
<td>More time with friend</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>People Kinder</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lucky</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>More Assertive</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Behaviour Improved</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
1 Self

(i) Emotions and Personality

The majority of children (both cases and non-cases) stated that the way that they expressed their emotions was the same as before the accident, but that they were affected emotionally by their experience. Changes included being made to feel more vulnerable, distressed, cautious near roads and anxious and five of the seven cases reported a fear of a repetition of the accident compared to only one non-case. One case child stated that the accident was ingrained in her memory and that she would never forget it. Two other children (cases) stated that they felt that their personality had been affected by the RTA.

“I’ve changed ‘cos it used to be easier to talk to people (when upset) but now I just don’t tell any one now” Nigel (Case) (Change in personality).

“I get really scared if I have to cross a main road especially with my dad he runs across the road without the traffic lights saying green man and I get really worried” Charlotte (Case) (Fear of repetition).

“It’s always going to be there for life and I will never forget it ever” Carol (Case) (Indelible memory).

“I’m more worried about cars now, I don’t run across the road now, I look” Tamara (Non-Case) (Fear of repetition).

“It made me always check over and over again that I’ve got my seat belt on” Trudy (Non-Case) (Fear of repetition).

“I get stressed all of the time, I just feel different” Leon (Non-Case) (Change in Personality).
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Not all of the reported changes were negative, two non-cases and four cases reported positive changes after their RTA. One non-case child (Steven) stated that he was more aware of others’ feelings, another case child (Caroline) stated that she felt more assertive, another stated that she spent more time with friends and finally Christine (case) stated that since the RTA people have been kinder to her and that her mood and behaviour had changed for the better. In addition, many children (4 cases and 1 non-case) stated that they felt lucky, as the RTA could have been much worse.

"It wasn’t nice going through the accident but after that every one was being much nicer. I’m quieter now and not as rude as I was before, I think that I am better behaved” Christine (Case).

“I don’t bottle things up now if I’m annoyed, I just come out with it” Caroline (Case).

“I’m more aware of other peoples’ feelings now especially if something bad happens to them because I know how they feel” Steven (Non-case).

(ii) Behaviour

Most children regardless of whether they were a case or not stated that their behaviour had remained unaltered since the RTA. Only one child (case) reported negative behavioural changes and another (case) reported positive behavioural changes following the RTA. In addition, a number of children (4 cases and 3 non-cases) stated that they took avoidant action to prevent a recurrence of a RTA.

“I beat everyone up at school now, and I’m rude to the teachers” Nigel (Case).
"I feel that I’m better behaved since the RTA. The accident has made me quieter".
Christine (Case).

(iii) Activity Levels
Six non-case children and one case child stated that since the RTA there had been no changes in their activity levels. On the other hand four cases reported that their activity levels had been affected in that they lacked energy and felt less motivated.

"I spend less time doing hobbies now, I just don’t feel like it anymore" Nigel (Case).

"I still do the same things that I did before the accident it hasn’t changed me" Trudy (Non-Case).

(iv) Physiological, Physical and Cognitive Difficulties
One case (Caroline) stated that she experienced physiological difficulties when she reported that she could not get to sleep at night. In addition, one case and one non-case reported physical difficulties and a further case child reported that he had cognitive difficulties as a result of the RTA.

"I feel more tired, my eyes feel tired, I never used to be like that, I used to be able to get to sleep" Caroline (Case).

"I can’t run as fast…. And do things that I could…. I sometimes get a limp" Leon (Case).

"I’ve been left with a dodgy ankle" Desmond (Non-case).

"I can’t do my schoolwork properly and it’s hard to concentrate" Nigel (Case).
2 Relationship with Significant Others

<table>
<thead>
<tr>
<th>Relationships</th>
<th>Cases</th>
<th>Non-Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spoke Initially to Parents</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Responded to Questions Only</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Avoided talking to Parents</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Too Anxious to Talk</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Friends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Able to talk to Best Friend</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Responded to Questions Only</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

(i) Parents

The majority of children (mainly cases and to a lesser extent non-cases) avoided talking to their parents and two only responded to questions about the RTA.

"I felt that I wanted to talk to them I would start like saying it and then I thought I got worried" Leon (Case).

"I only spoke to them a little bit when they asked me what happened" Steven (Non-case).

(ii) Friends

In contrast to communication with parents, children reported that they were more able to talk to their friends (especially best friends) about the RTA. Some volunteered the information while others responded to questions asked of them.

"I talked to my best friend" Caroline (Case).

"I wanted to talk to them but I couldn’t I didn’t want to talk about it. I did tell some of them because they kept asking me. Steven (Non-case).
3.4.4 How do they imagine another child of the same age would feel if they had experienced the same type of RTA?

All children responded to this question by stating that another child would feel the same as themselves. The older children were able to cite that individual and personality variables could influence the other child's response but on the whole they would feel the same as themselves.

"They would feel the same as me" Christine (Case aged 9 years and 11 months).

"I'd have to meet the person first to see what they were like.... If they were like me they would act the same" (Desmond Non-Case aged 13 years and 3 months).

3.5 Analysis of Parent Interviews

All tables depicting the results from the parents' interviews can be found in Appendix 13.

3.5.1 How do parents describe their child's RTA experience and their responses to it in the immediate aftermath?

Two general themes were identified in relation to this question, (parents' reaction and the role of others) and are depicted below.

(i) Parents' Reaction

Most parents described their acute distress when they realised or witnessed that their child had been involved in a RTA. Some went into a state of shock and panicked

* A decision was made not to report these results in tabular form because there was no distinguishing differences between the case and non-case children.
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themselves (mainly the parents of case children) while others (mainly non-case parents) managed to put on a brave face and cope for their child’s sake.

One father (of a non-case child) who worked in the emergency services stated that he got through the ordeal by switching to “work mode” he did this he said to avoid getting into contact with his own distress at his daughter’s accident. Two mothers of non-case children reacted with disbelief when their child informed them by telephone that they had been run over and then felt guilty afterwards for not responding in a more sympathetic manner. Interestingly the parents of case children predominantly reported their own reactions to their child’s RTA. Many reported being very distressed themselves, feeling numb, shocked and anxious and three mothers reported crying throughout the whole ordeal and one mother was physically sick when she arrived at the hospital. On the other hand, non-case parents were more able to describe their child’s distress.

(ii) Role of Others

The themes in relation to this can be divided into either positive or negative experiences with the non-case parents reporting more positive experiences than the case parents. For example positive experiences included the police and paramedics being good and that others were helpful. Negative experiences included anxiety about a sibling and a policeman being obstructive.
3.5.2 How do parents describe their role in relation to their child in the subsequent months after the RTA?

Five themes were identified in response to this question, (child's reaction, explanation for the accident, parents' reaction, view of the future and subsequent behaviour) and these can be found below.

(i) Child's Reaction

Many children did not communicate with their parents about the RTA. In three cases and one non-case, there was deliberate avoidance of the topic by the children. Only one child (non-case) talked incessantly about the RTA and although this irritated her mother as the accident was her fault, she felt that this continual expression was important for her daughter's recovery. In one non-case, the child was anxious for his mother as opposed to himself; another experienced nightmares and a third exhibited anxiety. In the case children extreme anxiety and distress was emphasised more. Some parents identified a number of symptoms of PTSD but were unsure as to their significance for example, flashbacks, avoidance of reminders of the RTA and extreme anxiety.

(ii) Explanation for Cause of Accident

The opinion regarding an explanation for the cause of the RTA was volunteered by parents and it was found that three case parents blamed their child for the RTA whereas none of the non-case parents did this, instead they attributed the blame to an external cause. The remaining parents did not mention blame.
(iii) **Parents' Reactions**

Parents described a number of thoughts, emotions and dilemmas associated with the RTA during the subsequent months. One mother (non-case) felt guilty because she was to blame for the RTA. Overall the majority of case parents had a tendency to report more distressing emotions while the non-case parents attempted to avoid thinking about the RTA and made an attempt not to be overprotective. Four parents of case children stated their anger that there was no resolution of the RTA because the driver was not prosecuted. In addition, the main dilemma for these parents was the role of independence versus dependence. There was a tendency for the non-case parents to take a matter of fact attitude to their child’s independence thus allowing them freedom. On the other hand, the case parents stated that they were very distressed themselves and as a consequence found it difficult to allow their child independence.

(iv) **View of the future**

It was mainly the case parents who were concerned about the future and four cases and one non-case feared a repetition of the RTA. What differentiated the non-case from the case parents was they did not think about the future or stated that their future outlook had not been affected. Case parents on the other hand were more overtly anxious about their children.

(v) **Subsequent Behaviour**

There was some evidence of a change in behaviour on the parents part. For example, three parents (two cases and one non-case) stated that since the RTA they had become
more cautious drivers especially if they had been driving at the time of the RTA. Another
parent stated that he would not let his child ride her bike without her helmet on.

3.5.3 How do parents describe communication with their child about the RTA?
The main theme with regards to the parents’ communication with their children was that
the RTA was avoided mainly by parents of cases. The main reasons given for not talking
was to avoid distressing the child or because the child would “switch off”. Two mothers
stated that they did not talk about the RTA because they were too preoccupied with their
own worries and two other parents’ mentioned talking to the child immediately after the
event but not subsequently. One parent stated that the first time she really discussed the
RTA with her child was to discuss their involvement in this study and another stated that
the Police interview was the catalyst for her discussion with her child. One case father
identified his son’s low mood and distress and connected it with the RTA but was at a
loss as to what to do about it as the child refused to talk to him.

3.5.4 How do parents describe the effect that the RTA has had upon their child
from before the RTA and afterwards?
Two themes were identified in response to this question, subsequent emotions, behaviour
and cognitions and confusion over changes in their child.

(i) Subsequent Emotions, Behaviour and Cognition’s
Three parents of non-cases stated that there had been no changes in these areas for their
children although one stated that the child had become more cautious near roads, and one
parent stated that her child’s personality had been affected. With regards to the case parents there was a number of behavioural emotional and cognitive changes that were reported which effected not only their child but impacted on their family in a negative way. Difficulties cited included, difficulties in expressing feelings, concern regarding getting into trouble, difficulties in sleeping, fear of some one close dying, social isolation, loss of confidence, changes in mood, behaviour and personality and a reemergence of old fears. Some parents of case children identified a number of symptoms of PTSD but were unaware of there significance, for example flashbacks, nightmares, avoidance of reminders of the accident, extreme distress. Other parents stated that their children had a sense that their future would not work out. In addition, one mother (of a case child) stated that despite the difficulties that she experienced as a result of the RTA it had had a positive effect upon her daughter, in that she was more cautious now and a better person.

(ii) Confusion re Changes

Two main categories were reported by both case and non-case parents. These were the effects that previous traumas and events had had upon the child’s current presentation and the onset of adolescence. The parents reported being confused as to which variable went with which symptom. When this occurred the parents seemed to underestimate the effect that the RTA had had upon their child. For example, two case parents and one non-case parent stated that there had been negative changes in their children but this had coincided with the onset of adolescence. Other parents had stated that it was difficult to distinguish between the effect of the present RTA with that of other events in the child’s life. For
example moving to live with the father and stepmother, the death of the child’s biological mother at an early age and previous RTA’s.

3.5.5. How do parents describe their relationship with professionals?

Four themes were identified for this question and they are depicted below.

(i) Experience of paramedics, police, medical staff and view of the hospital service

With regards to the paramedics, three non-cases and two case parents stated that they were reassured by their presence. With regards to the hospital experience the Accident and Emergency Staff were seen in a positive light in that they were friendly and efficient although equal numbers of case and non-case parents stated that they had a long wait for their child to be seen and found this quite distressing but understandable due to the less serious nature of their child’s injuries. One parent questioned whether an Accident and Emergency department was the right place to treat children because the possibility of witnessing distressing medical emergencies. Four out of seven case parents, despite reporting satisfaction with the medical care, stated that they were concerned that their child may have not received all the relevant medical tests.

(ii) View of Hospital’s Staff’s Role

Parents were asked how medical staff should best help children and families who had been involved in a RTA. Many parents of both cases and non-cases (N = 12) stated that reassurance and information was essential for both the child and themselves and that
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communication was vital. They also stated that staff should be aware of parental distress and provide psychological support. Eight parents also stated that they would have valued information as to what type of significant psychological signs that they should look out for in their children and what to do if they found anything.

(iii) Psychological Aspects
All of the parents (of both case and non-case children) stated psychological support was lacking in the hospital. This was considered important because many of the parents were in an emotional state themselves and wanted someone to talk to.

(iv) Reasons for Taking part in the Study and Leaflets
The parents were asked what prompted them to take part in the study and there was a mixed response to this question. The non-case parents stated that they took part to help others whereas the case parents stated to access psychological help for their children, to turn a negative event into a positive one and to readdress what was lacking in their care when they were run over as children. With regards to the leaflets that were sent out with the request to participate in the study four non-case parents and seven case parents stated that they were very useful but that they would have preferred them earlier.

3.6 Summary of Themes in Child and Parents' Interviews
Tables 13 and 14 depict the summaries for the child and parents' interviews for each of the research questions.
### Table 13

**Summary of Themes in Relation to the Research Questions for the Children**

<table>
<thead>
<tr>
<th>Questions</th>
<th>Cases</th>
<th>Non-Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  How do children describe their RTA?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i) Awareness of the RTA</td>
<td>Most (N=6) Were Aware</td>
<td>Most (N=6) Unaware</td>
</tr>
<tr>
<td>(ii) Thoughts after Impact</td>
<td>Most (N=7) Negative Thoughts</td>
<td>Most (N=6) Positive Thoughts</td>
</tr>
<tr>
<td>(iii) Emotions after Impact</td>
<td>Most (N=7) Reported Distress</td>
<td>Most (N=7) Reported Distress</td>
</tr>
<tr>
<td>(iv) Blame for RTA</td>
<td>Most (N=5) Blamed Self</td>
<td>Most (N=6) Blamed Driver/mixed</td>
</tr>
<tr>
<td>(v) Awareness of Injuries</td>
<td>Most (N=7) Aware</td>
<td>Most (N=7) Aware</td>
</tr>
<tr>
<td>(vi) Relationship with Others</td>
<td>Most (N=5) Negative Experiences</td>
<td>Most (N=5) Positive Experiences</td>
</tr>
<tr>
<td>2  How do children describe their hospital experience?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i) Hospital experience</td>
<td>Most (N=4) negative experience</td>
<td>Most (N=7) Positive Experience</td>
</tr>
<tr>
<td>(ii) Professionals role</td>
<td>Most (N=6) distraction important</td>
<td>Most (N=7) Other Suggestions</td>
</tr>
<tr>
<td>(iii) Leaflets</td>
<td>Most (N=7) valued leaflets</td>
<td>Most (N=7) Unable to remember/ not relevant</td>
</tr>
<tr>
<td>3  How do children describe the effects that the RTA has had upon their self and relationships?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i) Emotional Expression</td>
<td>Most (N=7) No changes</td>
<td>Most (N=6) No Change</td>
</tr>
<tr>
<td>(ii) Emotions Affected</td>
<td>Most (N=5) Changes</td>
<td>Most (N=5) Changes</td>
</tr>
<tr>
<td>(iii) Behaviour</td>
<td>Most (N=5) No Changes</td>
<td>Most (N=4) No Change</td>
</tr>
<tr>
<td>(iv) Activity levels</td>
<td>Most (N=6) Changes</td>
<td>Most (N=6) No Change</td>
</tr>
<tr>
<td>(v) Physical, Physiological Cognitive difficulties</td>
<td>Most (N=6) No Changes</td>
<td>Most (N=6) No Change</td>
</tr>
<tr>
<td>(vi) Communication Parents'</td>
<td>Most (N=5) Avoided</td>
<td>Some Avoidance (N3)</td>
</tr>
<tr>
<td>(vii) Communication Friend</td>
<td>Most (N=6) Communicated</td>
<td>Most (N=5) Communicated</td>
</tr>
<tr>
<td>How do they imagine another child of the same age would feel if they experienced the same type of RTA?</td>
<td>Most (N=7) Would feel the same</td>
<td>Most (N=7) Would feel the same</td>
</tr>
</tbody>
</table>
## RESULTS

### Table 14

**Summary of Themes in Relation to Research Questions for the Parents’**

<table>
<thead>
<tr>
<th>Questions</th>
<th>Case Parents’</th>
<th>Non-Case Parents’</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 How do parents describe their child’s RTA experience &amp; their reactions to it?</td>
<td>Most (N=7) Extreme Shock/distress Mixed View (N=4)</td>
<td>Most (N=4) Brave, Calm, automatic pilot Most (N=7) Positive</td>
</tr>
<tr>
<td>(i) Parents’ Reaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ii) Role of Others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 How do parents describe their role in relation to their child in the subsequent months?</td>
<td>Most (N=6) Avoided Communication</td>
<td>Mixed Reaction (N=4)</td>
</tr>
<tr>
<td>(i) Child’s Reaction</td>
<td>Most (N=7) Distressed/Anxious</td>
<td>Mainly Avoidant (N=7)</td>
</tr>
<tr>
<td>(ii) Parents’ Reaction</td>
<td>Accident Child’s Fault (N=3)</td>
<td>Accident Drivers Fault (N=4)</td>
</tr>
<tr>
<td>(iii) Blame</td>
<td>More Concerned (N=7)</td>
<td>Future not Affected (N=6)</td>
</tr>
<tr>
<td>(iv) View of the Future</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 How do Parents describe Communication with their Child about the RTA?</td>
<td>Mainly (N=6) Avoidant</td>
<td>Mainly (N=5) communicated</td>
</tr>
<tr>
<td>(i) Parents’ Communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 How do parents describe the Affect that the RTA has had upon their Child from before the RTA &amp; Afterwards?</td>
<td>Mostly (N=7) Changes</td>
<td>Mostly (N=4) No Changes</td>
</tr>
<tr>
<td>(i) Behaviour, emotions &amp; Cognitions</td>
<td>Mostly Difficulties in Distinguishing Between other Events/Thoma (N=5)</td>
<td>Some Difficulties in Distinguishing between other events (N=2)</td>
</tr>
<tr>
<td>(ii) Confusion re Changes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i) Hospital Experience</td>
<td>Most Totally Ignored (N=7)</td>
<td>Most (N=7) Totally Ignored</td>
</tr>
<tr>
<td>(ii) Hospital Staffs Role</td>
<td>Most (N=5) Access Psychological Help</td>
<td>To Help Others (N=5)</td>
</tr>
<tr>
<td>(iii) Psychological Factors</td>
<td>Very Helpful (N=7)</td>
<td>Very Helpful (N=4)</td>
</tr>
<tr>
<td>(iv) Reason for Taking Part in Study</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iv) Leaflets</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3.7 The Results of the Inter-Rater Reliability Study

An independent coder went through two full child transcripts and produced basic codes and superordinate themes and these were compared with the author’s. Disagreements were discussed, and some categories clarified more, and some superordinate themes were
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merged. A percentage agreement on the categories was then calculated and analysed using a Cohen's Kappa and a score of $K = .94$ was found.

3.8 The Results from the Respondent Validity Study

Four Participants (1 non-case parent and child and 1 case parent and child) were re-interviewed and asked to give feedback on the accuracy of the basic codes and themes generated in the research. The participants stated that the themes generally reflected their experiences and a summary of the results of this can be found in Appendix 14. There were no disagreements between the author and the parent/child respondents although they stated their surprise as to how much information had been provided.
Discussion

4.1 Overview

The aim of this study was to examine qualitatively the experiences of 14 children's RTA from the viewpoint of the child and their parents. Quantitative data were also gathered on the 14 children, for descriptive purposes, and triangulation between the quantitative and qualitative data will be used when considering the implications of the findings. In practice, it was difficult to tell if some of the measures (for example attributions and assumptions about the world) matched the theoretical predictions because of the small sample size, which prevented statistical testing.

Throughout the discussion, the results will be related to current theoretical knowledge within the area and to other studies where similar or disparate evidence has been found. In addition, the author proposes a tentative theoretical model, which emerged partly from the author's reading of existing theory and partly from the analysis of the participants' responses to the research questions. Finally recommendations will be made for service provision and for future research.

4.2 Standardised Measures

With regards to the data obtained from the Birleson, CMAS and the RIES it was not possible to determine whether these were comparable to those of other studies (Stallard & Law, 1993 & Yule & Udwin, 1991) because of the small sample size which prevented statistical comparisons.
4.3 Qualitative Findings

For the purpose of clarity, these findings will be reported in relation to the research questions.

4.3.1 How do children describe their RTA Experience?

Six shared themes were identified in response to this question and are presented below.

(i) Awareness

A striking theme was that all but one of the case children showed an awareness of the impending RTA while the situation was reversed for non-case children. At first glance this seems rather an unusual finding as it would be expected that because of the memory difficulties that have been reported in PTSD (Wilkinson, 1983) it would be the cases and not the non-cases that would show a lack of awareness of the event. On the other hand, if one examines this finding in relation to Rachman’s Emotional Processing Model (1980) it makes sense. According to this model if the stimulus is unpredictable, uncontrollable, and the individual is highly aroused (as they would be if they realised that they were about to experience a RTA) then PTSD is more likely to occur. On the other hand, according to this theory children who lacked awareness would be less emotionally aroused and would be able to process information more effectively thereby lessening the likelihood of PTSD.

(ii) View of Outcome

All of the cases displayed negative thoughts immediately after the impact, while conversely the majority of non-cases displayed positive thoughts. This gives weight to
the assertion that subjective threat has a role to play in subsequent pathology (Williams, 1992).

(iii) Emotions During the Impact

All of the children, regardless of whether they were a case or not described a number of distressing emotions that were associated with their RTA. Emotions cited included shock, anxiety, fear and feeling overwhelmed. These findings are similar to those found by Yule (1985) and are considered as ‘normal’ reactions to aversive events.

(iv) Perceived Cause of the Accident

Five case children blamed themselves for the RTA and two were unable to attribute the blame, whereas the non-case children saw either the driver (or other driver) as to blame or had a more mixed view in that it was half their fault and half the driver’s. This is congruent with the work of Janof-Bulman (1992) where she stated that self-blame is an integral part of victimisation (which is akin to traumatisation and subsequent psychopathology), although she distinguished between behavioural and characterological self-blame with the latter being more strongly associated with victimisation. Unfortunately, this present study does not distinguish between these two types of self-blame.

(v) Awareness of Injuries

Although the majority of children (both case and non-cases) were able to describe their injuries some realised that these injuries were minor while others were concerned that
they had sustained more serious ones. The children were also able to describe the pain that was associated with these injuries. Some previous studies have suggested that the awareness of injuries is inversely related to psychopathology (Hendriks, Black & Kaplan, 1993). The hypothesis behind this assertion is that if a child focuses on their injuries they are less receptive to traumatising information. The results of this study do not lead to that conclusion as all of the children who suffered from PTSD also had an awareness of their injuries.

(vi) Relationship with others at the time of the accident and immediate aftermath
There was a distinct difference in the way that the cases and the non-cases described their relationship with others. Case children described more negative experiences; in particular they expressed their concern with regards to their parents’ distress. This relates to the work of Applebaum and Burn (1991) where a correlation was found between parental distress and subsequent PTSD.

4.3.2 How do children describe their hospital experience?
There was a tendency for the cases to report more negative experiences. It is very difficult to ascertain cause and effect however, whether the children were reporting more negative experiences due to pre-existing enduring negativity in their cognitive processing or because they in fact had more negative experiences. Stallard and Law (1993) found in their study that case children did experience more distress in hospital than non-cases. Thus, it could be hypothesised that these more negative experiences could contribute to the child’s subsequent psychopathology.
DISCUSSION

(i) Child's View of the Professional Role

When the different views of the cases and non-cases were examined, a striking theme emerged which distinguished the two groups. This was the role of distraction and was mentioned by six out of the seven cases and not mentioned at all by the non-cases. Thus it is hypothesised that in their highly aroused state the case children's main need was for distraction from their distress. To some extent, this makes sense if one looks at the situation in relation to the Information Processing Model of Horowitz (1986) and the Emotional Processing Model of Rachman (1980). According to these models traumatic information has to be processed in order to be integrated to allow 'completion' and subsequent recovery to occur. Thus in the case of the traumatised children, distraction from this information would lessen the amount of trauma related information that the child had to cope with and reduce their level of arousal which in turn would relieve their distress. Conversely the non-cases did not mention distraction as important but offered other suggestions that would help children after an accident. For example, hot drinks, special cards, being listened to, having their wishes respected and being given space and time.

(ii) Leaflets

All of the case children stated they found the leaflets very useful but would have preferred them earlier, except for one child who stated that she received them at the right time as she would have been too upset if she had received them earlier. The non-cases on the other hand seemed to dismiss them as if they were not relevant or had forgotten all about them. This makes sense in-so-much as if the cases had been experiencing
unidentified PTSD and then received a leaflet explaining its symptoms this information would be more pertinent to them than the non-cases and as a consequence they would be more likely to note its importance. A further explanation for the non-cases dismissal of the leaflets is that they could have been avoiding the subject. In response to this avoidance of traumatic reminders is more common in PTSD cases rather than non-cases. As far as can be ascertained no other study has examined feedback with regards to providing this type of leaflet with children so a comparison of the findings from this study with that of others cannot be made.

4.3.3 How do children describe the effects that the RTA has had upon their self and relationships?

1 Self

(i) Emotions, behaviour, and activity levels

Both cases and non-cases outlined a number of changes that had occurred as a result of their RTA. Many stated that although there was no change in the way that they expressed themselves they felt different on an emotional level. Changes included being made to feel more vulnerable, distressed and anxious and many children stated a fear of a recurrence of the RTA. In addition, four cases reported that their activity levels had been affected in a negative way and many children (both cases and non-cases) stated that they had changed their behaviour in an attempt to avoid a subsequent RTA. These findings are congruent with the work of Janof-Bulman (1985) where she states that in order for victims to cope with a malevolent world they need to establish an assumptive world, which incorporates their experience as a victim. One way of doing this is to change their
behavioural patterns to reduce the risk of future traumatic events; this can apply to both the cases and non-cases.

(ii) Physical, physiological and cognitive difficulties

With regards to these specific difficulties, they were reported but only by a minority of children.

(ii) Positive Effects

In addition to the negative effects of the RTA six children (two non-case and four cases) reported positive changes. These more positive events centered on their relationships with others, for example, being more sympathetic to other people's plight, being more assertive and spending more time with friends. One child stated that after the RTA people were kinder to her and that her behaviour had improved, and another stated that she was much more assertive. Four case children and one non-case child stated that they were lucky in that their injuries could have been much worse. These findings replicate the work of Yule, (1998a) where he found that sensitivity to others often occurs after a traumatic event. It also replicates the work of DiGallo et al. (1997) where children considered themselves lucky at having survived their RTA.

2 Relationships

With regards to relationships with others since the RTA, three themes were apparent.
DISCUSSION

(i) Avoidance

Five cases and three non-case children avoided talking to their parents. This is congruent with findings of Yule (1985) where he found that initially children have a great pressure to talk about the accident and awareness that this upsets their parents. They therefore actively avoid discussing the event to save the parents' distress. In contrast, more children reported speaking to their best friends about the RTA and others stated that although they talked to their friends this was only in response to their repeated questioning. Only one child (non-case) in this study was able to talk spontaneously about her experience. The other children displayed avoidance of various degrees.

4.3.4 How do they imagine another child of the same age would feel if they experienced the same type of RTA?

Each child who responded to this question stated that another child would feel the same as themselves. The older children were able to identify that personality factors and individual differences would influence their response but on the whole they were able to compare another child's distress with their own. This finding is in contrast to that found by other researchers for example Stallard and Law (1993) where it was found that children often underestimate their own distress in response to a RTA but state that another child would be more distressed. It is difficult to ascertain why the results from the present study are different. One tentative suggestion could be that the present study had more girls than boys and previous research has found that girls are more likely to express their distress than boys (Mirza, Bhadrinath, Goodyer & Gilmour, 1998).
4.4 Qualitative Analysis of the Parents' Responses

4.4.1 How do parents describe their child’s RTA experience and their responses to it in the immediate aftermath?

(i) Child’s Reaction

It was apparent from the results that the parents of non-cases were more able to describe their child’s reactions than were the parents of cases. The parents of cases on the other hand were more pre-occupied with their own distress. One can only make assumptions as to whether this factor was significant in contributing to the child’s pathology or whether it highlighted the parents’ own distress about the RTA and subsequent avoidance. The research by Applebaum and Burn (1991) is relevant here. These authors stated that parental distress is a contributory factor in subsequent pathology in their children.

(ii) Parents’ Reactions

More case parents’ described their own reactions to the RTA than did the non-case parents and the descriptions that they gave were of their own distress whereas four of the non-case parents despite their distress, were able to put on a brave face or go into ‘automatic pilot’ or ‘work mode’. They were therefore more able to contain their child’s distress. Whether this is a significant factor in a child’s subsequent pathology is hard to ascertain and the research studies that has been done so far in this area offer discrepant results. For example, Applebaum and Burns (1991) found that parental distress was a significant factor in child psychopathology while Yule (2000) found that it was not. The case parents reported distress at the time of the impact was also mirrored by their higher level of distress during the interviews. Hepinstall et al. (1996) found similar results in
their study of RTA victims, where parental distress was associated with higher PTSD in children.

(iii) **Perception of the Event**

Despite the distress of many parents, they reported their children were lucky and conveyed this message to them. This may not be the most appropriate strategy, since telling a child that they are lucky when they are overwhelmed with distress could give them the message that their distress was not being taken seriously and thus compound their distress. Other studies, for example Digallo, Barton and Parry-Jones (1997) have also found that parents often told children who had experienced a RTA that they were lucky.

(iv) **View of the Future**

With regards to the parents' view of the future, it was the case parents who had a more negative outlook. This is not a surprising factor considering their own level of distress. This distress may have played a role in the parent being overly protective of their child, which in turn could lead to less independence. In addition, the non-case parents stated that they either did not think about the future or stated that their future outlook had not been effected and as a result allowed their children more independence. Exposure to trauma related stimuli are considered an essential feature in trauma resolution, thus the cases had fewer opportunities to overcome their trauma-related fears. Similar findings were found by Applebaum and Burn (1991) who stated that the recovery environment of the family was a very important factor in determining outcome after trauma.
(v) **Behaviour**

There was some evidence that more parents of case children changed their own behaviour as a result of the RTA. This finding is congruent with the research of Janof-Bulman (1985) where she stated that adaptive behaviour changes are one way of reducing anxiety surrounding an incident. Its down side is that it enables the person to maintain the victim role and as a consequence makes it more difficult for them to overcome the trauma related symptomatology or in this case to help their child to do so.

(vi) **Anger**

Many parents stated their anger that the drivers of the vehicles got away with harming their child. For these families, there was no prosecution and hence no resolution and this seemed to create a lot of distress for both parents and children. A resolution (as would be the case when a prosecution occurred) is considered important in that it signals an ending from which a person can then move on in a more adaptive way (Yule, 2000).

4.4.1 **How do parents describe their role in relation to their child in the subsequent months after the RTA?**

(i) **Child and Parent Responses**

There was some evidence that non-case parents appeared to be more able to allow their children to come to terms with their distress. For example, one non-case parent stated that she was able to facilitate her child’s incessant talking and four others stated that they did not dwell on the negatives but rather respected their child’s need for independence. On the other hand, case parents were often too distressed themselves to provide comfort...
for their child and thus reduce their anxiety. The trauma literature states that in order for trauma to be resolved there needs to be a re-working of it over and over again (Horowitz, 1986; Rachman, 1980; Pynoos, et al., 1997; Joseph et al., 1997). Thus, it is feasible to assume that if parents are unable to facilitate this process the prognosis for their child may be worse.

(ii) **Blame**

Case parents in this study were more likely to blame their child for the RTA than non-case parents. This was arguably a very powerful message to give to their children and it is hypothesised that it could validate the child’s own feeling of self-blame which is considered important in feelings of victimisation and subsequent psychopathology (Janof-Bulman, 1985).

(iii) **Dilemmas**

Four non-case parents took a matter a fact attitude to their child’s independence and allowed them freedom. On the other hand, all of the case parents were more anxious about allowing their child their independence for fear of a repeat of the RTA. Allowing independence provides an environment in which the child is likely to be more frequently exposed to fear inducing stimuli which research has shown to be an essential component in trauma resolution and as such symptom reduction (Canterbury & Yule, 1996).
4.4.2 How do Parents describe their communication with their child about the RTA?

Non-case parents usually attempted to talk to their children whereas case parents mainly avoided the topic. Allowing a child to talk through their experience is thought to be an essential component in the resolution of trauma (Raphael, 1986). Even the parents that attempted to talk to their child reported that the child did not always reciprocate. Communication was dependent on the child's level of distress; the more anxious they were the more the child avoided the topic. In addition, some parents were so distressed themselves that they were unable to even broach the subject with their child, which would likely have increased the child's awareness that this was a taboo topic. This appeared to form a reciprocal loop where avoidance and distress became the norm. However, it would require further research, perhaps more closely focused on the parent-child interaction, to confirm this process.

4.4.3 How do parents describe the effect the RTA has had upon their child from before the RTA and afterwards?

(i) Child's Distress

Many case parents described behaviours, symptoms and signs that a professional would recognise as PTSD in their children, but did not know what it was and therefore was unaware of its significance.
(ii) **Confusion regarding changes in the child**

Some parents were confused with regards to the effects the RTA had had upon their child and the onset of adolescence. When this occurred these parents were more likely to minimise the affect, the RTA had had upon their child.

### 4.4.4 How do parents describe their Relationships with Professionals?

Many parents reported being relieved by the presence of the paramedics and viewed the medical staff in a positive light. Some concerns were expressed with regards to the long wait in hospital (both cases and non-cases) and some (mainly cases) feared that crucial medical tests were not performed. Despite this, one predominant theme emerged from every interview for all of the parents and this was the lack of psychological input at the hospital. This concern reflects the complexity of the RTA experience in that it entails both medical and psychological factors that the parents felt needed to be addressed. While the medical aspects were taken care of well parents reported feeling in “limbo” psychologically and longed for some one to talk to about their ordeal and concerns. In one way this is not a surprising finding in the present sample, as these families volunteered to take part in the study because they saw psychological factors as important. Maybe the non-responders would not have generated this theme but without a further study to address this it would be difficult to ascertain. One mother stated very eloquently her child’s need for psychological support and as such, it is quoted here.

> “My brother works in a garage and they were robbed and a gun was held to his head. Afterwards he got psychological support from Victim Support and yet my child gets run over and his brother witnesses it and they are both traumatised and
they are offered absolutely nothing. Why should children not be provided with emotional support when adults are?"

The findings from the CAPT study (Hepinstall, 1996) is relevant here, these researchers emphasised the need for increased awareness among both professionals and parents as to the emotional impact of RTA's on children. As such, they recommended that parents need to be informed as to the psychological services available to assist them and their children.

4.5 Summary

The results from both the quantitative and the qualitative aspects of this study suggests as have other studies, that PTSD is a very real possibility for at least some children following a RTA. The quantitative results clearly illustrate some of the child’s pathology and the qualitative results highlight the realities of the RTA experience for both the child and their parents. The research also identifies a number of factors, which, in this small sample, were more common when PTSD was present. These were, more negative cognitions associated with the RTA in the immediate aftermath and during the subsequent months, avoidant coping styles, for example the case parents tended to restrict their child’s independence because of a fear of a repetition of the RTA and their children avoided traumatic reminders because of anxiety (the avoidance of fear inducing situations prevents habituation). Also evident was self-blame (or child blame) and highly emotional interactions between parent and child. Also relevant was whether a child was aware of the RTA as it was found that increased awareness of the impending impact coincided
coincided with higher rates of PTSD. A word of caution is required with these findings because of the small sample size, this model is only put forward speculatively and as such is not claimed to apply to the whole child RTA population, but rather it is specific to this study.

4.6 Theoretical Model

A tentative theoretical model is proposed from the findings of this study to account for the occurrence of PTSD or recovery in response to a RTA. A word of caution is required as this model depicts the main themes that were found to be pertinent in this study and as such cannot be generalised to the whole of the child RTA population. The purpose of this model therefore is to integrate the responses given by the participants in response to the research questions. However, it also takes into account pre-existing theory. Specifically, it was not possible in the present small sample to confirm the importance of attributional style, but previous studies do suggest it plays a role (Joseph et al. 1993). In this model, which is depicted in Figure 2 a child’s perceptions of a Traumatic Event are a function of their level of arousal at the time of the accident, their attributional style and subsequent coping behaviour. It also appears to be dependent to some extent on whether they were involved in a previous traumatic event and their emotional states. It is hypothesised that the parents’ reactions to their child’s RTA are also important. This in turn is hypothesised to be dependent on the parents’ own characteristics in terms of their attribution styles, coping strategies, their emotional states and whether they have any form of social support. In addition previous traumatic events may or may not be
Figure 2
A Theoretical Model Depicting PTSD or Recovery in Response to a RTA

KEY

--- Direct links
------------- Indirect links
increasing vulnerability
pertinent. The arrows in the model depict hypothesised causal links, and the present study only provides partial support for these hypotheses.

The results from the present study when combined with findings from previous research, suggest that children who are highly aroused at the time of the RTA, are aware of the impending accident, have a negative attribution style, avoidant coping style and blamed themselves for the RTA suffered from PTSD. In addition, had a parent who reacted emotionally, had negative attributions and an avoidant coping style. A word of caution is required when making inferences from this model for a number of reasons. Firstly the attributional styles of parents was not formally assessed, instead it was inferred from the negative statements that the parents made about their child's and their own experiences of the RTA. In addition, the attributional style of the child was inferred from the negative cognitions they reported experiencing immediately after the event and at the time of the assessment. Secondly, the small numbers in the study prevent generalisation of the findings to all children who have experienced a RTA. Despite these shortcomings of the present research there is some evidence from the research literature that indicates that negative attributional style in the individual is associated with PTSD (Joseph et al. 1993). With regards to the attributional style of parents to date, no other study has addressed this area in this context hence it appears to be an area which warrants further study. In addition, social support and the role of parents in influencing subsequent PTSD has also been identified by researchers as important (Cook & Bickman, 1990; Applebaum & Burn, 1991).
Conversely recovery from a RTA and additional positive outcomes would seem to be more likely to occur if both the parents and the child are less emotional, have positive attributions and adaptive coping styles and have social support. The relationship between parents and children is a two-way process with both the child and parent influencing each other in a positive or a negative way. Once this duo are caught in a negative spiral it may be very difficult to break and the resulting avoidance could perhaps lead to more distress for both parents and the child and a higher chance of developing PTSD. This model is speculative in nature and the causal relationships are only implied, not proven, as it was not possible within the framework of this cross-sectional study to examine further the tentative connections that are made. In relation to the present sample, it could also be argued that one possible reason for the differences found between the cases and non-cases was that the cases were mainly from families trying to seek help, whereas the non-cases were from families who were trying to help others. This, in addition to their responses and subsequent processing of the accident could account for the way they answered the interview questions.

4.7 Comparison of Proposed Model with that of Previous Models

This model has identified a number of variables, which have found to be important in PTSD. For example social support, the role of previous trauma, attributional style and blame have all been found to maintain trauma-related pathology (Jacobs & Goodman 1989; Yule, 1998a; Janof-Bulman, 1985). It is difficult to ascertain the mechanisms that are involved in this model because before any assumptions can be made the model would need to be further evaluated. Nevertheless, comparisons can be made between this model
and that of others where research testing has occurred. Firstly, it takes the Conditioning Theory of Mower (1939) and the Learned Helplessness Model (Seligman, 1975) further in that it has identified personality variables such as attribution, assumptions and secondary emotions such as anger, guilt and blame. Characterological self-blame has been found to be important in Janof-Bulman's (1985) thesis but unfortunately it was not possible within the constraints of this research to distinguish between characterological and behavioural self-blame. It also identifies the re-experiencing phenomenon such as intrusive thoughts and flashbacks, which are considered the hallmarks of PTSD. These are implied in the case children because of their clinical presentation and high scores on the RIES. Secondly, it provides support for both the Information Processing Model (Horowitz, 1986) and the Emotional Processing Model (Rachman, 1980) in that children who were aware of the RTA at the time of the impact all went on to develop PTSD. However, unlike these two models issues of appraisal and absence of symptoms are addressed. Thirdly, it acknowledges the difficulty in determining whether these specific negative styles are due to the effect of the trauma or were there prior to it. Fourthly, this present model fits with both the Integrated Neuro-developmental Model of Pynoos et al. (1997) and the Integrative Model of Adjustment, Joseph et al. (1997) in that developmental differences were acknowledged as well as other variables such as the stimulus, appraisal, personality, activity and emotional state factors. In addition, it has identified positive outcomes from the trauma in addition to the pathological outcome which is considered important in determining a fuller understanding of the impact of trauma on the child. Finally, this model has its strengths in that it is based on research with children albeit a small group, rather than that of adults. One criticism of this model
is that its findings are based on what could be described as a small highly selected sample hence its findings cannot be claimed to reflect the wider population from which it was drawn.

4.8 Methodological and Conceptual Issues

4.8.1 Methodological Issue

In quantitative research, there is an attempt to observe specific sampling conventions, which will ensure representativeness and generalisability of the findings. Unfortunately, the response rate for this study was low (12.5 percent). Although this is lower than some studies (Stallard, Vellerman & Baldwin, 1998) it was comparable to others (Canterbury, Yule & Glucksman, 1993). Two hypotheses are put forward to account for this. Firstly, many parents may have declined to take part in the study for fear of distressing their child. This was found in the Canterbury et al. (1993) study where they followed up non-responders. Secondly, some children of non-responders may have recovered after their RTA so the study was seen as less relevant. If more people did not respond due to the former reason, the sample could be untypical in terms of having more non-case children than the wider population who have experienced a RTA. In addition, the motives of the participants of this study might have influenced their participation in the study. For example some of the parents stated that they participated in the study to access psychological help for their child and others stated that they volunteered their child to be included because they did not receive psychological help when they themselves were run over as a child. Hence, it is difficult to ascertain whether the participants in this study are typical of other cases where an RTA has occurred. Thus the participants for this study
could be perceived as highly self-selected from a larger pool and could therefore be untypical of the wider population of families whose child had experienced a RTA. This in turn would make generalisation of these findings to the RTA population as a whole very difficult.

One methodological difficulty with the present study was that the sample size was very small (N 19 from which 14 were interviewed). This prevented any meaningful statistical analyses upon the data. Thus, descriptive statistics were used to illustrate any specific trends that occurred. Obviously this is a very real limitation as it prevents inferences and generalisations of the findings from this study to the wider population, and also prevents statistical comparison with other studies.

A second methodological difficulty is that bias may have occurred through the selection procedure. This may have occurred as four parents who volunteered to take part in the study had experienced a RTA themselves as a child and two other parents used the study to access psychological help for their child. There is no way of determining whether selection bias occurred in this study as it was not a feasible or ethical option to contact all of the non-respondents to assess their reasons for non-participation. However, it may mean the present sample contained more parents who had themselves been traumatised earlier in life than the wider population of parents with a child in a RTA. In qualitative research the aim is not to generate absolute truth about an issue but rather the research is judged by its ability to generate new theories, accounts or meanings on the nature of the specific phenomena under study. It takes further research to explore the generalisability
(Henwood and Pigeon, 1992) of the theoretical account developed. In this research participants would ideally have been selected on the basis of theoretical sampling (Strauss and Corbin, 1990) or to be representative of the wider population. The question to be asked in relation to this research is: to what degree is it possible to extrapolate the results to other possible samples of child RTA victims? This issue is explored further below.

4.8.2 Age and Gender

Another issue pertinent to this research was the age and gender spread of the participants. Developmental and gender issues are very important determinants as to how trauma related psychopathology is experienced (Perrin, Smith & Yule, 2000). Thus, the present study attempted to take as wide a sample as possible from the original sample base and included children across the developmental spans and both sexes. In fact, the present study had an over representation of girls, which therefore makes it difficult to extrapolate to other samples where girls do not predominate.

4.9 Reliability and Validity

A number of measures were undertaken to try to maximise the reliability and validity of this study. Some were internal measures (i.e. to examine the potential assumptions and biases of the researcher) and some were external measures (i.e. they verified the standard of the research). These measures are outlined below:
4.9.1 Inter-rater Reliability

This was utilised to measure the consistency and the accuracy of the analysis. With regards to the qualitative data an independent rater was provided with two sets of transcripts and codes and a percentage agreement on the categorisations was calculated.

4.9.2 Respondent Validity

This is an important aspect of the research and in fact could be considered to lie at the core of the whole study. It refers to the extent that the analyses reflect the realities of the participants. Respondent validity was assessed by providing two families (two parents and two children, one case and one non-case) with a series of categories taken from their transcripts. They were then asked to make a judgement as to whether these categories did in fact reflect their perception and judgement of the RTA. The results of this demonstrated a high level of agreement between the researcher’s themes and the meanings provided by the respondents. A report of this can be found in Appendix 14.

4.9.3 Rhetorical Power

The quality of research depends upon its rhetorical power (Woolgar, 1996). This reflects the extent that people working within the area are persuaded by its findings. The present study aimed to provide sufficient examples to enable the reader to judge its validity in this respect.
4.9.4 Auditability

Charmaz (1995) emphasised the importance of self-reflexivity in all areas of data collection. In this study, this was addressed by the keeping of a research diary, which was kept through the period of data collection and analysis. In addition, two supervisors acted as independent auditors and could therefore address some of the potential biases and prejudices that the researcher may have had.

4.9.5 Generativity

It can be argued that research should be judged by its clinical implications and potential to generate further research (Henwood & Pigeon, 1995). A number of clinical implications have been identified within this research and are documented in section 4.11. In addition, this study has identified a number of areas where the research could be taken further; this is also documented more fully within section 4.12.

4.9.6 Content Validity of Interview Schedules

This was addressed by the piloting of the Semi-Structured Interview Schedule before using it for the main body of data collection. Prior to this an extensive literature review was undertaken in order to pinpoint the more pertinent areas.

4.9.7 Face Validity of Interviews

This was sought by sharing the questions within the semi-structured interview schedule with another psychologist and reflecting upon the questioning style and content. This had two aims; the first to ensure that the research questions could be addressed with the data
that the interview would yield and second to minimise as far as possible any influence the
interviewer might have on the participant’s responses. It was also necessary to be more
structured with the participants of this study because of their younger ages in contrast to
interviews with adults where more open-ended questions are more the norm.

4.10 Implications for Services
The research generated a number of implications for clinical services and practice and
these are explored below.

4.10.1 Early Assessment and Information
The small sample size means that a cautious approach to recommendations needs to be
taken. The findings suggest that psychological information and the provision of a clinical
service is not only lacking but is an essential component for some children after a RTA.
There would also seem to be a role for early assessment strategies, which would enable
vulnerable children to be identified to enable preventative action to be taken. Early
assessment and the provision of psychological information should occur as shortly after
the RTA as is feasible. Even if it were a minority of children who are susceptible to
PTSD, the likely persistence of these symptoms over a long period of time would indicate
a need to identify these children and intervene. Also notable was that the parents of these
children (both cases and non-cases) felt that the psychological aspects of the RTA were
neglected by the hospital services.

\footnote{See Appendix 15 for an abridged version of the research diary.}
4.10.2 Individual Work

Approximately half of the children in this study required some form of clinical intervention. This obviously included the case children but a number of non-cases also experienced distressing symptomatology (of various degrees) that required clinical input. This suggests that a clinical service might need to be established. However, in light of the tentative nature of these findings and the relative dearth of other findings on children who have had RTA's, any initial service would probably have to be on an experimental basis and be carefully evaluated.

4.10.3 Links with the Accident and Emergency Department

In order for assessment and possible intervention to take place strategies need to put into place for this to occur. Links have already been established due to this study and these could be expanded to provide the necessary clinical service for child RTA victims.

4.11 Recommendations for Further Research

4.11.1 Testing out the Theoretical Model

It was not possible to further test and develop the theoretical model within the time constraints of the present research. Searching for children whose experience did not fit into this model may have helped expand, test and refine the theory that was generated. In addition, a longitudinal prospective study would help to confirm or provide disconfirmation of hypothesised causal processes.
4.11.2 Following up Non-respondents

If information were available as to why some families chose not to be involved in the study it would have generated a greater understanding as to the effects of RTA's on children. Thus although from the present study nearly half of the children in the small sample suffered from PTSD, the question remains unanswered as to whether the non-respondents' children have the same psychopathology or not. Following up non-respondents by its very nature would be difficult and time consuming, and can be ethically questionable. It was beyond the remit of the present study.

4.11.3 Suggestions for Further Research

Many additional research questions were generated from this study. They include: To what extent parental trauma and distress affects a child’s response to a traumatic event. In addition, it would be useful to examine self-blame in a more detailed way with the aim of determining whether it fell into characterological or behavioural self-blame as suggested by Janof-Bulman (1985).

Conclusions

The aim of the research was to better understand children’s (and their parents) experience of enduring a RTA. A theoretical model was developed to account for the main findings in response to the research questions, also drawing on existing research. It is important to realise that this model is speculative due to the small sample size insofar as it draws upon the present findings, and as such can only relate to this study sample and further research would be required to fully test and validate it. Nevertheless the generative power of the
research was considerable both in developing an understanding of both the child's and their parents' experience of a RTA and how it affected their subsequent interactions. This in turn provided information and recommendations for both service delivery and clinical practice. At the very least there is an indication for an experimental service provision for children and their parents at the point of initial entry to the service, that is, hospital admission following the RTA or soon after.
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