KNOWLEDGE OF POST-CONCUSSIONAL SYNDROME: IN NAÏVE LAYPERSONS, GENERAL PRACTITIONERS AND PEOPLE WITH A MINOR HEAD INJURY

and Research Portfolio

Part One

(Part two bound separately)

Janice A. Mackenzie, MA (Hons.)

Submitted in partial fulfilment towards the degree of

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Department of Psychological Medicine

University of Glasgow

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Chapter 1

Small Scale Service Evaluation Project

Factors affecting opt-in and attendance at a Sexual Abuse and Assault Clinic

Running Headline: Attendance at a Sexual Abuse Clinic

Prepared in accordance with the instructions for authors from “Child Abuse Review” (appendix 1.1)

Factors affecting opt-in and attendance at a Sexual Abuse and Assault Clinic

Abstract

This study is an audit of a year's referrals to a Sexual Abuse and Assault Clinic and the clinic's opt-in systems for both assessment and treatment. The author was interested in factors that may affect opt-in and attendance at the clinic. Data were collected for 162 clients from the referral letter and the assessment letter, if necessary. Details of the clients' demographic characteristics, mental health problems and abuse histories were noted. Substance abuse was found to influence opt-in, attendance and whether or not the client ends up in treatment. Anxiety problems and marital status also influenced attendance, whereas source of referral influenced length of wait for treatment. Possible reasons for these results are then discussed and some recommendations are made for future practice in the clinic to overcome these problems. The shortcomings of the study and suggestions for future research are also discussed.

Key words: sexual abuse; clinic; opt-in; attendance.

Introduction

Several studies have reported details of Sexual Abuse Clinics' populations and measures of treatment outcome studies [4, 5, 7, 18]. The topic of sexual abuse itself, especially child sexual abuse, has been widely researched. However, the specific question of 'opt-in' systems, where the patient has to send back a form before they attend therapy, used in Sexual Abuse Clinics does not appear to have been investigated. Those studies which have looked at opt-in systems, for example, in a back pain rehabilitation programme [21] and in a community psychology service for children and families [22], have focused on the use of the system as a waiting list initiative rather than investigating the factors which may affect opt-in replies and attendance figures. The present study attempts to bridge this gap in the literature.

Long-term effects of child sexual abuse (CSA), in particular, have been reported to be numerous [11]. These may include increased incidence of anxiety and depression [9, 12, 16], post-traumatic stress disorder [20] and substance abuse [10, 13, 14, 20]. It has also been found that those who have suffered sexual abuse as children are at a greater risk of experiencing sexual abuse or assault as adults [3] and people who experience adult sexual abuse or assault may then be more likely to suffer from post-traumatic stress disorder [15]. These problems were investigated in the present study.

It has been suggested that survivors of CSA who eventually receive therapy have experienced more severe abuse, at a younger age, for a longer time, and with more abusers than survivors in a non-clinical sample [6]. It would be interesting to see if this non-clinical sample is comparable to those people who do not receive therapy after making the initial approach to a sexual abuse clinic. Severity of trauma in the present study was extrapolated from the perpetrator, as suggested by Browne and Finkelhor (1986), the age abuse started and the duration of abuse, rather than the act of abuse itself as suggested by Russell (1986).

The Sexual Abuse and Assault Clinic in this study has a waiting list for both assessment and treatment. A previous audit of the clinic suggested that an opt-in system should be implemented to reduce non-attendance at assessment and an information leaflet (appendix 1.2) should be sent out to potential clients with the opt-in form [7]. These recommendations were put into practice and the clinic also implemented an opt-in system for treatment, which was introduced in 1998.

The current study investigates the factors that may affect people coming to the Sexual Abuse and Assault Clinic for assessment and treatment. The study examines whether or not the opt-in system is working to help partial out the people who do not want to attend, or do not feel ready to attend, from those who do want to attend, or if there are other factors influencing these decisions. Do demographic characteristics, reported mental health problems, referral characteristics or the severity of abuse experienced, as measured by details of abuse history [2], affect clients' decisions to opt-in and attend the clinic? Future directions for the clinic to encourage these people to attend, if these factors are influential, will then be discussed. The study also compared the differences between clients who eventually receive treatment with those who do not, for a variety of reasons, and investigating whether or not there were any differences in attendance and dropout rates for clients put on a waiting list for treatment versus those who received treatment straight away.

To answer these questions, the study looked at the different stages of attendance at the Sexual Abuse and Assault Clinic - what could be called the 'client's journey' through the clinic - and compared the clients in the different groups at each stage. This may be demonstrated with the help of a flow diagram (figure 1).

Insert Figure 1 here

Method

The sample used in this audit was referrals to the Sexual Abuse and Assault Clinic in Fernbank Street Day Hospital, Glasgow, over the duration of a year. An opt-in system for treatment had commenced in May 1998 and an opt-in system for assessment was already in place. The present sample was collected from the start of the treatment opt-in system to May 1999. This resulted in the collection of data for 162 clients from the referral letters and, if necessary, and possible, the initial assessment letter. This resulted in some missing data, especially for those who did not attend the initial assessment. However, most of the referral letters provided the required data.

Details of the clients' demographic characteristics, mental health problems and abuse histories were collected from the referral letter and, occasionally, the assessment letter. The demographic characteristics noted were: age, sex, marital status and number of children. Mental health problems that were mentioned in the referral letter were grouped as substance abuse problems, anxiety, depression and other mental health problems or a forensic history. The source of referral and whether or not it was a re-referral were also noted. The details of the clients' abuse histories noted were: the number of separate episodes of abuse, the type and duration of abuse, age abuse started, who the abusers were and the numbers of abusers.

The skewness of the interval data were then explored to verify a normal population with no outliers. This was found to be the case so descriptive statistics were used to find the means and standard deviations of the data and t-tests were used to find significant differences between groups in response to the research questions. A Bonferroni Correction ($\alpha = 0.05$) was made to the data due to the large number of comparisons being carried out.

The frequencies of the nominal data were compared using percentages. The data were then put into cross-tabulation tables and chi-squares, or Fisher's exact probability test, depending on the expected frequencies in each cell, were used to find significant differences between groups to answer the research questions.

Results

The results are presented in the order of the clients' 'journey' through the Sexual Abuse Clinic (see figure 1). Each comparison examined all of the variables collected, as set out in the methods section. For means and standard deviations and non-significant results, see tables 1-9 (appendix 1.3a-i).

Comparison 1:

In the comparison of clients who opt-in for assessment and those who do not, only one factor was found to have a significant effect. The results suggest that those who do not opt-in are more likely to have reported problems with substance abuse ($\chi^2 = 6.986$, df = 1, $p<0.01$). There is also a non-significant trend towards those who are being re-referred to not opt-in ($\chi^2 = 3.571$, df = 1, $p<0.06$).

Comparison 2:

In the comparison of the clients who opt-in and then do not attend the assessment session with those who do attend after opting-in, several factors were found to be significant. Reported substance abuse appears to be a predictor of non-attendance ($\chi^2 = 9.772$, df = 1, $p<0.005$), as do reported anxiety problems ($\chi^2 = 4.978$, df = 1, $p<0.05$). People who are married or living with their partners, rather than single, separated or divorced people, appear to be more likely to attend after opting-in ($\chi^2 = 7.223$, df = 2, $p<0.05$). No other significant results were found.

Comparison 3:

Only one significant factor was found in the comparison of those clients who are offered therapy straight away with those who are put on a waiting list for therapy. The factor that appears to influence whether or not a client is put on a waiting list for treatment is the source of referral ($\chi^2 = 6.206$, df = 1, $p<0.05$). It appears that GP referrals are more likely to be offered treatment straight away and CMHT referrals are more likely to be put on a waiting list.

Comparison 4:

The comparison of clients who end up in treatment with those who do not again found that those who have reported substance abuse problems are less likely to end up in treatment ($\chi^2 = 15.719$, df = 1, $p<0.001$). No other significant results were found.

Comparison 5:

No differences were found in the attendance and dropout rates for therapy between those put on a waiting list and those who get offered therapy straight away ($\chi^2 = 0.267$, df = 1, NS).

Discussion

This study highlights some important points about the population referred to the Sexual Abuse and Assault Clinic with some significant findings in response to the research questions. It appears as if the opt-in system is not working as effectively as it could and other factors do influence clients' decisions to opt-in or attend the Sexual Abuse and Assault Clinic. This discussion goes on to look at these factors in more detail and the reasons that they may be important in influencing these decisions. It will also look at some of the problems with the current study. The discussion concludes with some recommendations for future practice at the clinic, to help combat the factors that reduce the likelihood of attendance, and some suggestions for future research.

The first contact the client has with the clinic is an opt-in form with some information enclosed. The finding that married, or cohabiting, people are more likely to attend the initial assessment, after opting in, than single or separated/divorced people could possibly be explained by a support network hypothesis. Married or cohabiting people may have more personal support at home and they may already have told someone about the abuse. It has been found that lower perceived support could also lead to higher levels of self-reported anxiety and depression [19].

The finding that the source of referral affects whether or not the client is put on the waiting list for treatment could also be explained by the support system hypothesis. A GP referral would imply that no other professionals are working with the client on mental health issues, unlike a CMHT referral. It may also be the first time that a client has disclosed sexual abuse and, therefore, this would be seen as a more urgent case. However, urgency for treatment does not seem to be affected by severity of abuse, taken from the clients' abuse histories, as would be predicted by Browne and Finkelhor (1986).

A quarter of the sample reported substance abuse problems. This may be due to these clients trying not to deal with the abuse, and attempting to block out post-traumatic stress disorder symptoms, by using drugs or alcohol [20]. This would make it more difficult for the client to then try to address these issues in therapy.

If the substance abuse problem is significant, this group may also live more chaotic lives than the non-substance abusing group and have less disposable income available to get to the clinic. It would not be surprising, therefore, to find that people who have substance abuse problems are less likely to opt-in for assessment, less likely to attend the appointment if they do opt-in and less likely to end up in treatment.

The third of the sample reportedly suffer from anxiety problems, either as a result of or separate from their sexual abuse history. These people may be expected to be anxious about the initial assessment. This group tends to opt-in for assessment but significant proportions of them subsequently do not attend the session. Anxiety was not shown to be a significant predictor of people not ending up in treatment so it may be presumed that if this group does attend the first appointment then they will carry on into treatment. This may be due to their anxiety over attending therapy having been quelled by the first appointment or to the client receiving some information on basic anxiety management techniques, which they are then able to put into practice.

An interesting finding was the non-significant gender differences throughout the study. The clinic had been concerned that it was not adequately ‘male-friendly’ and expected some significant gender differences in opt-in and attendance. The number of male referrals for child sexual abuse is still far below what may be expected from the estimated prevalence rates [1]. It would be expected that 40% of the child sexual abuse referrals would be male, whereas the actual proportion found in the clinic is only 16%. This may be to do with less reporting of childhood sexual abuse by males and to do with referrers not being so aware of male child sexual abuse [8].

A major criticism of this study is in the nature of retrospective data collection. Although most of the data were available from the referral letter, in a quarter of cases, the assessment letter was required to provide the data not mentioned in the referral letter. Obviously, it was only possible to do this in the cases of those who attended the assessment session. The variable most affected by this missing data was the age abuse started - one fifth of cases did not have this information. Discrepancies between referral letters and assessment letters were also found in 5% of cases. It was assumed that the assessment letter would be more accurate, due to the length of interview to which it related. Again, this would only be possible to note in the cases of those who attended the assessment session. However, as this includes more than half of the sample, it could be concluded that errors would be present in no more than 10% of the referral letters. The errors were mainly in the variables of duration of abuse and age abuse started. Therefore, the non-significance of these results throughout the study could be called into question. The veracity of the rest of the information in both the referral and assessment letters was accepted. Therefore, this study may be taken as reflecting the information the clients are willing to tell professionals, rather than the true information.

Another problem with this study is that the process of clients going straight into treatment, rather than being put on a waiting list, may reflect the needs of the service, instead of any client or referrer factors, in a minority of cases. This would be true of clients who are suitable to be seen by a Trainee Clinical Psychologist or those who are suitable for group therapy when a group is about to commence. This may have affected the outcome of the comparison between the 'straight to treatment' group and the 'waiting list' group.

Recommendations for the service and future research

At present, the Sexual Abuse and Assault Clinic has a finite amount of resources and there is a waiting list for both assessment and treatment, even though only a quarter of referrals end up receiving treatment. Therefore, any recommendations would need to take this into account. It may not be realistic to try to encourage more people to opt-in for assessment when they may not feel ready to address the issue, and referrers may need more education on investigating this with the clients. However, as a quarter of people who opt-in then do not attend, it would be more efficient to encourage these people to attend the session. A fifth of people who then agree to treatment either later do not attend or do not opt-in. This group of people could also be encouraged to attend. Unfortunately, it was not possible to look at factors affecting attendance at treatment in this study, as the sample was not large enough. It may be worthwhile to look at this issue, including socio-economic status, in a future study with a larger sample.

The most important areas that appear to require input to increase attendance at the clinic are substance abuse, anxiety and support networks. These require to be addressed before the client has set foot inside the clinic and, therefore, improvements may be hard to achieve. At present some reassurance is provided in the information leaflet, which is sent out with the opt-in form, acknowledging that it may be hard to talk about sexual abuse problems but it may also be helpful to acknowledge that it is often difficult to attend the first session, especially if the client has anxiety problems, or to think about trying to deal with something that they may have been blocking out for years with alcohol and drugs. The information leaflet already mentions that clients can get help for their anxiety problems, as well as the sexual abuse problem, during treatment. An addition to this may be to inform the clients that they will not necessarily have to stop abusing alcohol or drugs before they receive treatment, as this may have been their coping strategy for a long time, but help for this type of problem is also available and other, more adaptive, coping strategies would be taught during treatment. It may be worthwhile to look at services that are dedicated to substance abuse problems to find out how they deal with attendance problems. To address the support and encouragement issues, it may be useful to advise clients to bring someone with them to the first assessment. During the assessment and treatment procedure, further support may be gained by getting clients involved with other professionals.

The efficacy of these new procedures could be audited at a future date. The specific groups with substance abuse or anxiety problems could also be looked at in more detail in future research. It would also be beneficial to look at the efficacy of the information leaflet itself. If more research were to be done, it would be advantageous to gather the precise data needed as clients came to the clinic rather than relying on referral and assessment letters. It would also be advantageous to put the details investigated in this study onto a computer database to provide the clinic with more opportunities to do simple pieces of research in future.

References

1. Baker AW, Duncan SP. 1985. Child sexual abuse: A study of prevalence in Great Britain. *Child Abuse and Neglect* **9**: 457-467.

2. Browne A, Finkelhor D. 1986. Impact of child sexual abuse: A review of the research. *Psychological Bulletin* **99**: 66-77.

3. Cloitre M, Tardiff K, Marzuk PM, Leon AC, Portera L. 1996. Child abuse and subsequent sexual assault among female inpatients. *Journal of Traumatic Stress* **9**: 473-482.

4. de Villiers FP, Prentice MA. 1996. Accumulating experience in a child abuse clinic. *South African Medical Journal* **86**: 147-150.

5. Douglas A, Coghill D, Will D. 1996. A survey of the first five years' work of a child sexual abuse team. *Child Abuse Review* **5**: 227-238.

6. Gold SN, Hughes DM, Swingle JM. 1996. Characteristics of childhood sexual abuse among female survivors in therapy. *Child Abuse and Neglect* **20**: 323-335.

7. Hillary C. 1995. An audit of six months work of an adult sexual abuse team. *Small Scale Research Project bound into the Research Portfolio as part of the degree of Doctorate of Clinical Psychology.*

8. Holmes G, Offen L. 1996. Clinicians' hypotheses regarding clients' problems: are they less likely to hypothesize sexual abuse in male compared to female clients? *Child Abuse and Neglect* **20**: 493-501.

9. Hutchings PS, Duton MA. 1997. Symptom severity and diagnoses related to sexual assault history. *Journal of Anxiety Disorders* **11**: 607-618.

10.Kilpatrick DG, Acierno R, Resnick HS, Saunders BE, Best CL. 1997. A 2-year longitudinal analysis of the relationships between violent assault and substance abuse in women. *Journal of Consulting and Clinical Psychology* **65**: 834-847.

11.Kotch JB, Browne DC, Ringwalt CL, Stewart PW, Ruina E, Holt K, Lowman B, Jung JW. 1995. Risk of child abuse or neglect in a cohort of low-income children. *Child Abuse and Neglect* **19**: 1115-1130.

12.Mancini C, Van Ameringen M, MacMillan H. 1995. Relationship of childhood sexual and physical abuse to anxiety disorders. *The Journal of Nervous and Mental Disease* **183**: 309-314.

13.Moncrieff J, Drummond DC, Candy B, Checinski K, Farmer R. 1996. Sexual abuse in people with alcohol problems. A study of the prevalence of sexual abuse and its relationship to drinking behaviour. *British Journal of Psychiatry* **169**: 355-360.

14.Morgan A, Cassidy CE, Corrigan A. 1998. Childhood sexual abuse histories in women with drug and alcohol misuse disorders. *Irish Journal of Psychological Medicine* **15**: 91-95.

15.Petrak J, Doyle AM, Williams L, Buchan L, Forster G. 1997. The psychological impact of sexual assault: A study of female attenders of a sexual health psychology service. *Sexual and Marital Therapy* **12**: 339-345.

16.Pettigrew J, Burcham J. 1997. Effects of childhood sexual abuse in adult female psychiatric patients. *Australian and New Zealand Journal of Psychiatry* **31**: 208-213.

17.Russel DEH. 1986. *The Secret Trauma: Incest in the lives of girls and women.* New York: Basic Books.

18.Smith D, Pearce L, Pringle M, Caplan R. 1995. Adults with a history of child sexual abuse: evaluation of a pilot therapy service. *BMJ* **310**: 1175-1178.

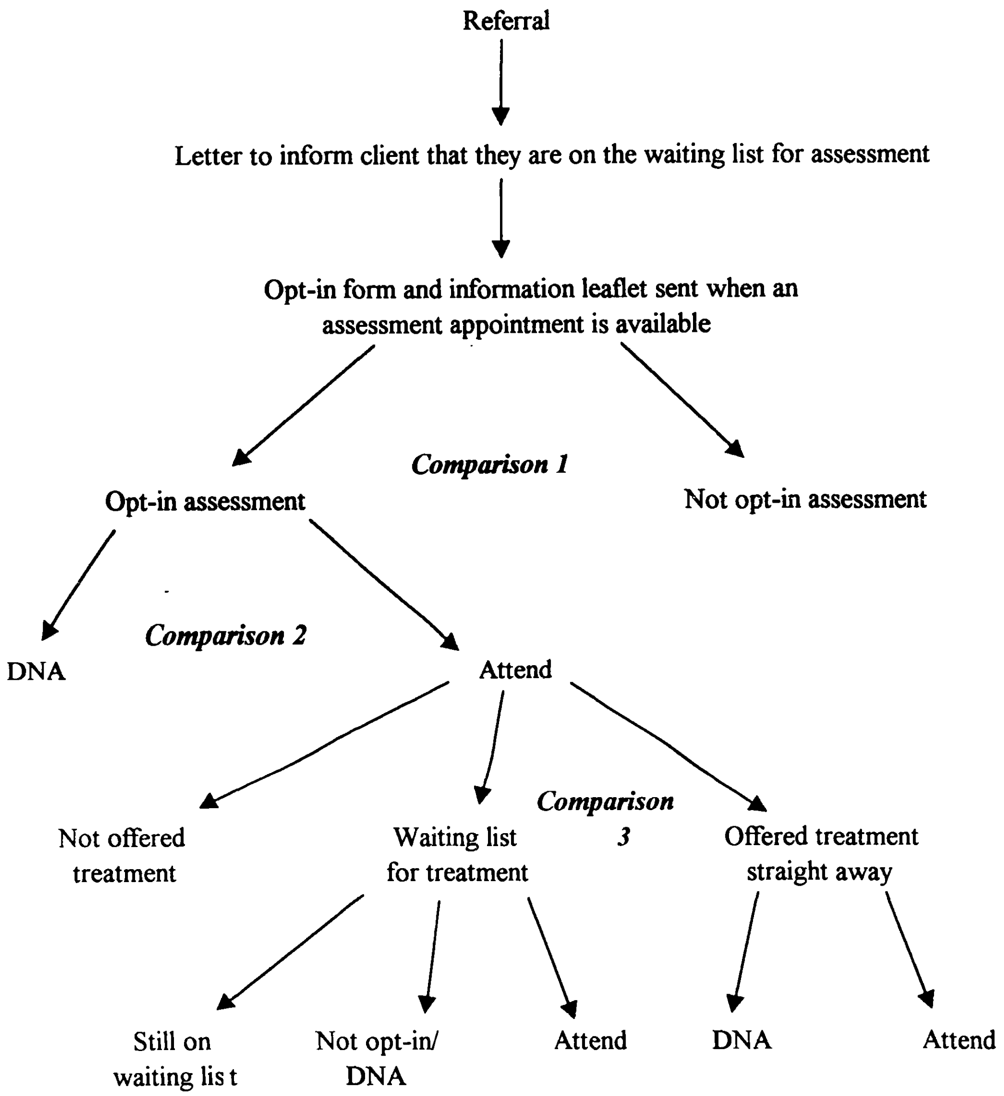
19.Spaccarelli S, Fuchs C. 1997. Variability in symptom expression among sexually abused girls: Developing multivariate models. *Journal of Clinical Child Psychology* **26**: 24-35.

20.Triffleman E. 1998. An overview of trauma exposure, post-traumatic stress disorder and addictions. In *Dual Diagnosis and Treatment: Substance abuse and comorbid medical and psychiatric disorders*, Kranzler HR, Rounsaville BJ (Eds.). New York: Marcel Dekker Inc.

21.Waring PA, Rose MJ, Murphy P. 1999. RSVP: The effects of 'opting-in' on attendance rates at a back pain rehabilitation programme. *Clinical Psychology Forum* **127**: 6-8.

22.Yeandle J. 1999. Outcomes from an opt-in waiting list initiative in a community psychology service for children and families. *Clinical Psychology Forum* **130**: 18-21.

Figure 1: Flow diagram of the 'client's journey' through the clinic and the comparisons made between groups at each stage



Comparison 4 = *clients who eventually receive treatment vs. those who do not*

Comparison 5 = *attendance and drop-out rates between clients who are offered treatment straight away vs. those who are put on a waiting list for treatment*

Chapter 2

Literature Review

The Development, Treatment and Knowledge of Post-concussional Syndrome Following A Minor Head Injury: A Review of the Literature

Running Title: PCS After a Minor Head Injury

Prepared in accordance with the instructions for authors from "British Journal of Clinical Psychology" (see appendix 2.1)

The Development, Treatment and Knowledge of Post-concussional Syndrome Following A Minor Head Injury: A Review of the Literature

Abstract

Purpose: To review the current literature on the development and treatment of post-concussional syndrome (PCS) after a minor head injury (MHI). Also, to review the literature on the level of knowledge of PCS held by laypersons and professionals and to discuss the most efficient method of assessing this knowledge.

Methods: A systematic review of the literature was attempted.

Results: There are still difficulties defining MHI and PCS, however, it is becoming more widely accepted that malingering is not the usual cause of persisting PCS symptoms. Several variables have been identified as possible contributors to symptom presentation after MHI, one of which is expectation of symptoms. However, the amount of knowledge of PCS found in laypersons varies greatly. A more efficient way to assess this knowledge may be through the use of a vignette, which relies on free recall, rather than a checklist, which relies on recognition.

Conclusions: In order to understand relationships between expectations, knowledge and symptom persistence, further research is required. We have insufficient understanding, not only of the ways in which outcome and attribution interact, but also simply of knowledge about symptoms after MHI.

Introduction

Minor head injury (MHI) is a large problem in the UK, as it is estimated that MHIs account for 75% of people who present to hospital with a head injury (Kraus and Nourjah, 1988). A Glasgow study found that 95% of people admitted to hospital with a head injury had a MHI and 47% of this group had moderate to severe disabilities, due to their head injury, one year later (Thornhill et al., 2000). Although MHIs are the most prevalent type of head injury, and a substantial minority of people with a MHI (15-25%) experience symptoms of post-concussional syndrome (PCS) for 6 months to 1 year after the injury (Jacobson, 1995), very few services are provided for this population. At present it is not clear what services would be most useful for this population but psychological treatment for PCS has been shown to be effective (Mittenberg and Burton, 1994). The issues of malingering and possible causative factors are discussed.

Several studies have investigated laypersons' knowledge of PCS but they have resulted in conflicting conclusions. The most efficient method of assessing this knowledge is also discussed.

Difficulties in defining minor head injury

There are several difficulties in the assessment of the severity of a head injury on admission to hospital. One common problem is the frequency with which alcohol is associated with MHI, as this can lower the Glasgow Coma Scale (GCS) score (Dikmen and Levin, 1993) and complicate the assessment of the level of consciousness and also post-traumatic amnesia (PTA) (Galbraith, Murray, Patel & Knill-Jones, 1976). Self-reports of short periods of unconsciousness can also be unreliable (Esselman and Uomoto, 1995) and there is still controversy over the validity of assessing PTA retrospectively (King et al., 1997), although McMillan, Jongen and Greenwood (1996) found that retrospective and prospective assessments correlated highly with each other and correlated with other measures of severity and outcome.

Criteria for diagnosis of MHI have recently been agreed by the Mild Traumatic Brain Injury Committee (1993). These guidelines stipulate that a MHI is diagnosed where there is no skull fracture or intracranial mass lesion and the severity of the injury does not exceed the following criteria:

1) loss of consciousness for approximately 30 minutes or less
2) a GCS score of 13-15 after the first 30 minutes
3) PTA of 24 hours or less.

Unfortunately, the confusion over the definition of MHI means that different research papers use different exclusion criteria when assessing a MHI group, for example, some researchers argue for the use of the upper limits to be reduced to 20 minutes of unconsciousness and 1 hour of PTA (Bernstein, 1999). This makes interpreting and comparing the results difficult.

In the UK, the percentage of Accident & Emergency (A&E) attendees who present with a head injury is 6.6% but only 13.8% of these (0.92% of all A&E attendees) are admitted to hospital (Swann and Walker, in press). A recent study investigating head injuries over the course of one year in Glasgow (UK) found that 95% of the head injuries admitted to hospital were minor, 3% severe and 2% unclassified (Thornhill et al., 2000). Another study reports that 80% of head injury admissions to Scottish hospitals are MHIs (MacMillan, Strang & Jennett, 1979). The incidence of MHI is probably higher than the reported statistics as many people do not present to A&E after a MHI (Bohen and Jolles, 1992).

In a Glasgow (UK) population, the most frequent causes of head injury were found to be falls (43%) and assaults (34%). Alcohol was involved in about two-thirds of these head injuries (Thornhill et al., 2000).

Difficulties in defining post-concussional syndrome

There is no agreed definition of PCS but there is marked uniformity of the symptoms following a MHI in most research across the world (Jacobson, 1995) although the contributors of symptoms vary from person to person (Alves, Macciocchi & Barth, 1993). The symptoms can be divided into three categories:

1) somatic - headache, dizziness, fatigue, sensitivity to noise and visual disturbance

2) cognitive – poor memory, concentration and problem solving

3) behavioural and affective – irritability, emotional lability, depression and anxiety

(Bernstein, 1999)

Rutherford (1989) found that PCS symptoms can be divided by early and late presentation, for example, vomiting, nausea, drowsiness and blurred vision are short-lived complaints whereas irritability and intolerance to noise appear later, perhaps due to the increase in stress levels after return to the home or work environment. However, there is controversy over the legitimacy and persistence of these symptoms after a MHI (see below). The estimates of prevalence of PCS after MHI vary between 20-80% (Bohen and Jolles, 1992) and the duration of symptoms has been reported to range from months to years (Binder, 1986). However, in a review, Jacobson (1995) notes that a third to a half of people who have suffered a MHI experience symptoms of PCS in the first few weeks and a substantial minority (15-25%) experience symptoms for 6 months to 1 year.

Another point of controversy is that PCS can appear in other contexts, such as chronic pain, psychiatric complaints and in the normal population. Iverson and McCracken (1997) reported that 80.6% of a sample of people with chronic pain had three or more PCS symptoms, reaching ‘diagnostic’ criteria on the Diagnostic and Statistical Manual of Mental Disorders (4th ed.: American Psychiatric Association, 1994). Psychiatric patients were found to report more PCS symptoms than controls or some medical patients but were similar to neurology and family practice patients (Fox, Lees-Haley, Earnest & Dolezal-Wood, 1995). Wong, Regennitter and Barrios (1994) found that several symptoms thought to be associated strongly with MHI have high base rates in a normal population. These included difficulties concentrating when reading (81.8%), becoming tired easily (63.6%) and being impatient (62.5%). Gouvier, Uddo-Crane and Brown (1988) also found no significant differences between head-injured and control subjects on a checklist of PCS symptoms. However, it must be noted that one of the main criteria for the diagnosis of PCS from the DSM-IV (1994) is "a history of head trauma that has caused significant cerebral concussion" (pp. 705-706).

It has been shown that post-traumatic stress disorder (PTSD) can occur in people with a head injury even if they do not have a memory of the accident (McMillan, 1996) and, therefore, may be more prevalent in a head injured population than previously thought. However, the co-morbidity of PTSD with PCS may make diagnosis of PCS more difficult as the diagnostic criteria for both overlap (King, 1997). PCS has been found to be more prevalent in head injured people when they also have PTSD than those who do not suffer PTSD (Bryant and Harvey, 1999). These authors conclude that there is a significant correlation between PCS and PTSD.

Organic and emotional contributors to symptom presentation after minor head injury

Lishman (1988) reviewed the literature up to 1987 and concluded that two different processes cause the onset and persistence of PCS symptoms. Physiological factors contribute to the onset of the symptoms and these are then maintained by psychological factors. However, Jacobson (1995) argues that, in the light of recent research, this view is out-moded for three reasons: psychosocial and cognitive-behavioural factors can influence both the onset and persistence of PCS (McClelland, Fenton & Rutherford, 1994); organic factors can also influence both symptom onset and maintenance, as shown by

Montgomery, Fenton, McClelland, MacFlynn and Rutherford (1991); and the way stress is dealt with by the person with a MHI is influenced by their psychophysiological and cognitive processes (Steptoe, 1991). Jacobson (1995) goes on to describe an integrative model, similar to those of chronic pain (for example, Turk and Rudy, 1992) to explain the origins and maintenance of the PCS. The model includes organic, psychological and motivational factors.

Montgomery et al. (1991) found three patterns of recovery from MHI: 52% recovering within six weeks; 16% with persisting symptoms and persisting brain stem dysfunction; and 32% showing an exacerbation of symptoms but no brain stem dysfunction. The authors hypothesised that the latter group's exacerbation of symptoms may have been caused by psychological and social factors. This study supports the notion that people with PCS are not a homogenous group. At 6 weeks post-injury chronic social adversity, female gender and older age were associated with PCS symptomatology (McClelland et al., 1994). This suggests that psychosocial factors contribute to the emergence of PCS. McClelland et al. (1994) argue that a head injury is both a physical and emotional event with the meaning of the injury, as well as the direct trauma to the brain, being important in the emergence of PCS.

Older age – with a tentative cut-off around 40 years - and female gender have also been linked to persistent PCS, as have alcohol and substance abuse and a history of previous head injury - whether minor or severe (King, 1997). In a study of patients 1-5 years after a MHI and normal controls, Bohen et al. (1994) found that the stresses and problems reported by the MHI group were similar to that of the control group but that these symptoms were significantly more severe in the MHI group. They suggest that this indicates that the effects of a MHI may not ever be reversible.

Return to work is a major factor in the assessment of the recovery from PCS. 88% of people who have suffered a minor head injury return to work within 3 months though 16% of these people still have symptoms of PCS (Englander, Hall, Stimpson & Chaffin, 1992). Lower levels of pre-injury education are related to individuals reporting higher numbers of PCS symptoms (Dikmen, Temkin & Armsden, 1989). Kibby and Long (1996) suggest this may be due to these individuals having less work-related coping abilities. However, Gronwall (1991) suggests that there may be another group of high achievers who experience PCS symptoms who return to work before they have suitably recovered and minimise their symptoms to relatives. There may also be more reinforcement for these people to return to work in the form of monetary gain and status. The stress of returning to work or of not being able to return to work and the resulting financial strain can affect the emergence of PCS and affect recovery (Lidvall, Linderoth & Norlin, 1974). These factors may then create stress in the home environment and reduce the amount of social support available, which in turn affects the ability of the individual to cope with stress (Kibby and Long, 1996).

Dikmen et al. (1989) propose that there are certain personality characteristics that are common in high-symptom reporters of any syndrome. These include ineffective coping style, low social competence, low self-esteem and negative labelling of stressful and ambiguous events. Therefore, it may be that people who develop PCS have ineffectual coping strategies to deal with the transient cognitive and somatic symptoms of PCS. They may also misattribute stresses that are caused by everyday life as being a result of their head injury. Bohen, Twijnstra and Jolles (1992) have also found inefficient coping styles and depressive attitudes towards problems in a PCS sample. Other personality factors that have been found to correlate with PCS are 'forceful' and 'sensitive' personality styles on the Millon Behavioral Health Inventory (Middleboe, Anderson, Birket-Smith & Friis, 1992) and neurotic personality traits on the Minnesota Multiphasic Personality Inventory (Cattelani, Gugliotta, Maravita & Mazzucchi, 1996).

A positive correlation between psychological distress and symptom persistence in PCS has been observed in several studies (Gasquoine, 1997; King, 1996; Wright and Telford, 1996). Anxiety can be caused by the symptoms immediately after the injury remaining unexplained and undiagnosed by the medical profession (Kibby and Long, 1996). Wright and Telford (1996) reported that few of the participants in their study had been given specific information and advice about their continuing symptoms. Pain and depression in the acute stage of injury have also been found to be associated with functional outcome at twelve months in people who have had a moderate non-head injury (Ponzer, Bergman, Brismar & Johansson, 1996) and this may be similar to a MHI population. Interestingly, Wade, King, Wenden, Crawford and Caldwell (1998) reported that routine follow-up significantly reduced social morbidity and severity of PCS six months after head injury. This appears to support the lack of knowledge and anxiety hypothesis for the maintenance of PCS.

The expectations of people regarding the symptoms of MHI have been suggested to lead to the occurrence of PCS. Mittenberg, DiGiulio, Perrin and Bass (1992) found that naïve laypersons could accurately predict PCS symptoms, using a checklist, but the head-injured group underestimated the pre-morbid prevalence of PCS symptoms. Another study found that both non-injured athletes and head-injured athletes overestimated the amount of symptom change from pre- to post-injury, although the amount of symptoms reported in each group were similar (Ferguson, Mittenberg, Barone & Schnider, 1999). The groups did so in two different ways with the non-injured athletes overestimating the PCS symptoms that may occur – expectation - and the head-injured athletes underestimating the number of 'post-concussional' symptoms they experienced before their head injury – reattributing normal symptoms to their head injury. In contrast, Gunstad and Suhr (2001) again found that head-injured athletes, two years after injury, and chronic headache sufferers reported that they currently suffered more PCS symptoms than prior to their negative event but they did not report previous symptoms at a lower level than a control group. The authors argue that PCS symptoms are not exclusive to MHI and that any negative event in life may be used as a point where it is thought that current negative symptoms changed from being non-symptomatic in the past. This argument is used to widen the "expectation as aetiology" hypothesis (Mittenberg et al., 1992) to include one of "the good old days" (Gunstad and Suhr, 2001).

Malingering

There has been a debate about PCS and malingering for as long as PCS has been documented. Miller wrote a very influential paper in 1961, which is often quoted in the literature. He concluded that malingering was a factor in the slow recovery of people with PCS. Although many other papers have been published since then that refute this view, few have been as influential. Poor motivation on cognitive tests, which may indicate malingering, has been found to range from just 18% (Gasquoine, 1997) to 48% (Youngjohn, Burrows & Erdal, 1995) in people with PCS. However, this does not take into account other factors, such as depression and low self-esteem, which might influence motivation to do well on neuropsychological tests. Also, several studies have found that normal controls are unable to fake the consequences of MHI on neuropsychological tests convincingly, as they tend to over-exaggerate (Martin, Hayes & Gouvier, 1996; Schwartz, Gramling, Lawson Kerr & Morin, 1998; Wong et al., 1994).

Binder (1986) points out that litigation itself may provoke anxiety and, therefore, may prolong the PCS, leading to extended time off work. Also, the findings that PCS is not ‘cured by a verdict’ (Evans, 1992) and that symptoms can occur in the absence of litigation (Jacobson, 1995) has led to less emphasis being put on litigation extending the course of PCS. However, in a meta-analysis of 17 studies, Binder and Rohling (1996) discovered a modest overall effect size (0.47) for the impact of financial incentives on disability, symptoms and objective findings after head injury and the authors conclude that careful assessment must be made when assessing head injury cases involving financial compensation.

Laypersons' and General Practitioners' knowledge of the sequelae of minor head injury and other psychiatric problems

Aubrey, Dobbs and Rule (1989) found that, when laypersons were given a vignette and a PCS checklist, they were able to identify the physical symptoms that may occur with PCS. However, they did not recognise the cognitive symptoms to be possible after-effects of a MHI. This relates to the study by Sbordone, Seyranian and Ruff (1998), which found that people with a MHI were able to spontaneously report their somatic symptoms but underreported their cognitive, behavioural and emotional factors. Other studies have found that laypersons (Gouvier et al., 1988; Willer, Johnson, Rempel & Linn, 1993; Wong et al., 1994), family members (Springer, Farmer & Bouman, 1997) and non-expert professionals, not including General Practitioners (Swift and Wilson, 2001) underestimate the severity, range and permanence of head injury sequelae. However, Mittenberg et al. (1992) found that naïve laypersons were able to accurately predict PCS symptoms reported by a head-injured group, using a checklist, and Lees-Haley and Dunn (1994) reported that 63.3% of their laypersons group was able to correctly identify 5 or more of 10 symptoms associated with MHI when presented with a checklist. This percentage was far lower than those participants able to reach diagnostic criteria for psychiatric problems such as major depression (96.9%), generalised anxiety disorder (96.9%) and post-traumatic stress disorder (PTSD) (86%). A criticism of these studies is that the checklists did not include irrelevant distracter items to mislead the participants and, therefore, the participants were able to check off all of the relevant symptoms with ease.

Another, more recent study, which looked at layperson's knowledge of PTSD, used a vignette and two types of checklist – one including irrelevant distracter items (Burges and McMillan, 2001). They reported that only 1% of their sample was able to self-generate sufficient symptoms for diagnosis when presented with a vignette but, when presented with a checklist, 90% of the participants were able to 'guess' enough symptoms to fulfil diagnostic criteria. When distracter items were included in the checklist, 6/16 of the irrelevant symptoms were also identified with the syndrome. The most common distracter items, identified by over 50% of the participants, were symptoms of schizophrenia, obsessive-compulsive disorder, paranoid personality disorder and panic disorder (Burges and McMillan, 2001). This may suggest that laypersons do not have adequate knowledge of these mental health problems to be able to recognise the symptoms in order to seek help. Interestingly, there was no difference in the number of symptoms reported between those participants who had experienced a traumatic event and those who had not (Burges and McMillan, 2001), however, the people who had experienced a trauma may not have experienced adverse effects.

Very few studies have investigated General Practitioners' (GP) views of the persistence of symptoms following a head injury. One study, which looked at the inter-rater reliability of the Glasgow Outcome Scale (GOS), found that GPs tended to make overoptimistic assessments of recovery after head injury, especially at 6 months post-injury, when only 50% of the GPs' assessments agreed with those of the psychologist (Anderson, Housley, Jones, Slattery &

Miller, 1993). This suggests that some GPs have little knowledge of the persistence of the sequelae of head injuries.

The knowledge of a sample of people with a MHI as to the possible symptoms after MHI or the causes of their own symptoms remains to be investigated.

Treatment of post-concussional syndrome

Routine effective treatment for PCS includes reassurance, education for the patient and their family, general support and monitoring and advice to avoid high stress situations (Mittenberg and Burton, 1994). Other treatments that have been found to be effective are cognitive restructuring and the use of antidepressant medication (Mittenberg and Burton, 1994). Brief psychological treatment appears to reduce the severity and duration of symptoms following mild head trauma (Miller and Mittenberg, 1998). Englander et al. (1992) also found that education about PCS symptoms may provide sufficient reassurance to most individuals with the result that they see further medical treatment as unnecessary. Anxiety reduction appears to be a large part of treatment by using education and reassurance (Middleboe et al., 1992). One study found that a group who had a single session of education at 3 weeks post-injury had similar improvements in PCS symptoms and similar patient satisfaction to a group who had a more extensive assessment with education and treatment as needed (Paniak, Toller-Lobe, Durand & Nagy, 1998). The improvements were maintained at one year and again there was no difference between the groups but little further improvement was reported after 3 months post-injury (Paniak, Toller-Lobe, Reynolds, Melnyk & Nagy, 2000). Along with Wade et al. (1998), mentioned above, these studies show that a simple short intervention can be effective if given early. This is supported by a study that found that head injured people regarded the time of intervention after injury as important in their recovery (Pioth, 1992).

Discussion and conclusions

Although there are no agreed criteria for diagnosis of minor head injuries (MHI) and post-concussional syndrome (PCS), many studies have found similar results, even with these methodological problems. The heterogeneity of the PCS population also creates problems for researchers but it seems to be generally accepted that specific symptoms do follow MHI and may persist for at least 1-3 months and in some cases much longer. The question of base rates of these symptoms in the normal population needs to be addressed in more detail, looking not just at the number of overlapping symptoms but also the frequency and severity of symptoms experienced.

Knowledge of the causes of PCS may give clinicians ideas about how to prevent and treat PCS, perhaps by specifically targeting vulnerable groups. As previously mentioned, expectations of symptoms may also lead to the onset of these symptoms and so basic education may allay these overestimations.

Malingering after MHI remains a controversial subject. However, laypersons seem to have a limited knowledge of PCS and are unable to ‘fake’ neuropsychological assessments in order to malinger. More careful assessment of PCS could include a structured interview or a checklist that includes irrelevant distracter items.

Knowledge of the sequelae of minor head injuries could be useful for several groups of people. Education of laypersons may reduce their expectations of head injury and help them to understand, and be sympathetic to, the plight of people who suffer with PCS. This would help patients' friends and family, which in turn, would provide the patient with more social support and, therefore, reduce their stress levels. Education has also been shown to raise rates of help seeking behaviour in those who do have problems (Bleeker et al., 1995). Education of people with MHI may reduce their anxiety, which may in turn reduce the persistence of their PCS symptoms. As GPs tend to be overoptimistic about the recovery from head injury in general, it may be useful to inform them of the actual sequelae of MHI so that they are able to provide their patients with appropriate support and treatment. In order to provide information to these populations it is first necessary to assess their level of knowledge. This is research that is required to be carried out and it should be done in a way that does not prompt the responders, for example, by the use of a vignette or by a checklist including irrelevant distracter items.

References

Alves, W., Macciocchi, S. N., & Barth, J. T. (1993). Postconcussive symptoms after uncomplicated mild head injury. *Journal of Head Trauma Rehabilitation*, **8**, 48-59.

Anderson, S. I., Housley, A. M., Jones, P. A., Slattery, J., & Miller, J. D. (1993). Glasgow Outcome Scale: An inter-rater reliability study. *Brain Injury*, **7**, 309-317.

American Psychiatric Association (1994). Diagnostic and Statistical Manual of Mental Disorders (4th ed.). Washington, DC: Author.

Aubrey, J. B., Dobbs, A. R., & Rule, B. G. (1989). Laypersons' knowledge about the sequelae of minor head injury and whiplash. *Journal of Neurology, Neurosurgery and Psychiatry*, **52**, 842-846.

Bernstein, D. M. (1999). Recovery from mild head injury. *Brain Injury*, **13**, 151-172.

Binder, L. M. (1986). Persisting symptoms after mild head injury: A review of the postconcussive syndrome. *Journal of Clinical Experimental Neuropsychology*, **8**, 323-346.

Binder, L. M., & Rohling, M. I. (1996). Money matters: A meta-analytic review of the effects of financial incentives on recovery after closed head injury. *American Journal of Psychiatry*, **153**, 7-10.

Bleeker, J. K., Lamers, L. M., Leenders, I. M., Kruyssen, D. C., Simoons, M. L., Trijsburg, R. W., & Erdman, R. A. (1995). Psychological and knowledge factors related to delay of help-seeking by patients with acute myocardial infarction. *Psychotherapy and Psychosomatics,* **63**, 151-158.

Bohen, N., & Jolles, J. (1992). Neurobehavioral aspects of postconcussive symptoms after mild head injury. *The Journal of Nervous and Mental Disease*, **180**, 683-692.

Bohen, N., Twijnstra, A., & Jolles, J. (1992). Performance in the Stroop color word test in relationship to the persistence of symptoms following mild head injury. *Acta Neurologica Scandinavica*, **85**, 116-121.

Bohen, N., Van Zutphen, W., Twijnstra, A., Wijnen, G., Bongers, J., & Jolles, J. (1994). Late outcome of mild head injury: Results from a controlled postal survey. *Brain Injury*, **8**, 701-708.

Bryant, R. A., & Harvey, A. G. (1999). Postconcussive symptoms and posttraumatic stress disorder after mild traumatic brain injury. *The Journal of Nervous and Mental Disease*, **187**, 302-305.

Burges, C., & McMillan, T. M. (2001). The ability of naïve participants to report symptoms of post-traumatic stress disorder. *British Journal of Clinical Psychology*, **40**, 209-214.

Cattelani, R., Gugliotta, M., Maravita, A., & Mazzucchi, A. (1996). Post-concussive syndrome: Paraclinical signs, subjective symptoms, cognitive functions and MMPI profiles. *Brain Injury*, **10**, 187-195.

Dikmen, S. S., & Levin, H. S. (1993). Methodological issues in the study of mild head injury. *Journal of Head Trauma Rehabilitation*, **8**, 30-37.

Dikmen, S., Temkin, N., & Armsden, G. (1989). Neuropsychological recovery: Relationship to psycho-social functioning and postconcussional complaints. In H. D. Levin, H. M. Eisenberg & A. L. Benton (Eds), *Mild Head Injury*, pp. 229-241. New York: Oxford University Press.

Englander, J., Hall, K., Stimpson, T., & Chaffin, S. (1992). Mild traumatic brain injury in an insured population: Subjective complaints and return to employment. *Brain Injury*, **6**, 161-166.

Esselman, P. C., & Uomoto, J. M. (1995). Classification of the spectrum of mild traumatic brain injury. *Brain Injury*, **9**, 417-424.

Evans, R. W. (1992). The postconcussion syndrome and the sequelae of mild head injury. *The Neurology of Trauma*, **10**, 815-847.

Ferguson, R. J., Mittenberg, W., Barone, D. F., & Schnider, B. (1999). Postconcussion syndrome following sports-related head injury: Expectation as etiology. *Neuropsychology*, **13**, 582-589.

Fox D. D., Lees-Haley, P. R., Earnest, K., & Dolezal-Wood, S. (1995). Post-concussive symptoms: Base rates and etiology in psychiatric patients. *The Clinical Neuropsychologist*, **9**, 89-92.

Galbraith, S., Murray, W. R., Patel, A. R., & Knill-Jones, R. (1976). The relationship between alcohol and injury and its effect on the conscious level. *British Journal of Surgery*, **63**, 128-130.

Gasquoine, P. G. (1997). Postconcussion symptoms. *Neuropsychology Review*, 7, 77-85.

Gouvier, W. D., Uddo-Crane, M., & Brown, L. M. (1988). Base rates of postconcussional symptoms. *Archives of Clinical Neuropsychology*, **3**, 273-278.

Gronwall, D. (1991). Minor head injury. *Neuropsychology*, **5**, 253-265.

Gunstad, J., & Suhr, J. A. (2001). "Expectation as etiology" *versus* "the good old days": Postconcussion syndrome symptom reporting in athletes, headache sufferers, and depressed individuals. *Journal of the International Neuropsychological Society*, **7**, 323-333.

Iverson, G. L., & McCracken, L. M. (1997). 'Postconcussive' symptoms in persons with chronic pain. *Brain Injury*, **11**, 783-790.

Jacobson, R. R. (1995). The post-concussional syndrome: Physiogenesis, psychogenesis and malingering. An integrative model. *Journal of Psychosomatic Research*, **39**, 675-693.

Kibby, M. Y., & Long, C. J. (1996). Minor head injury: Attempts at clarifying the confusion. *Brain Injury*, **10**, 159-186.

King, N. S. (1996). Emotional, neuropsychological and organic factors: Their use in the prediction of persisting postconcussional symptoms after moderate and mild head injuries. *Journal of Neurology, Neurosurgery and Psychiatry*, **61**, 75-81.

King, N. S. (1997). Mild head injury: Neuropathology, sequelae, measurement and recovery. *British Journal of Clinical Psychology*, **36**, 161-184.

King, N. S., Crawford, S., Wenden, F. J., Wade, D. T., Moss, N. E. G., & Caldwell, F. E. (1997). The measurement of post traumatic amnesia: How reliable is it? *Journal of Neurology, Neurosurgery and Psychiatry*, **62**, 38-42.

Kraus, J. F., & Nourjah, P. (1988). The epidemiology of mild uncomplicated brain injury. *Trauma*, **28**, 1637-1643.

Lees-Haley, P. R., & Dunn, J. T. (1994). The ability of naïve subjects to report symptoms of mild brain injury, post-traumatic stress disorder, major depression and generalised anxiety. *Journal of Clinical Psychology*, **50**, 252-256.

Lidvall, H. F., Linderoth, B., & Norlin, B. (1974). Causes of the post-concussional syndrome. *Acta Neurologica Scandinavica*, **50 (S56)**, 3-114.

Lishman, W. A. (1988). Physiogenesis and psychogenesis in the 'post-concussional syndrome'. *British Journal of Psychiatry*, **153**, 460-469.

Martin, R. C., Hayes, J. S., & Gouvier, W. D. (1996). Differential vulnerability between postconcussion self-report and objective malingering tests in identifying simulated mild head injury. *Journal of Clinical and Experimental Neuropsychology*, **18**, 265-275.

MacMillan, R., Strang, I., & Jennett, B. (1979). Head injuries in primary surgical wards in Scottish hospitals. Scottish head injury management study. *Health Bulletin*, **37**, 75-81.

McClelland, R. J, Fenton, G. W., & Rutherford, W. (1994). The post-concussional syndrome revisited. *Journal of Research and Social Medicine*, **87**, 508-510.

McMillan, T. M. (1996). Post-traumatic stress disorder following minor and severe closed head injury: 10 single cases. *Brain Injury*, **10**, 749-758.

McMillan, T. M., Jongen, E. L. M. M., & Greenwood, R. J. (1996). Assessment of post-traumatic amnesia after severe closed head injury: Retrospective or prospective? *Journal of Neurology, Neurosurgery and Psychiatry*, 60, 422-427.

Middleboe, T., Anderson, H. S., Birket-Smith, M., & Friis, M. L. (1992). Minor head injury: Impact on general health after one year. A prospective follow up study. *Acta Neurologica Scandinavica*, **85**, 5-9.

Mild Traumatic Brain Injury Committee of the Head Injury Interdisciplinary Special Interest Group of the American Congress of Rehabilitation Medicine (1993). Definition of mild traumatic brain injury. *Journal of Head Trauma Rehabilitation*, **8**, 86-87.

Miller, H. (1961). Accident neurosis. *British Medical Journal*, **1**, 919-925, 992-998.

Miller, L. J., & Mittenberg, W. (1998). Brief cognitive behavioral interventions in mild traumatic brain injury. *Applied Neuropsychology*, **5**, 172-183.

Mittenberg, W., & Burton, D. B. (1994). A survey of treatments for post-concussion syndrome. *Brain Injury*, **8**, 429-437.

Mittenberg, W., DiGiulio, D. V., Perrin, S., & Bass, A. E. (1992). Symptoms following minor head injury: Expectation as aetiology. *Journal of Neurology, Neurosurgery, and Psychiatry*, **41**, 611-616.

Montgomery, E. A., Fenton, G. W., McClelland, R. J., MacFlynn, G., & Rutherford, W. H. (1991). The psychobiology of minor head injury. *Psychological Medicine*, **21**, 375-384.

Paniak, C., Toller-Lobe, G., Durand, A., & Nagy, J. (1998). A randomised trial of two treatments for mild traumatic brain injury. *Brain Injury*, **12**, 1011-1023.

Paniak, C., Toller-Lobe, G., Reynolds, S., Melnyk, A., & Nagy, J. (2000). A randomised trial of two treatments for mild traumatic brain injury: 1 year follow-up. *Brain Injury*, **14**, 219-226.

Pioth, P. (1992). Perceptions of interventions post mild head injury. *The Journal of Cognitive Rehabilitation*, **10**, 34-42.

Ponzer, S., Bergman, B., Brismar, B., & Johansson, L. M. (1996). A study of patient-related characteristics and outcome after moderate injury. *Injury*, **27**, 549-555.

Rutherford, W. H. (1989). Postconcussion symptoms: Relationship to acute neurological indices, individual differences and circumstances of injury. In H. D. Levin, H. M. Eisenberg and A. L. Benton (Eds), *Mild Head Injury*, pp. 217-228. New York: Oxford University Press.

Sbordone, R. J., Seyranian, G. D., & Ruff, R. M. (1998). Are the subjective complaints of traumatically brain injured patients reliable? *Brain Injury*, **12**, 505-515.

Schwartz, S. M., Gramling, S. E., Lawson Kerr, K., & Morin, C. (1998). Evaluation of intellect and deficit specific information on the ability to fake memory deficits. *International Journal of Law and Psychiatry*, **21**, 261-272.

Springer, J. A., Farmer, J. E., & Bouman, D. E. (1997). Common misconceptions about traumatic brain injury among family members of rehabilitation patients. *Journal of Head Trauma Rehabilitation*, **12**, 41-50.

Steptoe, A. (1991). The links between stress and illness. *Journal of Psychosomatic Research*, **35**, 633-644.

Swann, I. J., & Walker (in press). Who cares for the head injured patient now? *Journal of Emergency Medicine.*

Swift, T. L., & Wilson, S. L. (2001). Misconceptions about brain injury among the general public and non-expert health professionals: An exploratory study. *Brain Injury*, **15**, 149-165.

Thornhill, S., Teasdale, G. M., Murray, G. D., McEwan, J., Roy, C. W., & Penny, K. I. (2000). Disability in young people and adults one year after head injury: Prospective cohort study. *British Medical Journal*, **320**, 1631-1635.

Turk, D. C., & Rudy, T. E. (1992). Cognitive factors and persistent pain: A glimpse with Pandora's box. *Cognitive Therapy Research*, **16**, 99-122.

Wade, D. T., King, N. S., Wenden, F. J., Crawford, S., & Caldwell, F. E. (1998). Routine follow up after head injury: A second randomised controlled trial. *Journal of Neurology, Neurosurgery and Psychiatry*, **65**, 177-183.

Willer, B., Johnson, W. E., Rempel, R. G., & Linn, R. (1993). A note concerning misconceptions of the general public about brain injury. *Archives of Clinical Neuropsychology*, **8**, 461-465.

Wong, J. L., Regennitter, R. P., & Barrios, F. (1994). Base rates and simulated symptoms of mild head injury among normals. *Archives of Clinical Neuropsychology*, **9**, 411-425.

Wright, J. C., & Telford, R. (1996). Postconcussive symptoms and psychological distress. *Clinical Rehabilitation*, **10**, 334-336.

Youngjohn, J. R., Burrows, L., & Erdal, K. (1995). Brain damage or compensation neurosis? The controversial post-concussion syndrome. *The Clinical Neuropsychologist*, **9**, 112-123.

Chapter 3

Proposal for Major Research Project

Knowledge of Post-concussional Syndrome: In naïve laypersons, General Practitioners and people with a minor head injury

Prepared in accordance with guidelines in the Doctorate in Clinical Psychology Handbook (appendix 3.1). Guidelines based on the application for a mini-grant in health services research. Submitted to the West Glasgow Hospitals University NHS Trust West Ethics Committee (ethical approval: appendix 3.2)

Title

Knowledge of Post-concussional Syndrome: In naïve laypersons, General Practitioners and people with a minor head injury.

Summary

This study aims to investigate the level of knowledge of post-concussional syndrome (PCS) in two groups of the public – naïve laypersons and people who have suffered a minor head injury (MHI) - and one group of professionals – General Practitioners (GPs). It is thought that pre-injury expectations of symptoms that result from a MHI may influence their genesis and persistence and that misattribution of the cause of these symptoms may lead to anxiety and depression in people who are suffering from them. If GPs are unaware of the possible symptoms after a MHI, then they will not be able to support and seek help for their patients if this need arose. Therefore, education may benefit all of the participating groups.

The MHI group will be recruited from records in an Accident and Emergency Department (A&E) and the control group will be recruited from evening classes. These groups will be matched for sex, age and general level of intelligence. The GP group will be recruited from Local Health Care Co-operatives (LHCC).

All participants will be screened for depression, anxiety and post-traumatic stress disorder (PTSD) symptomatology and the MHI group will also be screened for PCS. Participants in the control group and the MHI group will be

tested for estimated IQ and estimated pre-morbid IQ respectively. Length of post-traumatic amnesia (PTA) will be investigated in the MHI group to give an estimate of the severity of head injury. The two other groups will complete a questionnaire investigating previous head injuries and personal knowledge of people with a MHI.

Participants will then be asked to generate symptoms that they think are associated with minor head injury, from a vignette and then to endorse symptoms on one of two types of checklist – one containing irrelevant items. This data will then be analysed to investigate differences between the groups on the ability to generate or recognise MHI symptoms and differences between the two types of checklist.

Introduction

There is marked uniformity of PCS symptoms following a MHI across the world, regardless of litigation (Levin et al, 1987), though this might be due to the symptoms being similar to those of everyday stress (Gouvier, Cubic, Jones, Brantley & Cutlip, 1992). The symptoms can be divided into three categories:

1. somatic - headache, dizziness and fatigue
2. cognitive – poor memory and concentration
3. affective – irritability, emotional lability, depression and anxiety

However, there is still controversy over the cause and the persistence of these symptoms. Jacobson (1995) proposed an integrative model to account for these issues that includes both physiological and psychological factors in both the genesis and the persistence of symptoms. This model appears to be supported by the 'Belfast Studies' (Montgomery, Fenton, McClelland, MacFlynn & Rutherford, 1991; McClelland, Fenton & Rutherford, 1994). However, Mittenberg, DiGiulio, Perrin & Bass (1992) suggest expectations of the postconcussional period lead to selective attention to the expected symptoms that in turn lead to their persistence. They also found that the PCS symptoms did not significantly differ between people with a MHI and uninjured subjects, when using a checklist of symptoms, and that people with a MHI overestimated the amount of change between pre- and post-MHI.

Checklists of symptoms have been used to identify naïve laypersons knowledge of generalised anxiety disorder, depression and post-traumatic stress disorder (PTSD: Lees-Haley & Dunn, 1994; Burges & McMillan, 2001). These studies have found that a significant number of laypersons are able to endorse sufficient symptoms to meet DSM IV criteria for these syndromes when presented with a checklist. However, only 1% was able to self-generate sufficient symptoms when presented with a vignette and, when distracter items were included in the checklist, many irrelevant symptoms were also identified with the syndrome (Burges & McMillan, 2001). This may suggest that laypersons do not have adequate knowledge of these mental health problems to be able to recognise the symptoms in order to seek help. Although Lees-Haley and Dunn (1994) found that 63% of naïve laypersons were able to identify over half of the symptoms associated with minor head injury on a checklist, their ability to generate these symptoms themselves, when presented with a vignette, has not been investigated. If, like the other mental health problems, laypersons were unable to generate these symptoms, then it is possible that many people are suffering from symptoms without attributing the cause to their head injury. This may lead to further mental health problems such as anxiety and depression and may significantly interfere with their lives. For example, King (1996) showed that the severity of PCS symptoms is related to psychological distress.

Routine treatment for PCS includes reassurance, education for the patient and their family, general support and monitoring and advice to avoid high stress situations (Englander, Hall, Stimpson & Chaffin, 1992; Middleboe, Anderson, Birket-Smith & Friis, 1992). Other psychological techniques used are anxiety management, activity scheduling and cognitive restructuring (Mittenberg, Zielinski, & Fichera, 1993). The use of antidepressant medication has also been found to be effective (Mittenberg & Burton, 1994).

Aims and hypotheses

If simple interventions such as education and professional support are useful in the treatment of PCS, it would be interesting to investigate the amount of knowledge laypeople already have about PCS and the amount of knowledge that the most accessible professionals (GPs) have of PCS to see whether or not these needs are being met at present. As people with an MHI receive an information leaflet about possible symptoms after a MHI on discharge, it will be interesting to discover how much of this information is retained one to three months later.

Hypothesis 1: Most naïve laypeople will be unable to generate sufficient symptoms of PCS for a diagnosis (taken from the cut-off on the Postconcussion

Syndrome Checklist; Gouvier et al., 1992) from a vignette but will be able to endorse the required number of symptoms on a checklist. This could be predicted by looking at past research using similar techniques (Lees-Haley & Dunn, 1994; Burges & McMillan, 2001).

Hypothesis 2: Most people with a MHI and most GPs will be able to generate sufficient symptoms for diagnosis from a vignette and endorse the required number of symptoms on a checklist. This may be expected as both groups will have had experience of MHIs and, therefore, know the possible symptoms of PCS.

Hypothesis 3: There will not be a significant difference between the checklists in the number of PCS symptoms endorsed. Again, this could be predicted from past research (Burges & McMillan, 2001).

Hypothesis 4: There will be a significant number of distracter items endorsed as well as PCS symptoms on the altered checklist in the two non-professional groups. It would be expected that GPs would not identify distracter items as symptoms of PCS due to their training but that the two non-professional groups may identify some, as they are unclear as to the specific symptoms of PCS.

Plan of investigation

Participants

Three groups, with 30 participants in each, will be recruited from various sources. These groups will be:

1) Control group – recruited from evening classes at Stow College and Anniesland College
2) GP group – recruited from LHCCs in the Glasgow area
3) Minor head injury group – recruited from attendance at Accident and Emergency at the Glasgow Royal Infirmary who will be sent an information sheet and consent form, inviting them to take part in the study, about one month after injury.

Groups 1 and 3 will be matched for age, sex, and general level of intelligence. The head injury group will be investigated for severity of injury using A&E severity ratings and estimated length of PTA as a guide, with a MHI being defined as PTA less than one day. The participants in the MHI group will normally have been admitted to hospital overnight if they have PTA of over 5 minutes and they receive an information leaflet about possible symptoms after a MHI on discharge.

Exclusion Criteria:

1) The laypersons group and GP group will not include people who have suffered a head injury
2) The laypersons group will not include people who are well acquainted with someone who has suffered a head injury
3) The laypersons group and the head injury group will not include people who have studied psychology or medicine to a degree level
4) The head injury group will not include anyone who has PTA of under 5 minutes or over 1 day

5) The head injured group will not include those people who did not suffer a loss of consciousness or those whose loss of consciousness lasted more than 30 minutes
6) The groups will not include any people under the age of 16
7) The groups will not include any people with a Learning Disability
8) The groups will not include any person suffering from a diagnosed mental illness or dementia

All participants will be required to give informed consent.

Measures

All groups will be screened for anxiety and depression using the Hospital Anxiety and Depression Scale (Zigmund & Snaith, 1983) and for PTSD symptomatology using the Impact of Events Scale - Revised (Horowitz, Wilner, & Alvarez, 1979).

Participants in the MHI group will be screened for PCS using the Postconcussion Syndrome Checklist: PCSC (Gouvier et al, 1992; appendix 3.3). Estimated length of PTA will be investigated in the MHI group, using a systematic questionnaire developed for this study (appendix 3.4), to give an estimate of the severity of head injury.

The control group and the MHI group will also be asked to complete Spot the Word Test (a subtest of the Speed and Capacity of Language Processing Test: SCOLP; Baddeley, Wilson & Nimmo-Smith, 1992) to provide an estimate of their level of general intellectual functioning. A questionnaire will be developed to assess the control group and GP group for any previous head injuries and knowledge of anyone who has had a MHI.

A vignette developed for this study will be used to assess the participants' knowledge of PCS. This will provide the participants with a situation that may lead to PCS. It will also permit the participants to respond that there would be no symptoms of PCS after a month. The vignette to be used will be as follows:

> A man crashes his car after skidding on some ice but no other cars are involved. He gets a bump on the head and loses consciousness for a few minutes. He is taken to hospital and cannot remember the accident. It is nearly an hour after the crash before the man is no longer confused and his memories of this hour are patchy. Apart from some cuts and bruises, he has no physical injuries. The hospital admits him overnight for observation and discharges him in the morning, as he appears to be OK.
>
> The man's GP routinely recalls all of his patients who have had a head injury for a check-up one month later. His GP asks him if he has suffered any side effects or symptoms since the crash. What do you think the man would say to his GP?

The participants will then be asked to complete one of two checklists, again to respond to the symptoms the man in the vignette may be suffering after one month. One of the checklists is a standard screening measure, the Postconcussion Syndrome Checklist (Gouvier et al., 1992). The other checklist will be developed for this study (appendix 3.5), based on Gouvier et al. (1992) with irrelevant distracter items from Oddy, Humphrey and Uttley (1978). These two forms of the checklist will be distributed randomly and equally within the groups.

Design

A three-factor mixed design will be used. The two between subjects factors are group, at 3 levels (control, GP and MHI), and checklist at 2 levels, (standard checklist and distracter item checklist; distributed equally within the groups). The within subjects factor is the presentation of the test at 2 levels (vignette and checklist). The dependent variable is the number of symptoms reported.

Procedure

The control group will participate in groups at the evening classes and the GP group will either respond at a meeting in their practice or by post. Both groups will complete all the questionnaires in one sitting. The MHI group will be sent a letter (appendix 3.6) with an information leaflet (appendix 3.7c) and consent form (appendix 3.8) about one month after their injury. Those who respond will be sent out the first part of the study and a reminder letter will be sent out 2 weeks later. Those who send back the first part of the study will then be sent the second part to complete. Again, a reminder letter will be sent out 2 weeks later.

Phase 1

Participants will be given an information leaflet (appendix 3.7a-c) on the study and will be required to sign a consent form (appendix 3.8) to take part. They will also be required to complete a short demographics questionnaire to facilitate matching between the control group and the MHI group and also to gain an idea of the pattern of responders.

Participants in the control group will be tested for an estimated IQ and the MHI group will be tested for estimated pre-morbid IQ. Estimated length of PTA will be investigated in the MHI group, using a systematic questionnaire, to give an estimate of the severity of head injury. The control group and GP group will complete a questionnaire to screen for a past head injury or knowledge of a person with MHI.

All participants will be asked to read the vignette and generate symptoms resulting from a MHI.

Phase 2

Half of each group will be asked to complete the standard checklist and half will complete the checklist with the irrelevant items.

All participants will be screened for depression, anxiety and PTSD using the above measures. This is to clarify the source of any non-PCS symptoms reported on the vignette and checklists. As the participants in the control group and the GP group remain anonymous, a general handout on the above syndromes will be given to all participants. Those in the head injury group will be sent specific information leaflets according to their scores on the screening measures.

Participants in the MHI group will be asked to complete the PCSC (Gouvier et al, 1992) as a measure of their own PCS symptoms. If they appear to be suffering from PCS, then they will receive an information sheet detailing the causes, symptoms and treatments available for PCS.

Data analysis

SPSS Version 9.0 (SPSS Inc., 1997) will be used to analyse the data. The descriptive data will be analysed using t-tests for the interval data and chi-squares for the categorical data. One-way ANOVAs will be used to analyse group differences between the number of symptoms related on the vignette and the checklist, the total score on the checklist and number of intrusions on the modified checklist. Chi-squares will be used to analyse the group differences between the number of people above cut-off for PCS on the vignette and the checklist.

The study will also look at the prevalence of depression, anxiety and PTSD in all of the groups and PCS in the MHI group.

Power analysis calculations, based on a study of a similar design to the proposed research (Ferguson, Mittenberg, Barone & Schnider, 1999), using a 1-tailed significance level of 0.05, predicted that a sample size of 90 (30 participants in each group) would result in 0.8 power of detecting a medium effect size.

Practical applications

This study is designed to assess the level of knowledge of naïve laypersons, GPs and people who have suffered a minor head injury. If the results show that there is a deficit of knowledge in one or more of these groups then this may impact on people's expectations of a minor head injury, the support they are receiving from their GP after a MHI or the experience of the symptoms after a MHI which may also lead to mental health problems. These areas could all be helped by general education on MHIs and PCS.

Timescales

Data collection: 3-5 months; *Data analysis*: 1 month

Ethical approval

Ethical approval has been given by the West Glasgow Hospitals University NHS Trust West Ethics Committee (appendix 3.2).

References

Baddeley, A. D., Wilson, B. A., & Nimmo-Smith, I. (1992). *Manual for the Speed and Capacity of Language Processing Test: SCOLP.* Bury St. Edmunds: Thames Valley Test Company.

Burges, C., & McMillan, T. M. (2001). The ability of naïve participants to report symptoms of post-traumatic stress disorder. *British Journal of Clinical Psychology*, **40**, 209-214.

Englander, J., Hall, K., Stimpson, T., & Chaffin, S. (1992). Mild traumatic brain injury in an insured population: Subjective complaints and return to employment. *Brain Injury*, **6**, 161-166.

Ferguson, R. J., Mittenberg, W., Barone, D. F., & Schnider, B. (1999). Postconcussion syndrome following sports-related head injury: Expectation as etiology. *Neuropsychology*, **13**, 582-589.

Gouvier, W. D., Cubic, B., Jones, G., Brantley, P., & Cutlip, Q. (1992). Postconcussional symptoms and daily stress in normal and head injured college populations. *Archives of Clinical Neuropsychology*, **7**, 193-211.

Horowitz, M., Wilner, N., & Alvarez, W. (1979). Impact of Events Scale: A measure of subjective distress. *Psychological Medicine*, **4**, 209-218.

Jacobson, R. R. (1995). The post-concussional syndrome: Physiogenesis, psychogenesis and malingering. An integrative model. *Journal of Psychosomatic_Research*, **39**, 675-693.

King, N. S. (1996). Emotional, neuropsychological and organic factors: Their use in the prediction of persisting postconcussional symptoms after moderate and mild head injuries. *Journal of Neurology, Neurosurgery and Psychiatry*, **61**, 75-81.

Lees-Haley, P. R., & Dunn, J. T. (1994). The ability of naïve subjects to report symptoms of mild brain injury, post-traumatic stress disorder, major depression and generalised anxiety. *Journal of Clinical Psychology*, **50**, 252-256.

Levin, H. S., Mattis, S., Ruff, R. M., Eisenberg, H. M., Marshall, L. F., Tabaddor, K., High, W. M., & Frankowski, R. R. (1987). Neurobehavioural outcome following minor head injury: A three-centre study. *Journal of Neurosurgery*, **66**, 234-243.

McClelland, R. J, Fenton, G. W., & Rutherford, W. (1994). The post-concussional syndrome revisited. *Journal of Research and Social Medicine*, **87**, 508-510.

Middleboe, T., Anderson H. S., Birket-Smith, M., & Friis, M. L. (1992). Minor head injury: Impact on general health after one year. A prospective follow up study. *Acta Neurologica Scandinavica*, **85**, 5-9.

Mittenberg, W., & Burton, D. B. (1994). A survey of treatments for post-concussion syndrome, *Brain Injury*, **8**, 429-437.

Mittenberg, W., DiGiulio, D. V., Perrin, S., & Bass, A. E. (1992). Symptoms following minor head injury: Expectation as aetiology. *Journal of Neurology, Neurosurgery, and Psychiatry*, **41**, 611-616.

Mittenberg, W., Zielinski, R. E., & Fichera, S. (1993). Recovery from mild head injury: A treatment manual for patients. *Psychotherapy in private practice*, **12**, 37-52.

Montgomery, E. A., Fenton, G. W., McClelland, R. J., MacFlynn, G., & Rutherford, W. H. (1991). The psychobiology of minor head injury. *Psychological Medicine*, **21**, 375-384.

Oddy, M., Humphrey, M., & Uttley, D. (1978). Subjective impairment and social recovery after closed head injury. *Journal of Neurology, Neurosurgery and Psychiatry*, **41**, 611-616.

SPSS Inc. (1997). *Statistical Package for the Social Sciences Version 9.0 for Windows*. Chicago, IL: SPSS Inc.

Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, **67**, 361-370.

Chapter 4

Major Research Project

Knowledge of Post-concussional Syndrome: In naïve laypersons, General Practitioners and people with a minor head injury

Running Title: Knowledge of PCS

Prepared in accordance with the instructions for authors from "British Journal of Clinical Psychology" (see appendix 2.1)

Knowledge of Post-concussional Syndrome: In naïve laypersons, General Practitioners and people with a minor head injury

Abstract

Objective: To what extent can people anticipate effects of a minor head injury? Some studies suggest that naïve participants can simulate post-concussional syndrome (PCS) from checklists. However, this ability has not been investigated using a vignette. One study, looking at knowledge of post-traumatic stress disorder (PTSD), found naïve participants unable to simulate PTSD using only a vignette. This study investigates level of knowledge of PCS in people with a minor head injury (MHI), General Practitioners (GPs) and lay controls using both a vignette and two types of checklist. **Design:** Between-groups design. **Method:** Participants in each group self-generated PCS symptoms from a vignette. They then completed one of two checklists pertaining to the vignette. One checklist contained distracter items. Levels of mental health problems were also investigated in each group. **Results:** Only one (3.3%) GP, and none of the control or MHI groups, managed to report PCS on the vignette. More GPs (60%) than controls (20%) or people with a MHI (40%) reported PCS using the checklists. All groups identified a similar number of distracter items. Reported mental health problems were higher in the MHI group than in the other groups. **Conclusions:** People cannot simulate PCS without prompting. The MHI group did not appear to have remembered the information given to them at Accident and Emergency (A&E). Knowledge of PCS in the general public is low. Some GPs may need more current information on PCS and available treatments.

Introduction

There are difficulties with the definition of minor head injury (MHI: Esselman & Uomoto, 1995; Bernstein, 1999). However, the following definition is frequently used: a minor head injury is diagnosed where there is no skull fracture or intracranial mass lesion and the severity of the injury does not exceed the following criteria:

1) loss of consciousness for approximately 30 minutes or less
2) a Glasgow Coma Scale (GCS) score of 13-15 after the first 30 minutes
3) post-traumatic amnesia (PTA) of 24 hours or less

(Mild Traumatic Brain Injury Committee, 1993)

Post-concussional syndrome (PCS) is associated with MHI, and again the definition is not agreed. Different patterns of recovery have been found with PCS (Montgomery, Fenton, McClelland, MacFlynn & Rutherford, 1991), however, at present, the research criteria for PCS in the Diagnostic and Statistical Manual of Mental Disorders (4th ed.: American Psychiatric Association, 1994) does not acknowledge these differences. In the current study, the PCS symptoms investigated were:

1) physical problems - headaches, dizziness, fatigue, visual disturbances and sensitivity to noise
2) cognitive symptoms - memory, concentration and judgement problems
3) psychosocial symptoms - anxiety and irritability

The persistence of PCS has often been associated with malingering (Miller, 1961). However, PCS can occur in the absence of litigation (Jacobson, 1995).

Studies have looked at laypersons' knowledge of PCS using a checklist and have found that they can identify PCS symptoms accurately (Mittenberg, DiGiulio, Perrin & Bass, 1992) or can report the physical symptoms that may occur with PCS but not the cognitive symptoms (Aubrey, Dobbs & Rule, 1989). Lees-Haley and Dunn (1994) report that 63% of their laypersons group could correctly identify 5 or more of 10 symptoms associated with MHI when presented with a checklist. Other studies have found that laypersons and non-expert professionals underestimate the severity, range and permanence of head injury sequelae (Gouvier, Uddo-Crane & Brown, 1988; Willer, Johnson, Rempel & Linn, 1993; Springer, Farmer & Bouman, 1997; Swift and Wilson, 2001). General Practitioners (GPs) have also been found to make overoptimistic assessments of recovery after head injury, especially at 6 months post-injury (Anderson, Housley, Jones, Slattery & Miller, 1993).

Recently, Burges and McMillan (2001) looked at layperson's knowledge of post-traumatic stress disorder (PTSD), using a vignette and two types of checklist – one including irrelevant distracter items. They report that only 1% of their sample could self-generate sufficient symptoms for diagnosis when presented with a vignette but, when presented with a checklist, 90% of the participants were able to 'guess' enough symptoms to fulfil diagnostic criteria. When distracter items were included in the checklist, 6/16 of the irrelevant symptoms were also identified with the syndrome. This indicates that a more efficient way to assess people's knowledge of a syndrome is to make them self-generate the symptoms, rather than use a checklist, which gives them the answers, or to include distracter items in the checklist. This technique may help to identify malingerers.

The first hypothesis of this paper is that the control group will be unable to identify sufficient symptoms of PCS for a diagnosis on the vignette alone. If this hypothesis is proved correct, then it may undermine the "expectation as aetiology" theory of PCS (Mittenberg et al., 1992) and also give more weight to the fact that people are unable to malinger easily (Wong, Regennitter & Barrios, 1994). However, it would link in to the psychosocial theories that anxiety about the cause of the symptoms and a lack of social support, through people not understanding the symptoms of PCS (Kibby and Long, 1996), would increase the likelihood of PCS and may increase the duration of the symptoms. The second hypothesis, that GPs and people with an MHI will be able to generate sufficient symptoms on the vignette, also links in to this latter point. The fourth hypothesis, that the control group and MHI group would identify several of the distracter items on the altered checklist, would also imply that these two groups do not have a clear concept of the symptoms of PCS.

Early intervention and education can affect the outcome of PCS (Paniak, Toller-Lobe, Durand & Nagy, 1998; Paniak, Toller-Lobe, Reynolds, Melnyk & Nagy, 2000; Wade, King, Wenden, Crawford & Caldwell, 1998); therefore, identifying PCS symptoms early could result in faster recovery. To put this into effect, people who have suffered a MHI and GPs would need to have knowledge of the symptoms in order to seek the correct intervention.

This study investigates knowledge about PCS in people who have a minor head injury, GPs and in laypersons, using free recall on a vignette and two types of checklists – one including distracter items. If knowledge is poor, then education could improve speed of recovery from PCS in people with MHI and also help families to better understand what the person with PCS is experiencing and may be more time efficient for GPs as they could save themselves several consultations with the same person over the months following the MHI.

Methods

Participants

Three groups, each of 30 volunteers, were recruited. The control group (laypersons) was recruited from evening classes at local colleges who completed questionnaires at the end of their classes. The GP group was recruited through Local Health Care Co-operatives (LHCCs) and completed questionnaires, either by post or at their practice meetings. The minor head injury (MHI) group was recruited through a local Accident and Emergency (A&E) department and contacted by post. They were sent questionnaires in two batches, as set out below.

To ensure a non-biased, representative sample, the control group was matched to the head injured group by sex, age band and level of general intelligence (categorised into bands, for example, low average/average/high average) post-hoc.

Severity of head injury was assessed by A&E priority ratings and by estimating length of PTA. PTA duration was estimated using a systematic questionnaire developed for this study (see Appendix 3.4). A MHI was defined as loss of consciousness and PTA less than one day, as defined earlier. Local practice follows the Scottish Intercollegiate Guidelines Network (SIGN, 2000) on the early management of head injury, which dictate that people with a head injury and PTA of over 5 minutes are admitted. All people with a MHI receive an information leaflet, about possible symptoms after a MHI on discharge, from the hospital involved in the study.

Exclusion Criteria

1) The control and GP groups did not include people who had suffered a head injury

2) The control group did not include people who were well acquainted with someone who has suffered a head injury

3) The control and MHI groups did not include people who had studied psychology or medicine to degree level

4) The MHI group did not include anyone who had PTA of less than 5 minutes or over 1 day

5) The MHI group did not include people with no loss of consciousness or loss of consciousness more than 30 minutes

6) All participants were over the age of 16

7) No participants had a Learning Disability

8) No participants had a diagnosed mental illness or dementia

Power Calculation

Power analysis calculations were based on a study of similar design to the proposed research (Ferguson, Mittenberg, Barone & Schnider, 1999). Using a 1-tailed significance level of 0.05, a sample size of 90 (30 participants in each group) would result in 0.8 power of detecting a medium effect size of 0.52.

Procedure

Phase 1

All participants gave informed consent (see appendices 3.7 and 3.8). They completed a short demographics questionnaire and a questionnaire developed for this study to screen for a past head injury or knowledge of a person with MHI.

IQ was estimated in the MHI and control groups using the Spot the Word Test (Baddeley, Wilson & Nimmo-Smith, 1992), as this can be administered to groups and is self-explanatory for use in postal returns.

All participants read a vignette (see below), which was developed for this study, and were asked to answer the question at the end.

> A man crashes his car after skidding on some ice but no other cars are involved. He gets a bump on the head and loses consciousness for a few minutes. He is taken to hospital and cannot remember the accident. It is nearly an hour after the crash before the man is no longer confused and his memories of this hour are patchy.

> Apart from some cuts and bruises, he has no physical injuries. The hospital admits him overnight for observation and discharges him in the morning, as he appears to be well.
>
> The man's GP routinely recalls all of his patients who have had a head injury for a check-up one month later. His GP asks him if he has suffered any side effects or symptoms since the crash. What do you think the man would say to his GP?

Phase 2

Participants then completed one of two checklists, again responding to the symptoms the man in the vignette may suffer after one month. One checklist was the Postconcussional Screening Checklist (PCSC: Gouvier, Cubic, Jones, Brantley & Cutlip, 1992; appendix 3.3). The other was based on Gouvier et al. (1992) and developed for this study (see appendix 3.5); it included irrelevant distracter items (Oddy, Humphrey & Uttley, 1978). These two forms of the checklist were randomly distributed within the groups. Half of each group completed the standard checklist and half the modified checklist. A cut-off of six symptoms on the PCSC was used to 'diagnose' PCS. This cut-off was suggested by Sawchyn, Brulot & Strauss (1999), as scoring above this occurred in less than 5% of a normative sample.

To clarify the source of any non-PCS symptoms reported on the vignette or checklists, participants were screened for anxiety and depression using the Hospital Anxiety and Depression Scale (HADS: Zigmund and Snaith, 1983) and for PTSD symptoms using the Impact of Events Scale - Revised (IES-R: Horowitz, Wilner & Alvarez, 1979). The MHI group completed the PCSC (Gouvier et al, 1992) regarding their own current PCS symptoms, in addition to the other two checklists.

Statistical Analysis

SPSS Version 9.0 (SPSS Inc., 1997) was used to analyse the data. The descriptive data was analysed using chi-squares for IQ categories, t-tests for age and a Mann-Whitney test for years of education, as this data was not of a normal distribution. The associations between mental health problems and other factors were analysed using chi-square. A t-test was used to establish if there was a significant difference between the numbers of symptoms reported on the two checklists used.

The distributions of scores was not normal for the number of symptoms reported on the vignette and the number of intrusions identified on checklist 2, therefore, non-parametric tests were used. Chi-square was used to analyse the categorical data and one-way ANOVAs to analyse group differences between the numbers of symptoms related on the checklist and the total score on the checklist. Two types of correlations were used: Pearson's correlation for parametric data and Spearman's correlation for non-parametric data.

Results

Descriptives

Table 1 shows the background characteristics for each group.

Insert Table 1 about here

The GP group had an average of 13.6 years (SD 6.94) of experience in general practice. 33.3% had personal knowledge of MHI, through a close friend or relative.

66.6% of the MHI group did not live with a partner. Consistent with Thornhill et al. (2000), the two major causes of MHI were falls (53.3%) and assaults (23.3%). Road traffic accidents (RTAs) accounted for another 10% of injuries and other accidents, such as sports injuries, accounted for 13.3%. 26.7% reported that they assessed their physical injuries as slight and 66.6% reported them as moderate to bad.

56.7% suffered their MHI whilst under the influence of alcohol. 70% reported drinking alcohol on a regular basis and five men admitted to drinking over the government's safe limit for alcohol per week (28 units). No women reported a large alcohol intake. Half of the MHI group had had previous minor head injuries and two people in this group had suffered a severe head injury in the past.

There were no significant differences between control and MHI groups in age, sex, years of education or IQ ($p > .05$).

PCS Symptom Reporting

There was no significant difference between the numbers of symptoms reported on each of the two checklists ($t(86.72) = 0.58$, n.s.), therefore, the term 'checklist' shall be employed to describe both types of checklist.

Only 1/30 (3.3%) GP, and no controls or people with a MHI, reported enough symptoms of PCS to be above cut-off on the PCSC using the vignette alone. The average number of symptoms reported on the vignette in each group was: GPs 2.5, controls < 1 and people with a MHI < 1. Table 2 shows the frequencies of symptoms being reported on the vignette in each group.

Insert Table 2 about here

When using the checklist, 18 (60%) GPs, 6 (20%) controls and 12 (40%) people with a MHI reported enough PCS symptoms to be above the cut-off. Within each group – GPs, controls and people with a MHI - significant differences were found between the number of symptoms reported on the story alone and the number of symptoms reported on the checklist (Wilcoxon, $T = -7.02$, $p < .01$). On the two checklists, all groups were most likely to report psychosocial symptoms of PCS and then cognitive symptoms and physical symptoms (overall pro-rated reported symptom means = 1.6, 1.3 and 1.1 respectively).

When comparing the GP group and controls, the GP group reported more symptoms on the vignette (Kruskal-Wallis, $H(2) = 21.68$, $p < .01$), more symptoms on the checklist (ANOVA, $F(2, 87) = 3.40$, $p < .05$) and more GPs were above the cut-off on the checklist ($\chi^2(2, N = 90) = 10.00$, $p < .01$). The GP group also reported significantly more symptoms on the vignette than the MHI group (Kruskal-Wallis, $H(2) = 21.68$, $p < .01$). No other significant differences were found between any groups.

In the control and MHI groups, IQ was not associated with the ability to report enough symptoms to achieve above the cut-off for PCS ($\chi^2(4, N = 30) = 6.47$, n.s.; and $\chi^2(5, N = 30) = 2.50$, n.s. respectively). There was a significant positive association in the MHI group between the number of symptoms reported on the checklist for the man in the vignette and the number of symptoms they reported currently suffering, on the PCSC ($r = .67$, $p < .01$).

Table 3 shows the scores obtained on the PCSC, based on the vignette, in each group and the MHI groups' own reported PCS symptoms. The data from Wong et al. (1994) and Sawchyn et al. (1999) have been added for comparison, as both used the PCSC and had large sample sizes.

Insert Table 3 about here

Consistent with Burges and McMillan (2001), all of the distracter items on Checklist 2 were identified by at least one participant. The frequencies of each symptom being identified in each group are shown in Table 4. 80% of the GP group, 46.7% of the control group and 53.3% of the MHI group identified at least one distracter item as possible after a MHI. The average number of distracter items identified in each group was 1.33 (SD = 0.90), 1.53 (SD = 2.47) and 1.80 (SD = 2.51) respectively. Hence on average, participants tended to check 15.6% of the distracter items. The groups did not identify significantly different numbers of distracter items (Kruskal-Wallis $H(2)= 0.94$, n.s.). There was a significant correlation between the number of PCS symptoms ticked on the checklist and the number of distracter items identified ($r_s = .74$, $p < .01$). There was also a significant difference between the number of PCS symptoms reported and the number of distracter items identified (Wilcoxon $T = -4.71$, $p < .01$).

Insert Table 4 about here

Reported Mental Health Problems

In the GP group, 10 (33.3%) reported mild to moderate symptoms of anxiety and one (3.3%) reported mild depression on the HADS. Three (10%) reported suffering psychological distress on the IES-R.

In the control group, 17 (56.7%) reported mild to moderate anxiety symptoms, 4 (13.3%) reported mild depression and 7 (23.4%) reported some symptoms of psychological distress (IES-R).

In the MHI group, 8 (26.6%) reported mild to moderate anxiety, 10 (33.3%) reported severe anxiety, 7 (23.3%) reported mild depression and 5 (16.7%) reported moderate depression. 15 (50%) reported some psychological distress on the IES-R, with about a third above cut-off for caseness on the IES-R, and 12 (40%) were above the cut-off for PCS on the PCSC.

In terms of caseness, more people in the MHI group were anxious ($\chi^2(6, N = 90) = 23.38, p < .01$), depressed ($\chi^2(4, N = 90) = 14.55, p < .01$) and suffering psychological distress (IES-R: $\chi^2(8, N = 90) = 53.33, p < .01$) than the other groups. No significant differences were found between the GP and control groups.

More women in the MHI group were above cut-off for PCS ($\chi^2(1, N = 30) = 5.63, p < .05$). A trend for higher anxiety in women was found in the MHI group ($\chi^2(3, N = 30) = 7.20, p = .066$) with double the amount of women (90%) than men (45%) scoring above cut-off for anxiety on the HADS.

Associations between mental health problems and marital status, cause of injury or the severity of reported physical injuries in the MHI group were not significant (χ^2, $p > .05$).

Discussion

Knowledge of PCS in a free-recall situation (vignette) was poor in all groups with only 1/90 achieving an above cut-off score. This finding is similar to a finding for PTSD (Burges and McMillan, 2001) where only 1/134 laypersons satisfied the DSM-IV (1994) criteria. However, Burges and McMillan (2001) found that the average number of PTSD symptoms reported on the vignette was 2/17, as opposed to < 1/10 in the control group in this study. Also, the increase in the number of symptoms reported, between the vignette and the checklist, in the current control group was not of the same magnitude as the change in the Burges and McMillan (2001) study, although it was significant. This suggests that the general public know more about PTSD than PCS. It would be interesting to compare the amount of publicity each syndrome has gained to see if this may explain these findings.

In contrast to Aubrey et al.'s (1989) finding that laypersons could identify the physical symptoms but not the cognitive symptoms of PCS, the current study found that, on the checklist, all groups reported more psychosocial symptoms than cognitive or physical problems. This may have been due to the presence of a couple of physical symptoms on the checklist that are not obviously associated with a MHI, namely visual disturbances and sensitivity to noise.

Lees-Haley and Dunn (1994) reported that 63.3% of their laypersons group identified 5 or more of 10 symptoms associated with MHI when presented with a checklist. This is far more than the 26.6% in the current control group who reported 5 or more of the 10 symptoms. However, no significant difference was found between the number of symptoms reported by the control and the MHI groups, which could be interpreted as the control group accurately guessing the number of PCS symptoms reported by the MHI group. This finding would be consistent with Mittenberg et al. (1992). The GP group consistently reported significantly more symptoms than the control group on the vignette and the checklist and more GPs achieved above the cut-off for PCS on the checklist. This would be expected as the control group did not contain anyone who had personal or professional knowledge of MHI and GPs should have significantly more experience of people with MHIs than the general public. The GP group also reported significantly more PCS symptoms on the vignette than the MHI group. Although only one of the GPs managed to score above cut-off on the vignette, it was interesting that none of the MHI group generated enough PCS symptoms on the vignette to achieve above cut-off when 40% of this group reported having six or more PCS symptoms on the checklist. However, as Burges and McMillan (2001) note, "research has consistently shown that recall tasks are considerably more difficult than recognition tasks (Baddeley, 1990)" (p.213). Nevertheless, it is interesting that people did not appear to recall their own symptoms. This might be explained by a lack of knowledge in the MHI group as to what symptoms are possible after a MHI; therefore, they may not associate their own symptoms with their MHI. Although a short educational leaflet was handed out to each person who attended A&E with a MHI, participants in the MHI group tended to predict the man in the vignette's symptoms by the symptoms they were currently suffering, as shown on the checklists, and this may mean that they did not remember the information given to them.

The mean total on the PCSC reported by the control group is far below that found in previous research. The data from Wong et al. (1994) were closer to the mean total on the PCSC reported by the current MHI group than the current control group. The difference between the total scores reported by the MHI group on the PCSC, as their own symptoms, and the results found by Sawchyn et al. (1999) may be due to the fact that the average time since injury in Sawchyn et al.'s (1999) study was 5.7 years (SD = 3.9); considerably longer than the average of one to two months in the current study.

No significant differences were found on the number of symptoms reported or the number of people who achieved cut-off for PCS on the two types of checklist used in the current study. This suggests that the presence of distracter items does not affect the reporting of genuine symptoms. This result was also found in the Burges and McMillan (2001) study. In both the current study and Burges and McMillan (2001), a correlation was found between the number of symptoms reported on the checklist and the number of distracter items identified, although the number of each reported were significantly different. This suggests that people who report a lot of genuine symptoms also report a lot of distracter symptoms and they may just be guessing, although they do seem to realise that the PCS symptoms are more likely after a MHI. Interestingly, this also occurred in the MHI group. As the MHI group tended to report a similar number of symptoms for the man in the vignette and themselves, this result suggests that the MHI group may also have been experiencing other symptoms, specifically, difficulty becoming interested in things (6/15), bumping into things (5/15) and nightmares (5/15). 10% of the MHI group reported nightmares on the vignette as well. Two of these symptoms may be explained by the mental health problems reported in this group. 40% reported some symptoms of depression and 50% reported some symptoms of PTSD. The GP group tended to report either nightmares (10/15) or difficulty becoming interested in things (7/15), both of which could occur if the person suffered PTSD and depression or a more severe head injury. Interestingly, these are both symptoms that were reported on the vignette by the GP group (10% and 3.3% respectively). The control group was more varied in the distracter items that were identified, with five out of the ten distracter items being identified by three or more people. This suggests less understanding of the possible symptoms after a MHI. The control group did not identify any of the distracter items on the vignette. As there were no significant differences found between groups in the number of distracter items identified, this method does not appear to be useful to identify malingerers. Other symptoms that were reported on the vignette that are not associated with PCS included whiplash (11.1%), flashbacks (8.9%) and sleep problems (7.8%).

These results show that most people in the control group and MHI group were unable to identify sufficient symptoms of PCS on either the vignette or the checklist to satisfy a cut-off for diagnosis and identified several of the distracter items on the altered checklist. This implies that they do not have a clear idea of what to expect after a MHI and undermines the "expectation as aetiology" theory of PCS (Mittenberg et al., 1992). It also gives more weight to the fact that people are unable to malinger easily (Wong, Regennitter & Barrios, 1994). These findings would also link in to the psychosocial theories that anxiety about the cause of the symptoms and a lack of social support, through people not understanding the symptoms of PCS (Kibby and Long, 1996), would increase the likelihood of PCS and may increase the duration of the symptoms. Interestingly, the GP group also did not manage to generate sufficient symptoms on the vignette but most of them were able to do so on a checklist. This may give concern that GPs would be unable to give people with a MHI the support, education and appropriate treatment that they require.

As no significant differences were found between the number of GPs and controls that had mental health difficulties, this suggests that GPs are not a more vulnerable population than the population in general. However, this does not appear to be consistent with the literature as O'Connor, O'Connor, White and Bundred (2000) report significantly more depression and less job satisfaction in GPs than white-collar workers. This may indicate that the current GP sample is biased due to self-selection. Significant differences were found between the MHI group and the two other groups on the number of mental health problems reported. This would be expected one month after injury as anxiety and depression have been included in some definitions of PCS (Bernstein, 1999) and, by definition, the events that led to most of the MHIs in this group would meet DSM-IV Criteria A (1994) as a traumatic event, which could lead to PTSD. The finding that females in the MHI group are more likely to suffer PCS than males is consistent with the literature (King, 1997). The non-significant trend of females also reporting more anxiety symptoms than males is also consistent with the literature (Roth and Fonagy, 1996). It was interesting to find that marital status, cause of injury and extent of reported physical injuries did not impact on reported levels of mental health problems in the MHI group. Further studies of the levels of mental health problems in a MHI population should be conducted with a larger sample size.

Conclusions

The use of a vignette to assess people's symptoms of PCS appears to lead to under-reporting of PCS symptoms. This may be due to the fact that the MHI group did not associate the symptoms they were suffering with their MHI. GPs also found it difficult to report adequate numbers of symptoms on the vignette but the majority of this group were able to do so on a checklist. This may have been due to the amount of time that the participants in this group spent thinking about possible symptoms, as GPs tend to be very busy. People with a MHI tended to report their own symptoms when thinking about another person in a similar situation. This may lead to a lack of understanding of other people with PCS if they have not suffered PCS after their MHI. It implies that people do not read the information leaflet, given to them as they leave A&E, unless they suffer problems themselves. The lack of knowledge of possible symptoms after a MHI in the laypersons sample indicates that the general public may be surprised if they suffer PCS symptoms after a MHI. This, together with the possibility that the MHI group do not associate their symptoms with their MHI, contradicts Mittenberg et al.'s (1992) "expectation as aetiology" theory. It would be interesting to investigate the alternative theory of "the good old days" (Gunstad and Suhr, 2001), by examining retrospective ratings of PCS symptoms in the MHI group, to see if they think there has been a change in these symptoms since their MHI.

An increase in knowledge, through education, in all of the groups would be useful, as people who suffer PCS may be more likely to seek help if they associate their symptoms with their head injury (Bleeker et al., 1995); family members may be more understanding of their relative's symptoms; and, if GPs were aware that psychological intervention for PCS is effective (Paniak et al., 1998; Paniak et al., 2000; Wade et al., 1998), then they may be quicker in obtaining treatment for their patients.

A limitation of this study was the fact that all of the MHI group and some of the GP group replied by post. This resulted in less control over the stimulus and results; however, this was limited to some degree in the MHI group as the vignette and the checklist were sent out separately. Also, there were no indications that results had been biased due to postal replies, for example, symptoms being copied from the checklist to the vignette in the GP group. In future studies, it would be useful to sit with each participant and answer questions as they completed the forms, and to be able to confirm their reported mental health problems but this was not possible in the current study, due to time constraints. This field of research requires further investigation focussing more on GPs' knowledge of PCS and available treatments and the amount of information retained by the MHI group from the educational leaflet given to them in A&E.

References

Anderson, S. I., Housley, A. M., Jones, P. A., Slattery, J. & Miller, J. D. (1993). Glasgow Outcome Scale: An inter-rater reliability study. *Brain Injury*, 7, 309-317.

American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.). Washington, DC: Author.

Aubrey, J. B., Dobbs, A. R. & Rule, B. G. (1989). Laypersons' knowledge about the sequelae of minor head injury and whiplash. *Journal of Neurology, Neurosurgery and Psychiatry*, **52**, 842-846.

Baddeley, A. D. (1990). *Human Memory: Theory and practice.* Boston, MA: Allyn and Bacon.

Baddeley, A. D., Wilson, B. A. & Nimmo-Smith, I. (1992). *Manual for the Speed and Capacity of Language Processing Test: SCOLP.* Bury St. Edmunds: Thames Valley Test Company.

Bernstein, D. M. (1999). Recovery from mild head injury. *Brain Injury*, **13**, 151-172.

Bleeker, J. K., Lamers, L. M., Leenders, I. M., Kruyssen, D. C., Simoons, M. L., Trijsburg, R. W. & Erdman, R. A. (1995). Psychological and knowledge factors related to delay of help-seeking by patients with acute myocardial infarction. *Psychotherapy and Psychosomatics,* **63**, 151-158.

Burges, C. & McMillan, T. M. (2001). The ability of naïve participants to report symptoms of post-traumatic stress disorder. *British Journal of Clinical Psychology*, **40**, 209-214.

Esselman, P. C., & Uomoto, J. M. (1995). Classification of the spectrum of mild traumatic brain injury. *Brain Injury*, **9**, 417-424.

Ferguson, R. J., Mittenberg, W., Barone, D. F. & Schnider, B. (1999). Postconcussion syndrome following sports-related head injury: Expectation as etiology. *Neuropsychology*, **13**, 582-589.

Gouvier, W. D., Cubic, B., Jones, G., Brantley, P. & Cutlip, Q. (1992). Postconcussional symptoms and daily stress in normal and head injured college populations. *Archives of Clinical Neuropsychology*, **7**, 193-211.

Gouvier, W. D., Uddo-Crane, M. & Brown, L. M. (1988). Base rates of postconcussional symptoms. *Archives of Clinical Neuropsychology*, **3**, 273-278.

Gunstad, J. & Suhr, J. A. (2001). "Expectation as etiology" *versus* "the good old days": Postconcussion syndrome symptom reporting in athletes, headache sufferers, and depressed individuals. *Journal of the International Neuropsychological Society*, **7**, 323-333.

Horowitz, M., Wilner, N. & Alvarez, W. (1979). Impact of Events Scale: A measure of subjective distress. *Psychological Medicine*, **4**, 209-218.

Jacobson, R. R. (1995). The post-concussional syndrome: Physiogenesis, psychogenesis and malingering. An integrative model. *Journal of Psychosomatic Research*, **39**, 675-693.

Kibby, M. Y., & Long, C. J. (1996). Minor head injury: Attempts at clarifying the confusion. *Brain Injury*, **10**, 159-186.

King, N. S. (1997). Mild head injury: Neuropathology, sequelae, measurement and recovery. *British Journal of Clinical Psychology*, **36**, 161-184.

Lees-Haley, P. R. & Dunn, J. T. (1994). The ability of naïve subjects to report symptoms of mild brain injury, post-traumatic stress disorder, major depression and generalised anxiety. *Journal of Clinical Psychology*, **50**, 252-256.

Mild Traumatic Brain Injury Committee of the Head Injury Interdisciplinary Special Interest Group of the American Congress of Rehabilitation Medicine (1993). Definition of mild traumatic brain injury. *Journal of Head Trauma Rehabilitation*, **8**, 86-87.

Miller, H. (1961). Accident neurosis. *British Medical Journal*, **1**, 919-925, 992-998.

Mittenberg, W., DiGiulio, D. V., Perrin, S. & Bass, A. E. (1992). Symptoms following minor head injury: Expectation as aetiology. *Journal of Neurology, Neurosurgery, and Psychiatry*, **41**, 611-616.

Montgomery, E. A., Fenton, G. W., McClelland, R. J., MacFlynn, G. & Rutherford, W. H. (1991). The psychobiology of minor head injury. *Psychological Medicine*, **21**, 375-384.

O'Connor, D. B., O'Connor, R. C., White, B. L., & Bundred, P. E. (2000). The effect of job strain on British general practitioners' mental health. *Journal of Mental Health*, **9**, 637-654.

Oddy, M., Humphrey, M. & Uttley, D. (1978). Subjective impairment and social recovery after closed head injury. *Journal of Neurology, Neurosurgery and Psychiatry*, **41**, 611-616.

Paniak, C., Toller-Lobe, G., Durand, A. & Nagy, J. (1998). A randomised trial of two treatments for mild traumatic brain injury. *Brain Injury*, **12**, 1011-1023.

Paniak, C., Toller-Lobe, G., Reynolds, S., Melnyk, A. & Nagy, J. (2000). A randomised trial of two treatments for mild traumatic brain injury: 1 year follow-up. *Brain Injury*, **14**, 219-226.

Roth, A & Fonagy, P. (1996). *What Works For Whom?: A critical review of psychotherapy research.* NYC: The Guilford Press.

Sawchyn, J. M., Brulot, M. M. & Strauss, E. (1999). Note on the use of the Postconcussion Syndrome Checklist. *Archives of Clinical Neuropsychology*, **15**, 1-8.

Scottish Intercollegiate Guidelines Network (2000). *Early management of head injury*. Edinburgh, UK: Royal College of Physicians of Edinburgh.

Springer, J. A., Farmer, J. E. & Bouman, D. E. (1997). Common misconceptions about traumatic brain injury among family members of rehabilitation patients. *Journal of Head Trauma Rehabilitation*, **12**, 41-50.

SPSS Inc. (1997). *Statistical Package for the Social Sciences Version 9.0 for Windows*. Chicago, IL: SPSS Inc.

Swift, T. L. & Wilson, S. L. (2001). Misconceptions about brain injury among the general public and non-expert health professionals: An exploratory study. *Brain Injury*, **15**, 149-165.

Thornhill, S., Teasdale, G. M., Murray, G. D., McEwan, J., Roy, C. W. & Penny, K. I. (2000). Disability in young people and adults one year after head injury: Prospective cohort study. *British Medical Journal*, **320**, 1631-1635.

Wade, D. T., King, N. S., Wenden, F. J., Crawford, S., & Caldwell, F. E. (1998). Routine follow up after head injury: A second randomised controlled trial. *Journal of Neurology, Neurosurgery and Psychiatry*, **65**, 177-183.

Willer, B., Johnson, W. E., Rempel, R. G. & Linn, R. (1993). A note concerning misconceptions of the general public about brain injury. *Archives of Clinical Neuropsychology*, **8**, 461-465.

Wong, J. L., Regennitter, R. P. & Barrios, F. (1994). Base rates and simulated symptoms of mild head injury among normals. *Archives of Clinical Neuropsychology*, **9**, 411-425.

Zigmond, A. S. & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, **67**, 361-370.

Table 1: Background Characteristics

	Mean Age	Sex M/F (%)	Mean Years of Education	Number studied psychology
GP Group	42.5 (SD 8.43)	15/15 (50/50)	N/A	7 (23.3%)
Control Group	35.27 (SD 11.29)	20/10 (66.6/33.3)	12.55 (SD 2.00)	0
MHI Group	39.77 (SD 15.97)	20/10 (66.6/33.3)	12.13 (SD 2.35)	0

Table 2: Frequencies of symptoms reported on the vignette in each group

Symptom	GP Group (%)	Control Group (%)	MHI Group (%)	Total (%)
No symptoms	4 (13.3)	12 (40)	13 (43.3)	29 (32.2)
Headaches	22 (73.3)	6 (20)	10 (33.3)	38 (42.2)
Dizziness	9 (30)	4 (13.3)	3 (10)	16 (17.7)
Irritability	3 (10)	0	1 (3.3)	4 (4.4)
Memory problems	14 (46.7)	13 (43.3)	6 (20)	33 (36.7)
Difficulty concentrating	11 (36.7)	2 (6.7)	2 (6.7)	15 (16.7)
Fatigue	5 (16.7)	0	1 (3.3)	6 (6.7)
Visual disturbance	1 (3.3)	1 (3.3)	0	2 (2.2)
Aggravated by noise	0	0	0	0
Judgement problems	0	0	0	0
Anxiety	11 (36.7)	1 (3.3)	2 (6.7)	14 (15.6)
Whiplash	6 (20)	1 (3.3)	3 (10)	10 (11.1)
Flashbacks	6 (20)	0	2 (6.7)	8 (8.9)
Sleep problems	6 (20)	0	1 (3.3)	7 (7.8)
Nightmares	3 (10)	0	3 (10)	6 (6.7)
Nausea	1 (3.3)	1 (3.3)	3 (10)	5 (5.6)
Behaving ‘out of character’	3 (10)	0	0	3 (3.3)
Confused	0	0	2 (6.7)	2 (2.2)
Depressed	1 (3.3)	0	1 (3.3)	2 (2.2)
Loss of interest in things	1 (3.3)	0	0	1 (1.1)

Table 3: Scores obtained on the checklist (PCSC) in each group

	GP Group	Control Group		MHI Group		
PCSC	Current study – simulated MHI $N = 30$	Current study – simulated MHI $N = 30$	Wong et al. (1994) – simulated MHI $N = 71$	Current study – simulated MHI $N = 30$	Current study – own symptoms $N = 30$	Sawchyn et al. (1999) – own symptoms $N = 79$
Total	77.93 (SD22.79)	63.4 (SD23.25)	72.62 (SD20.41)	75.80 (SD28.49)	73.13 (SD26.67)	68.15 (SD16.24)
Frequency	24.93 (SD 7.52)	20.47 (SD 7.73)	23.41 (SD 7.56)	24.20 (SD 8.93)	23.93 (SD 9.10)	20.52 (SD 5.45)
Duration	29.17 (SD 9.08)	22.40 (SD 8.70)	25.66 (SD 6.98)	27.43 (SD10.94)	25.83 (SD 9.53)	26.08 (SD 6.36)
Intensity	23.83 (SD 7.10)	20.53 (SD 7.38)	23.55 (SD 6.60)	24.17 (SD 9.44)	23.37 (SD 8.49)	21.50 (SD 5.52)

Table 4: Frequency of distracter items identified in each group

Distracter Item	GP Group (%)	Control Group (%)	MHI Group (%)	Total (%)
Difficulty becoming interested in things	7 (46.7)	3 (20)	6 (40)	16 (35.6)
Felt unwanted	0	1 (6.7)	1 (6.7)	2 (4.4)
Feel the need to keep things tidy	1 (6.7)	4 (26.7)	3 (20)	8 (17.8)
Bump into things	0	3 (20)	5 (33.3)	8 (17.8)
Talk too much	0	2 (13.3)	3 (20)	5 (11.1)
Difficulty speaking	1 (6.7)	1 (6.7)	1 (6.7)	3 (6.7)
Hear voices inside head	0	1 (6.7)	1 (6.7)	2 (4.4)
Nightmares	10 (66.7)	3 (20)	5 (33.3)	18 (40)
Laugh for no reason at all	0	2 (13.3)	1 (6.7)	3 (6.7)
Behave childishly	1 (6.7)	3 (20)	1 (6.7)	5 (11.1)

Chapter 5

Clinical Case Research Study

Abstract

Teaching symbolic play to a child who has autism and good language skills

Running Head: Symbolic Play in Autism

Prepared in accordance with the instructions for authors from "Journal of Autism and Developmental Disorders" (appendix 5.1)

Research Case Study

Teaching symbolic play to a child who has autism and good language skills

Abstract

Symbolic play is often delayed or non-existent in autistic children. This study investigated whether or not a two-week intervention would increase the amount of symbolic play shown by a four-year-old child with Asperger's Syndrome. Significant increases were found in the frequency of the child not playing with the objects provided and the frequency of symbolic play, whereas a significant decrease was found in the amount of time spent on manipulative play. Generalisation of symbolic play was found through the use of three different sets of objects, which had different exposures throughout the two-week intervention. The clinical implications of these results are discussed.

Keywords: autism; symbolic play; intervention

Appendices

Table of contents

Appendix 1.1: Instructions for authors from 'Child Abuse Review'

Instructions to Authors

1. **Initial manuscript submission.** Submit five copies of the manuscript (including copies of tables and illustrations) to: Margaret A. Lynch, *Child Abuse Review*, Guy's, King's and St Thomas' School of Medicine, Newcomen Centre, Guy's Hospital, St Thomas Street, London SE1 9RT. Fax: +44 (0)207 955 8759, e-mail: margaret.lynch@chsltr.sthames.nhs.uk

Authors **must** also supply

- an electronic copy of the final version (see section below),
- a Copyright Transfer Agreement with original signature – without this, we are unable to accept the submission, and
- permission letters – it is the author's responsibility to obtain written permission to reproduce (in all media, including electronic) material which has appeared in another publication.

Submission of a manuscript will be held to imply that it contains original unpublished work and is not being submitted for publication elsewhere at the same time. Submitted material will not be returned to the author, unless specifically requested.

2. **Electronic submission.** The electronic copy of the final, revised manuscript must be sent to the Editor **together with** the paper copy. Disks should be PC or Mac formatted; write on the disk the software package used, the name of the author and the name of the journal. We are able to use most word processing packages, but prefer Word or WordPerfect.

Illustrations must be submitted in electronic format where possible. Save each figure as a separate file, in **TIFF** or **EPS** format preferably, and include the source file. Write on the disk the software package used to create them; we favour dedicated illustration packages over tools such as Excel or Powerpoint.

3. **Manuscript style.** The language of the journal is English. All submissions must have a title, be printed on one side of the paper, be double-line spaced and have a margin of 3cm all round. Illustrations and tables must be printed on separate sheets, and not be incorporated into the text. Their proposed location should be indicated in the text.

- The **title page** must list the full title, the names and affiliations of all authors, and a running headline. Give the full address, including email, telephone and fax, of the author who is to check the proofs.
- Include the name(s) of any **sponsor(s)** of the research contained in the Paper, along with **grant number(s)**.
- Supply an **abstract** of up to 200 words for all Papers, Case Studies and Brief Communications (optional). An abstract is a concise summary of the whole Paper, not just the conclusions, and is understandable without reference to the rest of the Paper. It should contain no citation to other published work.
- Include up to four **keywords** that describe your Paper, for indexing purposes.

Papers (excluding tables and references) should be between 3,000 and 4,000 words (Case Studies around 2,000 and Brief Communications between 1,000 and 1,500). Authors should indicate the word-length of their manuscript at the end.

4. **Reference style.** References should be quoted in the text as name and year within brackets and listed at the end of the Paper alphabetically. Where reference is made to more than one work by the same author published in the same year, identify each citation in the text as follows: (Collins, 1998a), (Collins, 1998b). Where three or more authors are listed in the reference list, please cite in the text as (Collins *et al.*, 1998).

All references must be complete and accurate. Online citations should include date of access. If necessary, cite unpublished or personal work in the text but do not include it in the reference list. References should be listed in the following style:

Conte JR, Schuerman JR. 1987. Factors associated with an increased impact of child sexual abuse. *Child Abuse and Neglect* **11**: 201–211.
Bentovim A, Elton A, Hildebrand J, Tranter A, Vizard E. 1988. *Child Sexual Abuse within the Family: Assessment and Treatment*. Butterworth: London.
Garbarino J. 1981. An ecological approach to child maltreatment. In *The Social Context of Child Abuse and Neglect*, Pelton H (ed.). Human Sciences Press: New York, 17–44
The Geriatric Website, 1999. http://www.wiley.com/oap/[1 April 1999].

5. **Illustrations.** Supply each illustration on a separate sheet, with the lead author's name and the figure number, and the top of the figure indicated, on the reverse. Supply original **photographs**; photocopies or previously printed material will not be used. Line artwork must be high-quality laser output (not photocopies). Tints are not acceptable; lettering must be of a reasonable size that would still be clearly legible upon reduction, and consistent within each figure and set of figures. Supply artwork at the intended size for printing.

The cost of printing **colour** illustrations in the journal will be charged to the author. If colour illustrations are supplied electronically in either TIFF or EPS format, they **may** be used in the PDF of the article at no cost to the author, even if this illustration was printed in black and white in the journal. The PDF will appear on the *Wiley InterScience* website.

6. **Copyright.** To enable the publisher to disseminate the author's work to the fullest extent, the author must sign a Copyright Transfer Agreement, transferring copyright in the Paper from the author to the publisher, and submit the original signed agreement with the Paper presented for publication. A copy of the agreement to be used (which may be photocopied) can be found in the first issue of each volume of *Child Abuse Review* and on the *Wiley InterScience* website at www.interscience.wiley.com. Copies may also be obtained from the journal editors or the publisher

7. **Further information.** Proofs will be sent to the author for checking. This stage is to be used only to correct errors that may have been introduced during the production process. Prompt return of the corrected proofs, preferably within two days of receipt, will minimise the risk of the Paper being held over to a later issue. Twenty-five complimentary offprints will be provided to the author who checked the proofs, unless otherwise indicated. Further offprints and copies of the journal may be ordered. There is no page charge to authors

Appendix 1.2: Information leaflet from Sexual Abuse and Assault Clinic

THE SEXUAL ABUSE CLINIC

What is the sexual abuse clinic?

The sexual abuse clinic provides a specialist service for women and men who were sexually abused as children or young people. we also see people who have been sexually assaulted or raped in adult life.

Do people with other kinds of problems attend the Fernbank Street Clinic?

Yes. The Fernbank Street Clinic provides help for people with relationship difficulties, anxiety. and depression.

Will people know why I am attending the clinic?

No. People with many different kinds of problems attend. Other patients in the waiting area will not know why you are here.

What will happen at my first appointment?

You will meet with a consultant who has a lot of experience helping people with problems relating to sexual abuse. A second therapist may also be present. You will have a chance to talk about your worries for about 45-50 minutes. After that you can have a break and a cup of tea/coffee while the therapists discuss what type of help will be most useful for you. You will then be invited back into the room for 5 minutes to talk about the type of help we can offer.

Can I see a woman therapist?

Most of our therapists are women. If you feel more comfortable seeing a male therapist it may be possible to arrange this.

Will I have to talk about all the details of my abuse at the first appointment?

No. Most people are nervous when they first come along, and we feel it is important that people can talk at their own pace.

Is the service confidential?

Yes. We will of course write back to the person who referred you, to let them know what therapy has been decided. We will also let your general practitioner know. If we are concerned that any children are still at risk of sexual abuse we will want to discuss this with you and your doctor.

Will there be any medical examinations?

No. We provide a therapy service. Any medical examinations would be carried out by your general practitioner.

/.........

What therapy is available?

You may be offered the chance to meet with a therapist for one-to-one therapy. It may be possible for some people to join a group, where they can meet others with similar problems, if they feel this would help. Couple therapy may also be available.

When would I be able to start therapy?

After the first appointment there may be a further wait before a space is available to start therapy. In some cases it may be possible to arrange this more quickly. We will discuss this with you.

How often will I have to come?

May people will come along for just a few meetings, others may attend for longer. We will discuss this with you.

Appendix 1.3a: Table 1 – T-test results for Comparison 1:

Opt-in for assessment vs. not opt-in for assessment

Variables	Opt-in Mean (S.D.)	Not opt-in Mean (S.D.)	t	df	p
Age	33.52 (11.36)	30.00 (8.31)	-2.146	118.51	NS
No. children	1.30 (1.39)	1.12 (1.32)	-0.655	127	NS
No. episodes abuse	1.25 (0.78)	1.17 (0.43)	-0.636	150	NS
Duration of abuse (overall)	4.85 (3.85)	5.15 (4.01)	0.281	78	NS
Age abuse started (episode 1)	11.86 (7.53)	10.48 (5.93)	-0.92	119	NS
No. of abusers (overall)	1.48 (0.91)	1.24 (0.75)	-1.59	81.16	NS

Appendix 1.3b: Table 2 – Chi-square results for Comparison 1:

Opt-in for assessment vs. not opt-in for assessment

Variables		Opt-in	Not opt-in	X^2	df	p
		Obsrvd (expctd)	Obsrvd (expctd)			
Sex	Male	18 (19.3)	10 (8.7)	0.369	1	0.543
	Female	87 (85.7)	37 (38.3)			
Marital Status	Single	34 (36.4)	15 (12.6)	1.424	2	0.491
	Married	46 (45.3)	15 (15.7)			
	Sep/Div	15 (13.4)	3 (4.6)			
Referrer	GP	62 (65.6)	33 (29.4)	1.727	1	0.189
	Other	43 (39.4)	14 (17.6)			
Rereferral	Yes	86 (81.5)	32 (36.5)	3.571	1	0.059
	No	19 (23.5)	15 (10.5)			
Substance Abuse	Yes	21 (27.6)	19 (12.4)	6.986	1	0.008
	No	84 (77.4)	28 (34.6)			
Anxiety	Yes	36 (33.8)	13 (15.2)	0.653	1	0.419
	No	69 (71.2)	34 (31.8)			
Dep.	Yes	65 (60.8)	23 (27.2)	2.24	1	0.134
	No	40 (44.2)	24 (19.8)			
Other mh probs & forens.	Yes	20 (22.1)	12 (9.9)	0.821	1	0.365
	No	85 (82.9)	35 (37.1)			
Type abuse - combined	CSA	73 (76.2)	39 (35.8)	1.755	1	0.185
	ASA	27 (23.8)	8 (11.2)			
Main abuser - combined	'Father'	35 (34.5)	13 (13.5)	0.79	2	0.674
	Other rel.	36 (38.1)	17 (14.9)			
	Acq/Stng	26 (24.4)	8 (9.6)			

Appendix 1.3c: Table 3 – T-test results for Comparison 2:

Attending assessment vs. not attending assessment after opting-in

Variables	Attend Mean (S.D.)	Not attend Mean (S.D.)	t	df	p
Age	34.67 (11.56)	30.22 (10.25)	1.77	103	NS
No. children	1.45 (1.44)	0.76 (1.04)	2.453	43.49	NS
No. episodes abuse	1.31 (0.86)	1.07 (0.47)	1.343	103	NS
Duration of abuse (overall)	4.97 (4.04)	4.27 (2.86)	0.541	61	NS
Age abuse started (episode 1)	11.75 (7.77)	12.26 (6.76)	-0.264	88	NS
No. of abusers (overall)	1.52 (0.99)	1.33 (0.48)	0.829	96	NS

Appendix 1.3d: Table 4 – Chi-square results for Comparison 2: Attending assessment vs. not attending assessment after opting-in

Variables		Attend	Not attend	X^2	df	p
		Obsrvd (expctd)	Obsrvd (expctd)			
Sex	Male	12 (13.4)	6 (4.6)			
	Female	66 (64.6)	21 (22.4)	0.66	1	0.554
Marital Status	Single	24 (27.2)	10 (6.8)			
	Married	42 (36.8)	4 (9.2)			
	Sep/Div	10 (12.0)	5 (3.0)	7.223	2	0.027
Referrer	GP	48 (46.1)	14 (15.9)			
	Other	30 (31.9)	13 (11.1)	0.778	1	0.378
Rereferral	Yes	17 (14.1)	2 (4.9)			
	No	61 (63.9)	25 (22.1)	2.801	1	0.146
Substance Abuse	Yes	10 (15.6)	11 (5.4)			
	No	68 (62.4)	16 (21.6)	9.772	1	0.002
Anxiety	Yes	22 (26.7)	14 (9.3)			
	No	56 (51.3)	13 (17.7)	4.978	1	0.026
Dep.	Yes	48 (48.3)	17 (16.7)			
	No	30 (29.7)	10 (10.3)	0.017	1	0.895
Other mh probs & forens.	Yes	15 (14.9)	5 (5.1)			
	No	63 (63.1)	22 (21.9)	0.007	1	0.935
Type abuse - combined	CSA	56 (54.8)	17 (18.3)			
	ASA	19 (20.3)	8 (6.8)	0.423	1	0.516
Main abuser - combined	'Father'	28 (27.8)	7 (7.2)			
	Other rel.	29 (28.6)	7 (7.4)			
	Acq/Stng	20 (20.6)	6 (5.4)	0.135	2	0.935

Appendix 1.3e: Table 5 – T-test results for Comparison 3:

Therapy straight away vs. put on waiting list for therapy

Variables	Therapy strght away	Waiting list	t	df	p
	Mean (S.D.)	Mean (S.D.)			
Age	33.14 (9.18)	33.97 (13.15)	-0.295	52.55	NS
No. children	1.57 (1.29)	1.43 (1.57)	0.389	63	NS
No. episodes abuse	1.19 (0.47)	1.35(1.02)	-0.848	65	NS
Duration of abuse (overall)	5.3 (4.35)	4.34 (3.73)	0.793	44	NS
Age abuse started (episode 1)	11.34 (7.89)	11.9 (8.33)	-0.266	59	NS
No. of abusers (overall)	1.64 (1.25)	1.35 (0.71)	1.166	56.91	NS

Appendix 1.3f: Table 6 – Chi-square results for Comparison 3: Therapy straight away vs. put on waiting list for therapy

Variables		Therapy strght away	Waiting list	X^2	df	p
		Obsrvd (expctd)	Obsrvd (expctd)			
Sex	Male	3 (4.3)	5 (3.7)			
	Female	33 (31.7)	26 (27.3)	0.963	1	0.456
Marital Status	Single	11 (10.1)	8 (8.9)			
	Married	17 (20.2)	21 (17.8)			
	Sep/Div	7 (4.8)	2 (4.2)	3.443	2	0.179
Referrer	GP	18 (22.0)	23 (19.0)			
	Other	18 (14.0)	8 (12.0)	4.106	1	0.043
Rereferral	Yes	6 (8.6)	10 (7.4)			
	No	30 (27.4)	21 (23.6)	2.228	1	0.136
Substance Abuse	Yes	3 (2.7)	2 (2.3)			
	No	33 (33.3)	29 (28.7)	0.085	1	1.000
Anxiety	Yes	12 (10.7)	8 (9.3)			
	No	24 (25.3)	23 (21.7)	0.451	1	0.502
Dep.	Yes	21 (23.1)	22 (19.9)			
	No	15 (12.9)	9 (11.1)	1.157	1	0.282
Other mh probs & forens.	Yes	7 (7.0)	6 (6.0)			
	No	29 (29.0)	25 (25.0)	0.000	1	0.993
Type abuse - combined	CSA	29 (26.9)	21 (23.1)			
	ASA	6 (8.1)	9 (6.9)	1.504	1	0.220
Main abuser - combined	'Father'	13 (13.4)	12 (11.6)			
	Other rel.	17 (14.0)	9 (12.0)			
	Acq/Stng	6 (8.6)	10 (7.4)	3.146	2	0.207

Appendix 1.3g: Table 7 – T-test results for Comparison 4:

Those who end up in therapy vs. those who do not

Variables	Therapy Mean (S.D.)	No therapy Mean (S.D.)	t	df	p
Age	33.74 (11.34)	31.53 (10.25)	-1.25	160	NS
No. children	1.56 (1.49)	1.02 (1.21)	-2.286	134	NS
No. episodes abuse	1.33 (0.85)	1.16 (0.57)	-1.352	78.31	NS
Duration of abuse (overall)	4.39 (3.13)	5.44 (4.34)	1.25	81	NS
Age abuse started (episode 1)	10.65 (6.03)	12.68 (8.58)	1.567	122.74	NS
No. of abusers (overall)	1.54 (0.95)	1.36 (0.84)	-1.198	142	NS

Appendix 1.3h: Table 8 – Chi-square results for Comparison 4:

Those who end up in therapy vs. those who do not

Variables		Therapy	No therapy	X^2	df	p
		Obsrvd (expctd)	Obsrvd (expctd)			
Sex	Male	7 (10.0)	23 (20.0)			
	Female	47 (44.0)	85 (88.0)	1.657	1	0.198
Marital Status	Single	15 (20.8)	38 (32.2)			
	Married	31 (25.1)	33 (38.9)			
	Sep/Div	7 (7.1)	11 (10.9)	4.930	2	0.085
Referrer	GP	32 (34.3)	71 (68.7)			
	Other	22 (19.7)	37 (39.3)	0.653	1	0.419
Rereferral	Yes	11 (13.2)	28 (25.8)			
	No	43 (40.8)	78 (80.2)	0.709	1	0.400
Substance Abuse	Yes	4 (14.5)	39 (28.5)			
	No	50 (39.5)	67 (77.5)	15.719	1	0.000
Anxiety	Yes	13 (17.6)	39 (34.5)			
	No	41 (36.5)	67 (71.6)	2.638	1	0.104
Dep.	Yes	35 (31.1)	57 (61.0)			
	No	19 (23.0)	49 (45.1)	1.785	1	0.182
Other mh probs & forens.	Yes	12 (11.1)	21 (21.9)			
	No	42 (42.9)	85 (84.1)	0.127	1	0.722
Type abuse - combined	CSA	42 (38.6)	73 (76.4)			
	ASA	10 (13.4)	30 (26.6)	1.767	1	0.184
Main abuser - combined	'Father'	23 (18.9)	27 (31.1)			
	Other rel.	20 (20.4)	34 (33.6)			
	Acq/Stng	11 (14.7)	28 (24.3)	2.971	2	0.226

Appendix 1.3i: Table 9 – Chi-square results for Comparison 5:

Drop out rates for waiting list vs. treatment straight away

Variables	Therapy strght away Obsrvd (expctd)	Waiting list Obsrvd (expctd)	X^2	df	p
DNA/not opt-in	5 (5.1)	7 (6.2)	0.267	1	0.605
Attend	24 (23.2)	24 (24.8)			

Appendix 1.4: Description of the sample, reported mental health problems, referral characteristics and details of abuse histories

Demographics

Sex

Male	18.5%
Female	81.5%

Age — Mean 32.27 years (S.D. 10.64), Range 16 - 63, Modes 26 and 28

Marital status

Single	39.3%
Married/cohab	47.4%
Sep/Divorced	13.3%

No. of children — Mean 1.23 (S.D. 1.34), Range 0 - 6, Mode 0

Reported Mental Health Problems

Substance abuse	27%	Drugs	13%
		Alcohol	11%
		Both	3%

Anxiety	32.5%
Depression	57.5%
Other MH probs & forensic history	20.6%

Referral Characteristics

Source of referral

GP	64%
CMHT	29%
Other	6%
Self	1%

Rereferrals — 24.4%

Details of Abuse Histories

No. of episodes

1	79.5%
2	15%
>2	2.5%

Mean 1.23 (S.D. 0.63), Range 0 - 6, Mode 1

Type of abuse

1st episode

CSA	72%
ASA	25%
CSA to relative	3%

2nd episode

CSA	48.5%
ASA	42.4%
CSA to relative	9.1%

If >1 episode

Diff. types of abuse	32.1%
Same type of abuse	67.9%

Age abuse started

1st episode

Mean 15.08 yrs (S.D. 5.91)
Range 3 - 45

Mode	CSA	8 yrs
	ASA	18 yrs

2nd episode

Mean 11.91 yrs (S.D. 7.76)
Range 5 - 27

Mode	CSA	15 yrs
	ASA	18.5 yrs

Duration of abuse

1st episode

Mean 2.9 yrs (S.D. 3.7)
Range 0 - 20

Mode	CSA	2 yrs
	ASA	N/A

2nd episode

Mean 2.2 yrs (S.D. 3.2)
Range 0 - 10

Mode	CSA	6 yrs
	ASA	N/A

Perpetrators

1st episode

Father figures	32%
Other relatives	38%
Acquaintances	20%
Strangers	10%

2nd episode

Father figures	20%
Other relatives	40%
Acquaintances	27%
Strangers	13%

No. of abusers

1st episode
Mean 1.19 (S.D. 0.66)
Range 1 - 6, Mode 1

2nd episode
Mean 1.18 (S.D. 0.48)
Range 1 - 3, Mode 1

In any 1 episode of abuse 9.3% had more than 1 abuser

Sexes of abusers

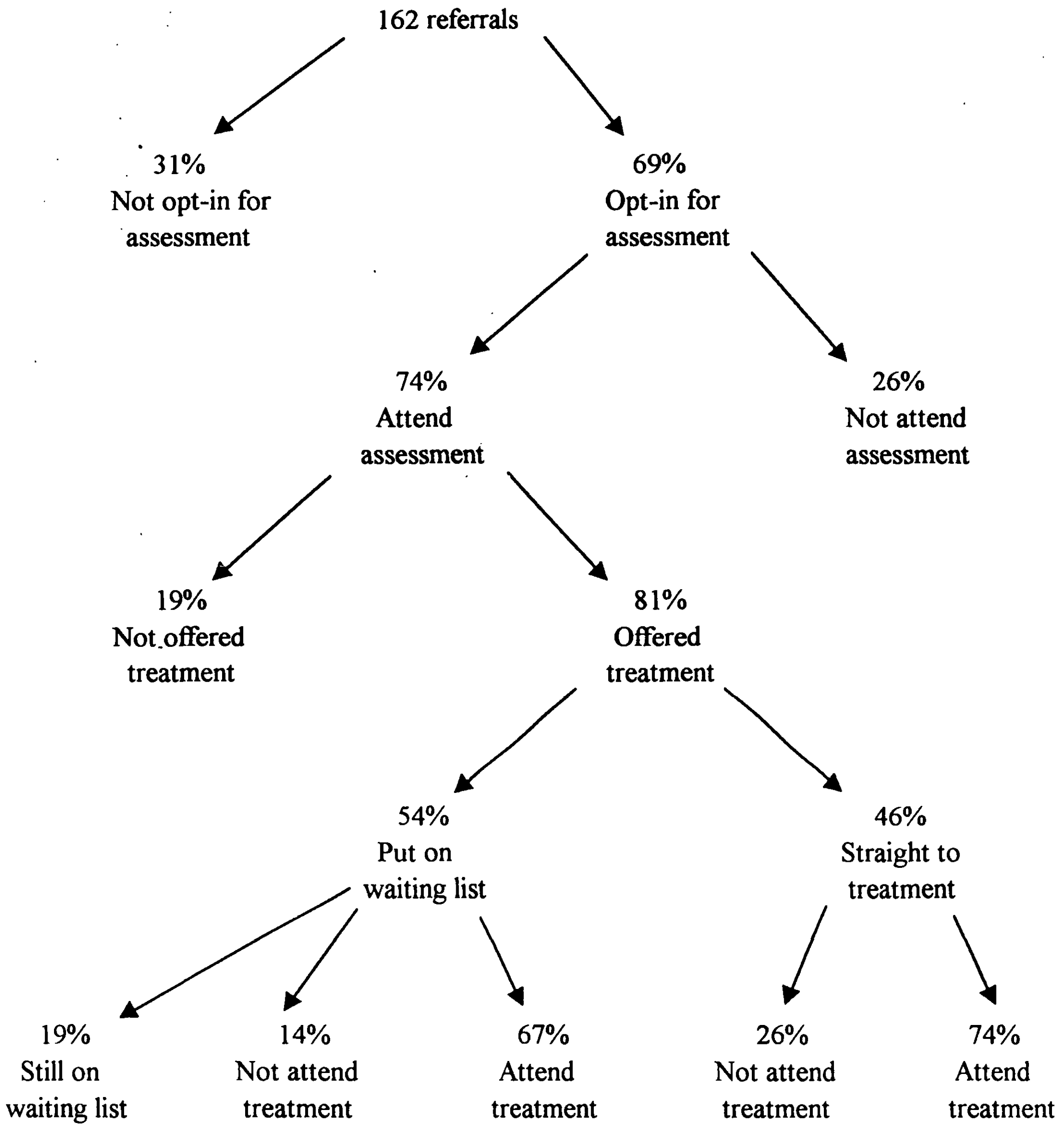
1st episode

Male	97.9%
Female	1.4%
Both	0.7%

2nd episode

Male	97%
Female	3%
Both	0%

Appendix 1.5: Overview of the 'client's journey' through the clinic and the percentage of people in each group comparison



Overall 51.3% of referrals end up in assessment
27.0% of referrals end up in treatment

Appendix 2.1: Instructions for authors from 'British Journal of Clinical Psychology'

NOTES FOR CONTRIBUTORS

1. The *British Journal of Clinical Psychology* publishes original contributions to scientific knowledge in clinical psychology. This includes descriptive comparisons, as well as studies of the assessment, aetiology and treatment of people with a wide range of psychological problems in all age groups and settings. The level of analysis of studies ranges from biological influences on individual behaviour, e.g. neuropsychology, age associated CNS changes and pharmacological (in the latter case an explicit psychological analysis is also required), through studies of psychological interventions and treatments on individuals, dyads, families and groups, to investigations of the relationships between explicitly social and psychological levels of analysis. The general focus of studies is an abnormal behaviour such as that described and classified by current diagnostic systems (ICD-10, DSM-IV) but it is not bound by the exclusive use of such diagnostic systems. The Journal is catholic with respect to the range of theories and methods used to answer substantive scientific problems. Studies of samples with no current psychological disorder will only be considered if they have a direct bearing on clinical theory or practice.

2. The following types of paper are invited:

(*a*) Papers reporting original empirical investigations.

(*b*) Theoretical papers, provided that these are sufficiently related to empirical data

(*c*) Review articles which need not be exhaustive, but which should give an interpretation of the state of the research in a given field and, where appropriate, identify its clinical implications.

(*d*) Brief Reports and Comments (see paragraph 6).

Case studies are normally published only as Brief Reports. Papers are evaluated in terms of their theoretical importance, contributions to knowledge, relevance to the concerns of practising clinical psychologists, and readability. Papers generally appear in order of acceptance, except for the priority given to Brief Reports and Comments.

3. The circulation of the Journal is worldwide, and papers are reviewed by colleagues in many countries. There is no restriction to British authors, and papers are invited from authors throughout the world.

4. The editors will reject papers which evidence discriminatory, unethical or unprofessional practices.

5. Papers should be prepared in accordance with The British Psychological Society's *Style Guide*, available from The British Psychological Society, St Andrews House, 48 Princess Road East, Leicester LE1 7DR, England. Contributions should be kept as concise as clarity permits, and illustrations kept as few as possible. Papers should not normally exceed 5000 words. A structured abstract of up to 250 words should be provided (see Volume 35(2), pp. 323 (1996), for details). The title should indicate exactly but as briefly as possible the subject of the article, bearing in mind its use in abstracting and indexing systems.

(*a*) Contributions should be typed in double spacing with wide margins and only on one side of each sheet. Sheets should be numbered. The top copy and at least three good duplicates should be submitted and a copy should be retained by the author.

(*b*) This journal operates a policy of blind peer review. Papers will normally be scrutinized and commented on by at least two independent expert referees as well as by the editor or by an associate editor. The referees will not be made aware of the identity of the author. All information about authorship including personal acknowledgements and institutional affiliations should be confined to a removeable front page and the text should be free of such clues as identifiable self-citations ('In our earlier work...') The paper's title should be repeated on the first page of the text.

(*c*) Tables should be typed in double spacing on separate sheets. Each should have a self-explanatory title and should be comprehensible without reference to the text. They should be referred to in the text by arabic numerals. Data given should be checked for accuracy and must agree with mentions in the text.

(*d*) Figures, i.e. diagrams, graphs or other illustrations, should be on separate sheets numbered sequentially 'Fig. 1', etc., and each identified on the back with the title of the paper. They should be carefully drawn, larger than their intended size, suitable for photographic reproduction and clear when reduced in size. Special care is needed with symbols: correction at proof stage may not be possible. Lettering must not be put on the original drawing but upon a copy to guide the printer. Captions should be listed on a separate sheet.

(*e*) Biblographical references in the text should quote the author's name and the date of the publication thus; Hunt (1993). They should be listed alphabetically by author at the end of the article according to the following format:

Moore, R. G., & Blackburn, I.-M. (1993). Sociotrophy, autonomy and personal memories in depression. *British Journal of Clinical Psychology*, *32*, 460–462.

Steptoe, A., & Wardle, J. (1992). Cognitive predictors of health behaviour in contrasting regions of Europe. In C. R. Brewin, A. Steptoe, & J. Wardle (Eds.), *European perspectives in clinical and health psychology* (pp. 101–118). Leicester: The British Psychological Society.

Particular care should be taken to ensure that references are accurate and complete. Give all journal titles in full.

(*f*) SI units must be used for all measurements, rounded off to practical values if appropriate.

(*g*) Authors are requested to avoid the use of sexist language.

(*h*) Supplementary data too extensive for publication may be deposited with the British Library Document Supply Centre. Such material includes numerical data, computer programs, fuller details of case studies and experimental techniques. The materials should be submitted to the Editor together with the article, for simultaneous refereeing.

6. Brief Reports and Comments are limited to two printed pages. These are subject to an accelerated review process to afford rapid publication of research studies, and theoretical, critical or review comments whose essential contribution can be made within a small space. They also include research studies whose importance or breadth of interest is insufficient to warrant publication as full articles, and case reports making a distinctive contribution to theory or method. Authors are encouraged to append an extended report to assist in the evaluation of the submission and to be made available to interested readers on request to the author. Figures and tables should be avoided.

7. Proofs are sent to the corresponding author for correction of print, but not for introduction of new or different material. They should be returned to the Journals Manager as soon as possible. Fifty complimentary copies of each paper are supplied to the corresponding author on request: further copies may be ordered on a form supplied with the proofs.

8. Authors should consult the Journal editor concerning prior publication in any form or in any language of all or part of their article.

9. Authors are responsible for getting written permission to publish lengthy quotations, illustrations, etc., of which they do not own copyright.

10. To protect authors and journals against unauthorized reproduction of articles. The British Psychological Society requires copyright to be assigned to itself as publisher, on the express condition that authors may use their own material at any time without permission. On acceptance of a paper submitted to the Journal, authors will be requested to sign an appropriate assignment of copyright form.

Appendix 3.1: Guidelines for completion of a proposal for a mini-grant

1.1 Applicants - names and addresses including the names of co-workers and supervisor(s) if known.

1.2 Title - no more than 15 words.

1.3 Summary - No more than 300 words, including a reference to where the study will be carried out.

1.4 Introduction - of less than 600 words summarising previous work in the field, drawing attention to gaps in present knowledge and stating how the project will add to knowledge and understanding.

1.5 Aims and hypothesis to be tested - these should wherever possible be stated as a list of questions to which answers will be sought.

1.6 Plan of investigation - consisting of a statement of the practical details of how it is proposed to obtain answers to the questions posed. The proposal should contain information on Research Methods and Design i.e.

1.6.1 Subjects - a brief statement of inclusion and exclusion criteria and anticipated number of participants.

1.6.2 Measures - a brief explanation of interviews/observations/ rating scales etc. to be employed, including references where appropriate.

1.6.3 Design and Procedure - a brief explanation of the overall experimental design with reference to comparisons to be made, control populations, timing of measurements, etc. A summary chart may be helpful to explain the research process.

1.6.4 Settings and equipment - a statement on the location(s) to be used and resources or equipment which will be employed (if any).

1.6.5 Data analysis - a brief explanation of how data will be collated, stored and analysed.

1.7 Practical applications - the applicants should state the practical use to which the research findings could be put.

1.8 Timescales - the proposed starting date and duration of the project.

1.9 Ethical approval - stating whether this is necessary and, if so, whether it has been obtained.

Appendix 3.2: Ethical approval for research

West Glasgow Hospitals

PART OF THE NORTH GLASGOW UNIVERSITY HOSPITALS NHS TRUST

WEST ETHICS COMMITTEE
Western Infirmary
Dumbarton Road
Glasgow G11 6NT

Direct Line: 211 6238
Fax: 211 1920

Our Ref: AHT

Your Ref:

Please reply to: Mrs A H Torrie
SECRETARY - WEST ETHICS COMMITTEE

e:mail - andrea.torrie.wg@northglasgow.scot.nhs.uk

22 September, 2000

Ms Janice Mackenzie
Trainee Clinical Psychologist
University Department of Psychological Medicine
Gartnavel Royal Hospital
Glasgow

Dear Ms Mackenzie,

00/135(2) Ms J MacKenzie - Knowledge of Post-Concussional Syndrome; in naïve laypersons, General Practitioners and people with a minor head injury.

The Committee at the meeting held on 19 September, 2000 discussed the above study and approved the study design with the minor amendment of people with previous head injuries being added to the exclusion criteria (Group 3).

The Committee were also of the opinion that the gender should be taken out of the story i.e. make neutral.

This study should also go before the GP Ethics Committee as G Ps are being invited to take part in the study.

The above minor amendments should come back to the secretary for filing. The patient participation section of this study only has been approved.

Please note that the approval contained in this letter is valid for all sites which form part of the North Glasgow Trust. If however, this research is to be carried out at sights within the North Glasgow Trust other than the one covered by this letter, then a covering letter signed by the person responsible for the research on that site should be sent listing names, titles and addresses of all collaborating researchers. A copy of this approval letter should also be passed to them.

It should be noted that although Ethics Committee approval has been granted, Trust Management approval is still required. This should be obtained through the Research & Development Office at Gartnavel General Hospital (Miss W Burton tel No. 0115).

Due to the large volume of trivial and expected Serious Adverse Events (SAEs) being reported to the Committee, the Committee has taken the decision that they only wish to review SAEs where they are

serious and unexpected and where the investigator believes them to be unusual for the study under consideration.

In situations where the study has a Data Monitoring Committee, then the Ethics Committee would only require sight of the summarised data at regular intervals of 6 months rather than individual reports.

In respect of MREC approved studies, only events which fall into the above categories and have occured at our local site should be passed to the Committee. All other events should be reviewed by MREC and should not come before this Committee.

The Committee would like to remind investigators that a copy of the Patient Information Sheet and Consent Form should be given to patient/volunteers for retaining.

Yours sincerely,

Andrea H Torrie

Andrea H Torrie
SECRETRARY - WEST ETHICS COMMITTEE

West Glasgow Hospitals

PART OF THE NORTH GLASGOW UNIVERSITY HOSPITALS NHS TRUST

WEST ETHICS COMMITTEE
Western Infirmary
Dumbarton Road
Glasgow G11 6NT

Direct Line: 211 6238
Fax: 211 1920

Our Ref: AHT

Your Ref:

Please reply to: Mrs A H Torrie
SECRETARY - WEST ETHICS COMMITTEE

e:mail - andrea.torrie.wg@northglasgow.scot.nhs.uk

18 October, 2000

Ms J Mackenzie
Department of Psychological Medicine
Gartnavel Royal Hospital
Glasgow

Dear Ms Mackenzie,

00/135(2) Ms J Mackenzie - **Knowledge of post-concussional syndrome: in naive laypersons, G Ps, and people with a minor head injury.**

The Committee at the meeting held yesterday discussed your letter dated 10th October, 2000 and were generally in agreement with the your reply in respect of the gender issue under point two in your letter. The Committee did however feel that the suggestions under point one in your letter are sub-optimal but did however approved your suggestions.

Kind regards.

Yours sincerely,

Andrea H Torrie

Andrea H Torrie
SECRETRARY - WEST ETHICS COMMITTEE

Incorporating the Western Infirmary, Gartnavel General Hospital,
The Glasgow Homoeopathic Hospital, Drumchapel Hospital and Blawarthill Hospital

West Glasgow Hospitals

WEST ETHICS COMMITTEE
Western Infirmary
Dumbarton Road
Glasgow G11 6NT

Direct Line: 211 6238
Fax: 211 6278

Our Ref: AHT/ LH /0529

Your Ref:

Please reply to: Mrs A H Torrie
SECRETARY - WEST ETHICS COMMITTEE

27 November 2000

Ms J Mackenzie
Clinical Psychologist in Training
Department of Psychological medicine
Academic Centre
Garnavel Royal Hospital
1055 Great Western Road
Glasgow
G12 OXH

Dear Ms Mackenzie

00/135(2) Ms J MacKenzie - **Knowledge of Post-Consussional Syndrome; in naïve laypersons, General Practitioners and people with a minor head injury.**

The Committee at the meeting held on Tuesday 21 November 2000, noted and approved the minor amendments to the questionnaires in respect of the above stated study. As detailed in your letter dated 14 November 2000.

Yours sincerely

Andrea H Torrie

Andrea H Torrie
Secretary - West Ethics Committee

Incorporating the Western Infirmary, Gartnavel General Hospital,
The Glasgow Homoeopathic Hospital, Drumchapel Hospital and Blawarthill Hospital

Appendix 3.3: Postconcussion Syndrome Checklist (Gouvier et al., 1992)

Checklist

The GP gives the man a questionnaire to fill in. Please complete the following questionnaire as if you were the man in the car crash mentioned earlier. Please answer EVERY question.

Please rate the frequency, intensity and duration of each of the following symptoms based on how they affected you today according to the following scale:

FREQUENCY	INTENSITY	DURATION
1= Not at all	1= Not at all	1= Not at all
2= Seldom	2= Vaguely present	2= A few seconds
3= Often	3= Clearly present	3= A few minutes
4= Very often	4= Interfering	4= A few hours
5= All the time	5= Crippling	5= Constant

	FREQUENCY	INTENSITY	DURATION
1. Headaches	_____	_____	_____
2. Dizziness	_____	_____	_____
3. Irritable	_____	_____	_____
4. Memory problems	_____	_____	_____
5. Difficulty concentrating	_____	_____	_____
6. Fatigue	_____	_____	_____
7. Visual disturbances	_____	_____	_____
8. Aggravated by noise	_____	_____	_____
9. Judgement problems	_____	_____	_____
10. Anxiety	_____	_____	_____

Appendix 3.4: Post-traumatic amnesia questionnaire

Remembering things about the accident

Please fill in this questionnaire about your own accident.

How long were you in casualty (A&E)? ________________

Were you admitted to hospital? YES/NO
If YES, how long were you in hospital? _____________
What was your date of discharge (going home)? ________________

Were there any special events for you shortly after the time of your accident?
YES/NO
If YES, what was the special event? ___________________________________
What date did the special event take place on? _______________________

Do you remember:

Being taken to hospital? YES/NO

Being in casualty (A&E)? YES/NO

Being admitted to hospital (if you were admitted)? YES/NO/Wasn't admitted

Going home from hospital? YES/NO

A special event shortly after the time of your accident (if there was one), for example, a birthday?
YES/NO/Was no special event

The following few days after your accident? YES/NO

Appendix 3.5: Modified checklist for post-concussional syndrome containing irrelevant items

Checklist

The GP gives the man a questionnaire to fill in. Please complete the following questionnaire as if you were the man in the car crash mentioned earlier. Please answer EVERY question.

Please rate the frequency, intensity and duration of each of the following symptoms based on how they affected you today according to the following scale:

FREQUENCY	INTENSITY	DURATION
1= Not at all	1= Not at all	1= Not at all
2= Seldom	2= Vaguely present	2= A few seconds
3= Often	3= Clearly present	3= A few minutes
4= Very often	4= Interfering	4= A few hours
5= All the time	5= Crippling	5= Constant

	FREQUENCY	INTENSITY	DURATION
1. Headaches	_____	_____	_____
2. Dizziness	_____	_____	_____
3. Difficulty becoming interested in anything	_____	_____	_____
4. Irritable	_____	_____	_____
5. Felt unwanted	_____	_____	_____
6. Feel the need to keep things tidy	_____	_____	_____
7. Memory problems	_____	_____	_____
8. Difficulty concentrating	_____	_____	_____
9. Bump into things	_____	_____	_____
10. Talk too much	_____	_____	_____
11. Fatigue	_____	_____	_____
12. Visual disturbances	_____	_____	_____
13. Difficulty speaking	_____	_____	_____
14. Hear voices inside head	_____	_____	_____

continued overleaf/

FREQUENCY	INTENSITY	DURATION
1= Not at all	1= Not at all	1= Not at all
2= Seldom	2= Vaguely present	2= A few seconds
3= Often	3= Clearly present	3= A few minutes
4= Very often	4= Interfering	4= A few hours
5= All the time	5= Crippling	5= Constant

<u>Continued</u>:

	FREQUENCY	INTENSITY	DURATION
15. Nightmares	_____	_____	_____
16. Aggravated by noise	_____	_____	_____
17. Judgement problems	_____	_____	_____
18. Anxiety	_____	_____	_____
19. Laugh for no reason at all	_____	_____	_____
20. Behave childishly	_____	_____	_____

Appendix 3.6: Letter to participants in the minor head injury group

Division of Clinical Psychology

Direct Line: 0141-211 3920
Fax: 0141-357 4899
E-mail:

UNIVERSITY
of
GLASGOW

Dear

Following your attendance at Accident and Emergency at Glasgow Royal Infirmary in ___________, I would like to invite you to take part in a study that I am conducting as part of my post-graduate training. This study will look at people's views of the after-effects of an accident. Mr Swann, Consultant in Accident and Emergency Medicine at the Royal Infirmary, has approved this study and knows that I have asked you to take part.

The study involves completing some questionnaires. These will ask you about your accident, your mood and a story about a man in an accident. If you agree to take part, you will be sent two sets of questionnaires, each of which should take about 15 minutes to complete. If you are due to attend Mr Swann's clinic at the Royal Infirmary, then it may be possible to fill in the forms when you are there and you would not be sent the questionnaires.

Please read the enclosed information sheet about the study and, if you are willing to take part in this study, please sign the enclosed consent form and send it back in the Freepost envelope provided (no stamp required) within the next week. If you have any questions about the study, please contact me, Janice Mackenzie, by phoning Chwee French (Secretary) on 0141 211 3920.

All information will be kept confidential and your name will not be connected with the computerised data set that will be used for the study. You can refuse to take part in this study or leave the study at any time without giving a reason and your present or future treatment will not be affected in any way.

I look forward to hearing from you soon.

Yours sincerely,

Janice Mackenzie MA (Hons)
Trainee Clinical Psychologist

Mr I. Swann
Consultant in Accident and Emergency
Medicine
Glasgow Royal Infirmary

DEPARTMENT OF PSYCHOLOGICAL MEDICINE
Academic Centre, Gartnavel Royal Hospital, 1055 Great Western Road, Glasgow G12 0XH
Head of Department: Professor C A Espie

Appendix 3.7a: Information sheet for GP Group

THIS SHEET HAS BEEN APPROVED BY THE WEST ETHICS COMMITTEE

INFORMATION SHEET FOR PATIENTS/VOLUNTEERS IN CLINICAL RESEARCH PROJECT

Brief Title of Project

Are there any after-effects of a minor head injury?

Patient's Summary (Purpose of study, nature of procedure, discomfort and possible risks in terms which the patient or volunteer can understand).

We are inviting you to take part in a research study. Please read the information below and take your time to think about whether you want to take part. If you have any questions about the study, please telephone us.

We are interested in people's views on the after-effects of a minor head injury and we are looking at the differences in the views of the general public, General Practitioners and people with a minor head injury.

No treatment is offered by the study and you will not be asked to undergo any procedures. If you agree to take part, you will be asked to complete several questionnaires, including asking you about your mood and a made-up paragraph about a man in an accident. The questionnaires will take about 15 minutes to complete. All of your answers to our questions will be confidential and no one will be identified by name.

Although this study may not directly be of benefit to you, it is hoped that the results will inform us of the future needs of people with a minor head injury.

If you do not wish to take part in this study, or you wish to withdraw at any time, this will not affect your current or future care from the health services.

If you want to ask anything about this study, please telephone one of the researchers named below on 0141 211 3920.

Researchers:

Janice Mackenzie, Trainee Clinical Psychologist

Professor T.M. McMillan, Professor of Clinical Neuropsychology

University Department of Psychological Medicine
Academic Centre
Gartnavel Royal Hospital
1055 Great Western Road
Glasgow, G12 0XH

Appendix 3.7b: Information sheet for Control Group

THIS SHEET HAS BEEN APPROVED BY THE WEST ETHICS COMMITTEE

INFORMATION SHEET FOR PATIENTS/VOLUNTEERS IN CLINICAL RESEARCH PROJECT

<u>Brief Title of Project</u>

Are there any after-effects of a minor head injury?

<u>Patient's Summary</u> (Purpose of study, nature of procedure, discomfort and possible risks <u>in terms which the patient or volunteer can understand</u>).

We are inviting you to take part in a research study. Please read the information below and take your time to think about whether you want to take part. If you have any questions about the study, please ask me.

We are interested in people's views on the after-effects of a minor head injury and we are looking at the differences in the views of the general public, General Practitioners and people with a minor head injury.

No treatment is offered by the study and you will not be asked to undergo any procedures. If you agree to take part, you will be asked to complete several questionnaires, including asking you about your mood and a made-up paragraph about a man in an accident. The questionnaires will take about 20-25 minutes to complete. All of your answers to our questions will be confidential and no one will be identified by name.

Although this study may not directly be of benefit to you, it is hoped that the results will inform us of the future needs of people with a minor head injury.

If you do not wish to take part in this study, or you wish to withdraw at any time, this will not affect your current or future care from the health services.

If you want to ask anything about this study, please ask me or telephone one of the researchers named below on 0141 211 3920.

Researchers:

Janice Mackenzie, Trainee Clinical Psychologist

Professor T.M. McMillan, Professor of Clinical Neuropsychology

University Department of Psychological Medicine
Academic Centre
Gartnavel Royal Hospital
1055 Great Western Road
Glasgow, G12 0XH

(SC)

Appendix 3.7c: Information sheet for MHI Group

THIS SHEET HAS BEEN APPROVED BY THE WEST ETHICS COMMITTEE

INFORMATION SHEET FOR PATIENTS/VOLUNTEERS IN CLINICAL RESEARCH PROJECT

Brief Title of Project

Are there any after-effects of a minor head injury?

Patient's Summary (Purpose of study, nature of procedure, discomfort and possible risks in terms which the patient or volunteer can understand).

We are inviting you to take part in a research study. Please read the information below and take your time to think about whether you want to take part. **You may sign the form now or send it back to the address below in the next week in the prepaid envelope provided.** If you have any questions about the study, please telephone us.

We are interested in people's views on the after-effects of a minor head injury and we are looking at the differences in the views of the general public, General Practitioners and people with a minor head injury.

No treatment is offered by the study and you will not be asked to undergo any procedures. If you agree to take part, you will either be met at Mr Swann's follow-up clinic, if you are scheduled to attend, or **you will be sent two sets of questionnaires**, including asking you about your accident, your mood and a made-up paragraph about a man in an accident. **Each set of questionnaires will take about 15 minutes to complete and can be sent back in the prepaid envelope provided.** All of your answers to our questions will be **confidential** and no one will be identified by name.

Although this study may not directly be of benefit to you, it is hoped that the results will inform us of the future needs of people with a minor head injury.

A letter will be sent to your General Practitioner to let them know that you are taking part in this study.

If you do not wish to take part in this study, or you wish to withdraw at any time, this will not affect your current or future care from the health services.

If you want to ask anything about this study, please telephone one of the researchers named below on 0141 211 3920.

Researchers:

Janice Mackenzie, Trainee Clinical Psychologist

Professor T.M. McMillan, Professor of Clinical Neuropsychology

University Department of Psychological Medicine
Academic Centre
Gartnavel Royal Hospital
1055 Great Western Road
Glasgow, G12 0XH

(RI)

Appendix 3.8: Consent form

WEST ETHICS COMMITTEE

FORM OF CONSENT FOR PATIENTS/VOLUNTEERS IN CLINICAL RESEARCH PROJECT

Title of Project :

Are there any after-effects of a minor head injury?

By signing this form you give consent to your participation in the project whose title is at the top of this page. You should have been given a complete explanation of the project to your satisfaction and have been given the opportunity to ask questions. You should have been given a copy of the patient information sheet approved by the West Ethics Committee to read and to keep. Even though you have agreed to take part in the research procedures you may withdraw this consent at any time without the need to explain why and without any prejudice to your care.

Consent:

I,………………………………………………………………………………………(PRINT NAME)

of………………………………………………………………………………………(ADDRESS)

give my consent to the research procedures above, the nature, purpose and possible consequences of which have been described to me

by Janice Mackenzie on the information sheet provided

Patient's signature……………………………………………Date…………………