
UNSW Brain Injury Research

Newsletter – March 2005



THE UNIVERSITY OF
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Introduction

Welcome to the 2005 newsletter updating you on the research into acquired brain injuries conducted by Associate Professor Skye McDonald and her research team from the Psychology Department at the University of New South Wales (UNSW). This newsletter is an opportunity for you to see how your involvement is contributing to a better understanding of how the brain processes social and emotional information, both after a brain injury and without injury.

We believe this type of research is extremely important because many people who have acquired a brain injury can have difficulties with both the general and subtle aspects of social interaction. These difficulties can affect self-esteem, mood, confidence in social situations, overall rehabilitation and quality of life. Therefore, by conducting this research and increasing our understanding of how social and emotional aspects are disrupted by brain injury, we anticipate that this knowledge will be used to improve rehabilitation techniques and practical support to those with a brain injury.

The past two years have been particularly busy for us with a large number of research projects being conducted. This newsletter outlines 11 different studies describing what we did, why we did it and what we found. It is important to mention that people with acquired brain injuries are a very varied group, who experience a range of difficulties in differing severity. Even though we know this is the case, we typically analyse the results of all the people with brain injuries together due to the impossibility of recruiting participants with exactly the same types of injuries. In addition, where studies have been submitted for publication, the reference to the article and target journal have been provided in case you are interested in reading more about the study. As it takes a long time for articles to be published, most articles are not

immediately available but will be published in the next year or so.

Many people and agencies have been involved in coordinating and assisting in these research studies. We would especially like to acknowledge the staff at the Liverpool Hospital Brain Injury Unit, especially Adeline Hodgkinson, Anne Pfaff, Diane Martin, Thelma Osoteo, Marcella Forman, Rebecca Bowen, Kim Ferry, Leisa Elliott, Irene Ko, Patty Loukas, Nicole Simon, Aruna Chand and Senerita Tua, Sarah Cotter, Lauren Gillett and Grahame Simpson; the staff at the Royal Rehabilitation Centre at Ryde, especially Clayton King, Carissa Coulston, Jane Turner, Michelle Lammi, Thea Hamieh, and Kate Martin; the staff at the Westmead Brain Injury Unit, especially Ian Baguley, Joe Gurka, Kath McCarthy, Alisa Green, and Alex Walker; the staff at the Rehabilitation Studies Unit, especially Cheryl Soo, Amanda Lane-Brown, and Regina Schultz; the staff at the Commonwealth Rehabilitation Service, especially Jennifer Rollins; and the staff at the Prince of Wales Stroke Unit, especially Alessandro Zagami; who have assisted in recruitment of participants. We would also like to say a sincere thank you to Bankstown Headway, and the Macquarie Centre for Cognitive Science (MACCS) at Macquarie University, for the use of their facilities and equipment during training and assessments.

Several of these projects also represent collaborations with researchers at UNSW and other institutions, in particular A/Prof Robyn Tate of the Rehabilitation Studies Unit at Sydney University, Dr Leanne Togher from the School of Communication Sciences, University of Sydney, Dr Melissa Green from MACCS at Macquarie University and A/Prof Rick Richardson at UNSW.

Participants Needed

The TBI Research Team at UNSW is always looking for people with and without a brain injury to participate in our various studies and treatment groups.

We typically need males and females between the ages of 17 - 50 years.

If you are interested in participating in our research, please contact one of the research assistants on: 9385 3310

Last, but certainly not least, our biggest thanks goes to all of the people with a brain injury and their families, as well as our control participants, who have willingly given of their time and energy to make all of this research possible. We sincerely appreciate your involvement and look forward to working with you all again in the future.

Many thanks!

Skye McDonald and

Helen Bibby, Cristina Bornhoffen, Paul Gertler, Melissa Green, Stuart Hayes, Janet Hodgson, Esther Long, Ingerith Martin, Valerie Rendle, Rick Richardson, Clare Saunders, Robyn Tate, Fiona Taylor and Leanne Togher.



A/Prof Skye McDonald – Head of the UNSW Brain Injury Research team.



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1. Does TBI cause a loss of empathy towards other people?

Investigators: Skye McDonald and Clare Saunders

What the study was about

It is normal to have an empathic reaction to others emotional state. Infants watch their own mother's face to determine how they should respond to emotional situations. Adults usually have a slight change in their own facial expression that matches the expression of the person they are watching. This empathic reaction may, in fact be useful to assist us in recognising what emotion the other person is feeling. Is this feedback available to people with severe Traumatic Brain Injury (TBI)? In this study we examine the facial movements of individuals with severe TBI when watching the facial expression of another.

What we did

We asked 16 people with TBI to come to the University of NSW for this study. Sixteen university students without brain injuries also took part. Participants sat in a comfortable chair and had metal electrodes taped to their face – one on their forehead and one close to their cheek. They also had a gauge placed on their finger (to measure skin temperature, also called skin conductance). Participants watched a series of slides of faces with different expressions after being given: 1) no specific instruction; 2) instruction to identify the age and gender of the individual; and 3) instruction to identify the individual's emotional state.

What we found

There was tremendous variability between participants in this study, in both people with brain injuries and those without. Consequently, we did not find any significant differences between the two groups. However, their average performance levels were consistent with what we had been expecting. That is, the people with TBI performed in a similar fashion to the university students when viewing happy

expressions. Their own cheeks moved (in a smile) and their foreheads relaxed. However, the university students tended to frown when viewing angry faces, whereas the people with TBI did not do this. These results can be seen in Figure 1.1.

Figure 1.1 shows that both people with TBI and without injuries show relaxation of the forehead when viewing happy faces (i.e. lighter shaded bars are lower than when at rest). In contrast, the university students had a little more forehead activity when looking at angry faces, whereas the people with TBI did not.

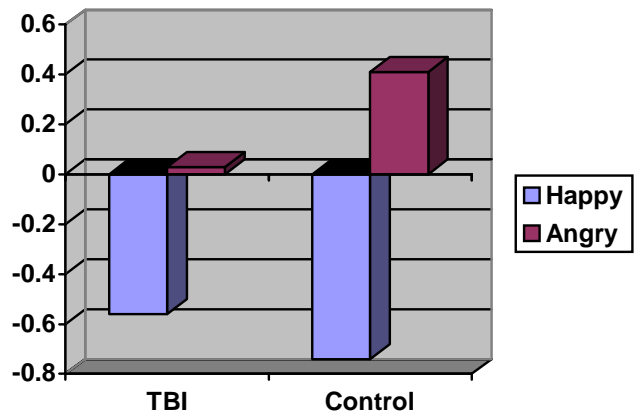


FIGURE 1.1. Mean activity of the *Corrugator supercillii* region when observing two facial expressions for participants with TBI and university student controls.

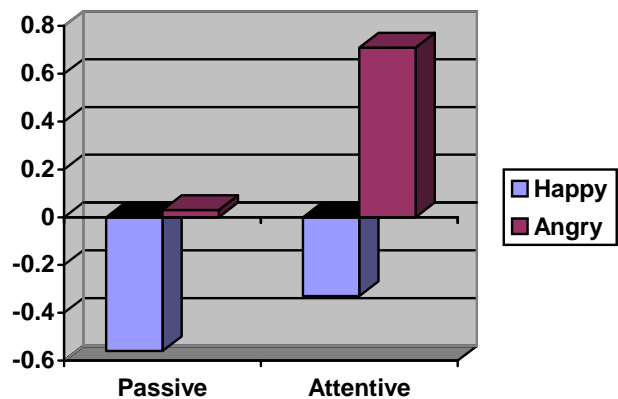


FIGURE 1.2. Mean activity of the *Corrugator supercillii* muscle when observing two facial expressions for the participants with TBI in (a) Passive versus (b) Attentive conditions.

Furthermore, it seems that being asked to attend to the pictures (e.g. to determine the persons age) compared to simply observing the pictures (e.g. when no specific instruction was given), did lead to more facial muscle activity for people with brain injuries. This can be seen in Figure 1.2

Because of the problems with variability in this study we are intending to conduct a different version of this study in 2005 and are looking for volunteers. If you are interested – please contact us on 9385 3310.

To read more about this study:
McDonald, S. (In press). Are you laughing or crying? Deficits in emotion perception following severe traumatic brain injury. Brain Impairment



2. Is it easier to recognise emotion in face or voice?

Investigators: Skye McDonald and Clare Saunders

What the study was about

Recent evidence suggests that there are different systems in the brain for recognising emotional expressions from different media including audio and visual channels, and still versus moving displays. If people with TBI have less difficulty with one form than another, this would be useful to know in order to assist rehabilitation.

What we did

Thirty four adults with severe TBI and 28 adults without brain injuries assisted us with this study. They were asked to judge the emotional state of others from: 1) a normal video recording (face and voice); 2) watching the video of the face without sound; 3) an audiotape of the person's voice alone; and 4) a still photograph of the face.

What we found

The results across the 4 tasks are shown in Figure 2.1.

The TBI group had greater difficulty than controls in interpreting both audiovisual and audio-only displays. In addition, 8 of the 34 individuals could not recognise facial expressions from photographs. In contrast, only one individual was unable to recognise the moving visual displays. Slowed information processing speed, a problem that many with TBI experience, was not the cause for these difficulties. Instead, the results suggest that visual moving displays may use different brain systems to those engaged with still displays, e.g. the parietal cortices. Even though problems with the processing of vocal emotion were present, they were not clearly related to other emotion processing problems. This may reflect problems with the dual demands of listening to both conversational meaning and the tone of the speaker's voice.

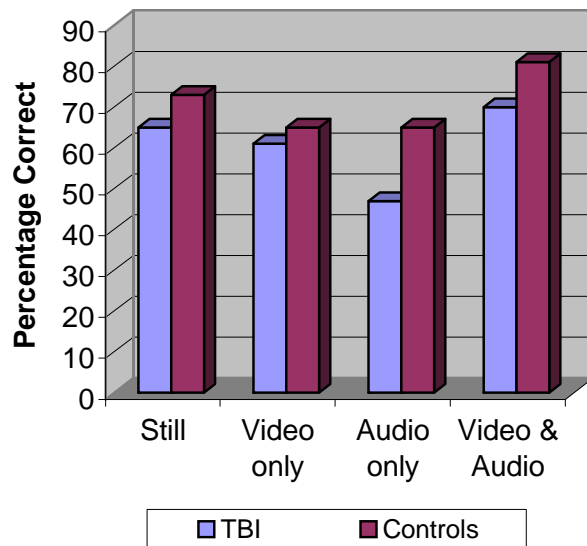


FIGURE 2.1. Percentage correct responses labeling 7 basic emotions on the basis of still photo, video only, audio only and with both audio and visual cues for 34 people with severe TBI matched to 28 control participants.

To read more about this study:

McDonald, S., & Saunders, J. C. (In press). Differential impairment in recognition of emotion across different media in people with severe TBI. Journal of the International Neuropsychological Society.



3. Do people with TBI have normal emotional experiences?

Investigators: Vanessa Croker and Skye McDonald

What the study was about

This study was designed to examine: 1) the extent to which people with a TBI could recognise emotions; 2) whether the provision of context (ie. situational information) facilitated this process, and 3) whether any difficulties recognising emotions in others was related to a loss of the subjective experience of emotion.

What we did

We asked 24 people with severe TBI to perform a number of tasks to assess their ability to recognise emotions in others. They had to match photographs of people according to their facial expression, they had to label the facial expressions of people in photographs, and they had to decide what kind of emotion a person would likely feel in a particular context (e.g. how a person would feel when given a fantastic birthday present). They were also asked to rate how much their own ability to experience emotion had changed - from a marked reduction in feeling that emotion through to a marked increase. Fifteen adults without brain injuries also participated.

What we found

The results for the labelling and matching tasks are shown in Figures 3.1 and 3.2.

Many TBI participants had significant difficulty labelling and matching facial expressions, but experienced some improvement when provided with context. Negative emotions were particularly difficult. The majority of TBI participants reported some change in the post-injury experience of everyday emotion, though the pattern of changes differed greatly between individuals. Reduced subjective experience, especially of sadness and fear, was associated with poor emotion matching but not with emotion labelling.

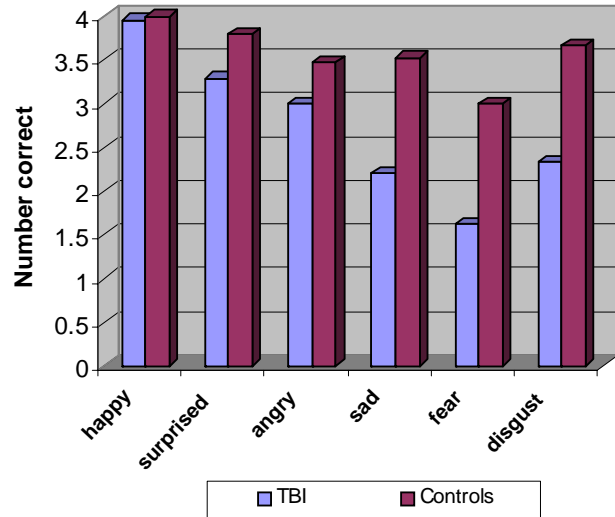


FIGURE 3.1. Performance of TBI (N=24) and control (N=15) participants on emotion labelling task.

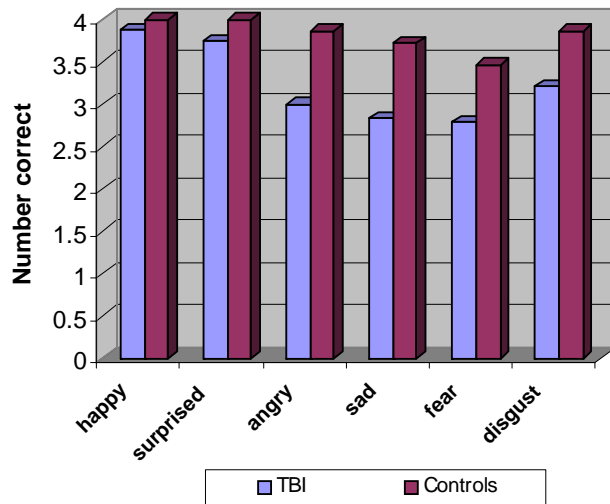


FIGURE 3.2. Performance of TBI (N=24) versus control (N = 15) participants on emotion matching task.

To read more about this study:

Croker, V., & McDonald, S. (In press). Recognition of emotion from facial expression following traumatic brain injury. Brain Injury.



4. Do people with TBI have normal reactions to emotional events?

Investigators: Skye McDonald, Clare Saunders and Rick Richardson.

What the study was about

Following TBI, many individuals have difficulties understanding emotions and emotional cues. We wanted to study these difficulties in order to work out whether all emotions are impaired or just a select few. By better understanding the nature of emotional deficits following TBI, this information may help us to create more appropriate rehabilitation strategies. Therefore, this study examined the impact of TBI on emotional reactions to pictures and faces.

What we did

Thirteen participants with TBI and 24 without injuries watched pleasant, neutral and unpleasant pictures, as well as happy and angry faces. During the presentation of these pictures, participants heard a loud noise (like a balloon popping), which made them blink. We looked at whether the eye blink response changed depending on which picture was being shown at the time. Normally people show a stronger blink response when they see an unpleasant picture, and a weaker response when they see a pleasant picture. Participants also rated each picture according to: 1) how arousing and 2) how unpleasant or pleasant they found it.

What we found

TBI participants did not react to unpleasant pictures in the same way that control participants did, but showed similar reactions to the controls when viewing pleasant pictures. It seems that, following TBI, emotional responses to negative pictures (mainly of mutilated bodies) were impaired, but those to positive pictures were not. In addition, TBI participants rated unpleasant pictures as less arousing, compared with ratings given by control participants.

To read more about this study:

Submitted, but not yet published: Saunders, J.C., McDonald, S., & Richardson, R. Loss of emotional experience after Traumatic Brain Injury? Findings with the startle probe procedure.



Clare and the startle probe equipment.



5. Do people with TBI look at faces in the same way as others?

Investigators: Skye McDonald, Melissa Green and Fiona Taylor

What the study is about

Previous research has indicated that poor patterns of visual scanning are associated with poor ability to recognise emotions. Poor visual scanning patterns commonly occur in people with frontal lobe impairment. Many people who have had a TBI sustain damage to the frontal lobes; however, their ability to scan effectively has never been investigated. This study looks at whether there is a relationship between difficulties recognising emotion and deficits in visually scanning facial features in people with TBI. The results of this study will help us understand more about the kinds of difficulties people with TBI experience in social situations, as well as the normal processes involved in recognising different emotions.

What we are doing

Located at Macquarie University, the visual scanning apparatus is placed on participants' heads and uses cameras and mirrors to track small eye movements whilst both upright and inverted pictures of different facial expressions are viewed on a computer screen. The movement of the eye across the picture is recorded and superimposed onto the picture so we can see where each person was looking at different points in time. In one task participants are asked to identify whether the face is male or female; and in the other 3 tasks they are asked to identify what emotion the person in the picture is expressing.

To date, 18 TBI participants have been involved and 10 control participants. We are currently looking for more control participants for this study. If you are interested, please contact Fiona on 9385 3310.

What we have found

There are no results from this study as yet, as the data has not been fully analysed and we are still looking for control participants. Results for this study will be available in next year's newsletter.



Fiona and the visual scanning headset.



6. Can problems with emotion perception be treated?

Investigators: Cristina Bornhofen and Skye McDonald.

What this study was about

A significant proportion of individuals with TBI demonstrate problems with interpreting emotion-related information from facial expressions, vocal intonation and other nonverbal cues (e.g. hand gestures). The accurate interpretation of these sources of social information is vital for communicating effectively with others, making and maintaining friendships and getting along with family members. Despite this, there has been no investigation to date of whether difficulties in perceiving emotional cues may be successfully remediated. The study aimed to address this question with a group of adult TBI clients.

What we did

Participants were 10 outpatient volunteers (9 male, 1 female) referred by staff members of the Liverpool Hospital Brain Injury Unit. All had experienced a severe traumatic brain injury. Treatment comprised 25 hours (across 8 weeks) of a specifically designed program incorporating a variety of remediation techniques (e.g. repeated practice, role play) shown to be effective with the TBI population. The program emphasised mastery of basic emotion discrimination skills, as well as the use of these skills to aid in the interpretation of social inferences, such as sarcasm and lying in order to be kind to someone.

What we found

As shown in Figure 6.1, the results indicated that participants improved significantly in their ability to judge basic emotional stimuli when presented in a naturalistic format (i.e., video vignettes). A further finding was significant improvement in the ability to identify sarcasm and situations in which the speaker was lying to be kind. These results provide the first evidence that people with severe traumatic brain injuries who experience emotion perception difficulties can be effectively

assisted in improving their ability to accurately interpret emotional cues.

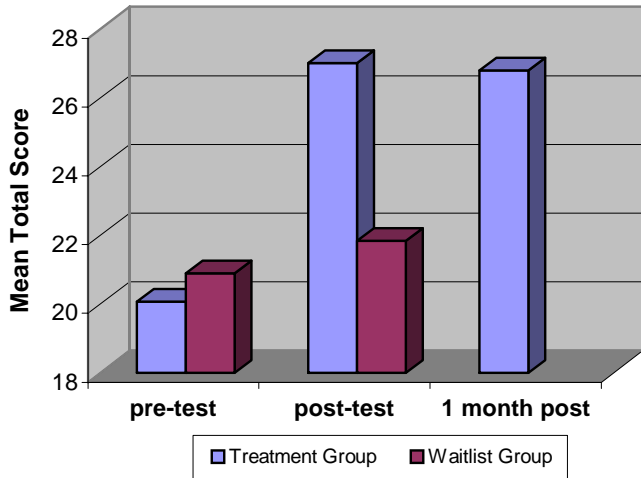


FIGURE 6.1. Scores on a video test of basic emotion perception (TASIT A, Part 1)

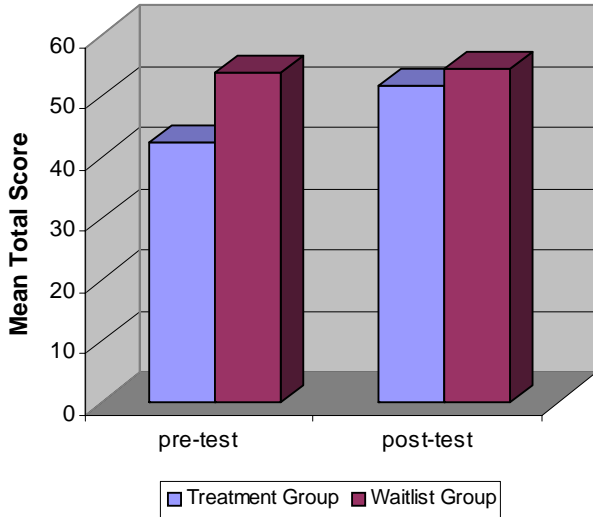


FIGURE 6.2. Results from the Sydney Psychosocial Reintegration Scale (SPRS).



7. Can we teach better social skills?

Investigators: Skye McDonald, Robyn Tate, Leanne Togher, Sharon Flanagan, Cristina Bornhofen, Paul Gertler, Esther Long, Rebecca Bowen

What the study is about

This study aims to develop and evaluate a treatment program for reducing disorders in social skills following severe TBI. We aim to enhance the TBI individual's ability to create a good "first impression" on meeting new acquaintances – e.g., potential employers, work colleagues and social acquaintances – and to engage in behaviour that is mutually rewarding, for themselves and their social partners.

What we are doing

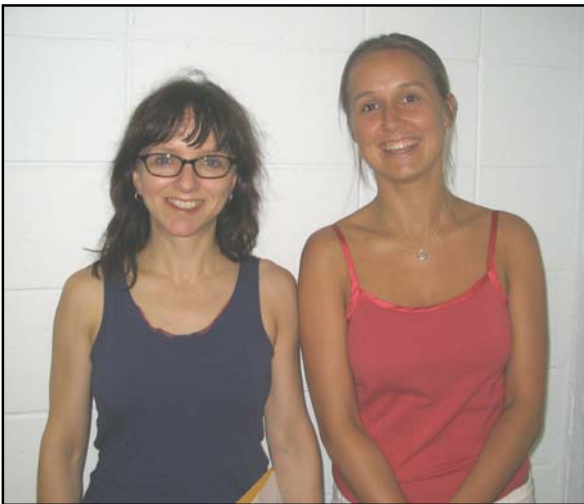
To conduct this study we have developed an integrated treatment approach that addresses cognitive, behavioural and emotional problems, each of which affect social skills in many people with TBI. We are now in the process of evaluating its effectiveness using a randomised control trial over three successive waves. In each wave 15-20 people with TBI are randomly allocated to: (1) the treatment, (2) a social group that has no particular treatment focus or (3) a waitlist. The treatment group and the social group attend weekly group and individual sessions over a twelve-week period. Before treatment commences all participants are assessed on three occasions on a range of measures to evaluate their social skills. These measures include questionnaires filled out by close friends or family, actual social encounters that are videotaped, and performance on some specific tests of social perception. After treatment (or the social group) is over, all participants are again assessed. This assessment is repeated at 6 and 12 months post-treatment. People on the waitlist are offered treatment at a later date.

Thus far we have conducted two waves of treatment. In the first wave 16 individuals from Liverpool Brain Injury Unit agreed to participate and were allocated to groups. These people have completed treatment,

post assessments and their 6-month follow-ups. In the second wave, 18 individuals from Ryde Brain Injury Service agreed to participate and were allocated to groups. The treatment for this wave has recently been completed and post-assessments are underway. In the final wave, individuals from the Westmead Brain Injury service will participate. Potentially interested parties are currently being approached.

What we have found

There are no firm results from this study, as yet, as we need to complete all three waves before we can evaluate the data. However, qualitative feedback from clients who have attended the treatment groups has been very positive. People generally enjoyed the groups and have felt that their ability to participate socially has improved as a result. People who attended the social groups had a good time too!!



Cristina & Esther – group leaders for the social skills study.



8. Can we treat social anxiety?

Investigators: Janet Hodgson, Skye McDonald, Robyn Tate, and Paul Gertler.

What the study was about

Despite the prevalence of psychiatric illness amongst the brain-injured, there are very few empirically validated studies examining the success of treatments targeting depression and anxiety. Social anxiety is particularly common in the acquired brain injury (ABI) population, where problems in social functioning are associated with high social anxiety, poor social performance and poor self-esteem. Therefore, this study evaluated the efficacy of a cognitive behavioural intervention that was specifically designed for managing social anxiety following ABI.

What we did

Twelve brain-injured participants were randomly allocated to either a treatment group or a wait list group. The participants in the two groups were matched on the basis of age, sex, years of education, time-post trauma and specific memory and executive functioning measures. All participants underwent a neuropsychological assessment and completed measures assessing social anxiety, general anxiety, depression, transient mood, and self-esteem on three occasions: 1) before treatment; 2) directly after treatment; and 3) one-month after treatment. The treatment group received 9-14 one hour, individual sessions of cognitive behavioural therapy, which included relaxation, cognitive strategies, graded exposure and training in assertiveness skills.

What we found

Compared to the waitlist group the treatment group showed significant improvements in general anxiety, depression and transient mood at post-treatment and were maintained at the one-month follow-up. Although reductions in social anxiety and self-esteem were in the predicted direction, they were not significant. This study shows that cognitive behavioural interventions may help in managing certain psychological problems,

such as anxiety and depression that are often a barrier to rehabilitation following ABI.

To read more about this study:

In preparation: Hodgson, J., McDonald, S., Tate, R., & Gertler, P. Evaluation of a Cognitive Behavioural Therapy Program for Managing Social Anxiety following Acquired Brain Injury.



9. Can we improve memory for personal experiences?

Investigators: Valerie Rendle, Skye McDonald and Karen Salmon

What the study was about

Social interactions often involve talking about our own or shared past experiences. Having a poor memory can make this part of socialising difficult. After a severe TBI, memory disorders are the most common complaint occurring in over 50% of cases. Finding ways for people with TBI to improve their recall of past events may also improve their functioning in social situations. This study was designed to determine whether the use of reminders, in the form of photographs, could improve recall of past experiences for people with severe TBI.

What we did

Two groups of 10 people with severe TBI viewed videotapes of everyday events. Two days after watching the videos, one group (the 'reminder group') was shown photographic reminders of half of the events but not the other half. They were shown the photographs three times with 10 minutes between each showing. The second group (the 'control group') was not shown any reminders, but completed a 'dummy' activity instead. Then, both groups were assessed on how much they could recall of the videotaped events without any prompting, and also how much they could recall (or recognize) when asked forced-choice questions such as "was the puzzle in the video of a beach scene or of a mountain scene?"

What we found

The reminder group recalled more events for which they had seen photographic reminders. In addition, for those events they could recall, the reminder group remembered more details compared with the control group. The results also showed that using photographic reminders for only half of the events in the videos did not reduce recall or recognition for those events for which a reminder was not given. Therefore, this study has shown that people with TBI can

improve subsequent recall of complex events through the use of partial reminders, in the form of photographs, without leading to an impairment of memories of other events that occurred in the same temporal setting.

To read more about this study

Rendle, V., McDonald, S., & Salmon, K. (In press) Facilitation of memory for events by photographic review for survivors of traumatic brain injury. [Brain Impairment](#)



10. Can people with TBI think about things from someone else's point of view?

Investigators: Helen Bibby and Skye McDonald

What the study was about

The term 'theory of mind' (ToM) refers to the ability to work out, or infer, other people's mental states (e.g. thoughts, beliefs, intentions and desires). 'First order' ToM is being able to infer what another person knows. 'Second order' ToM is more complex and involves being able to infer what one person knows about what another person knows (e.g. Mary thinks that John thinks...). ToM capabilities are important to human social interactions because if we can guess what someone else might know, we can use this knowledge to understand and predict their behaviour, and thus, behave in an appropriate manner in response. This study looked at whether people with severe TBI show a specific impairment in making inferences about other's mental states (i.e. on ToM tasks), or whether they have a more

general impairment in making inferences (i.e. problem solving).

What we did

15 people with TBI and 15 people without injury participated in this study. They were asked questions assessing their ability to make specific mental state inferences (ToM) and more general, non-mental inferences (NMI; ie. about physical cause and effect) in response to verbal material (i.e. using three different types of stories) and non-verbal material (i.e. using two types of cartoons).

See Box 1 for examples of the stories used and Box 2 for examples of the cartoons.

What we found

The TBI group performed more poorly than controls on both specific ToM tasks and general non-ToM problem-solving tasks (see Figure 10.1 and 10.2).

This performance could not be completely explained by memory or language difficulties commonly experienced by people with TBI. Therefore, the difficulties people with TBI have at making inferences about other people's mental states is likely to be due to an overall weakness in inference-making and complex problem-solving although some weakness with ToM cannot be entirely ruled out.

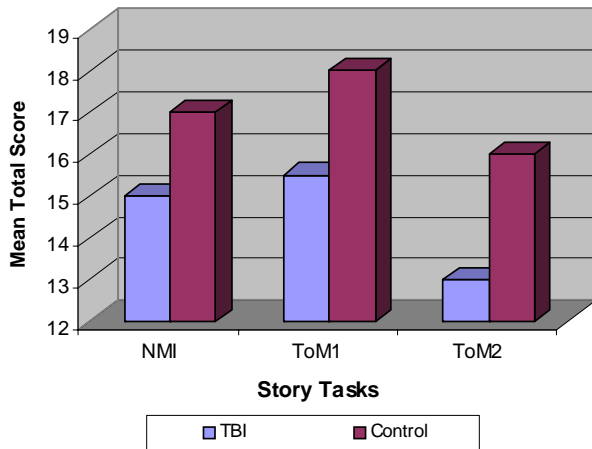


FIGURE 10.1. Mean total score in story tasks for participants with and without TBI.

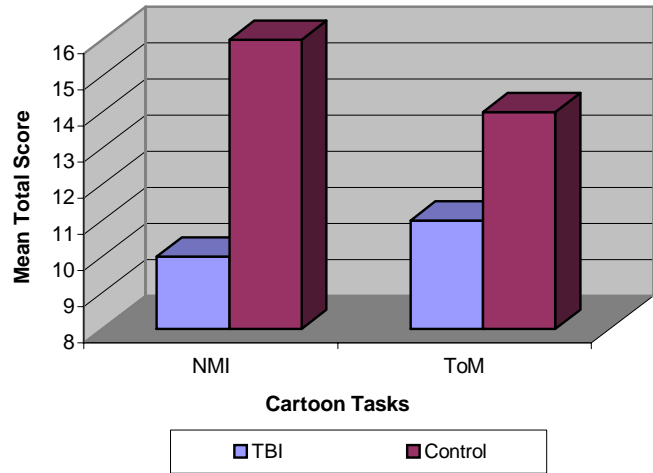


FIGURE 10.2. Mean total score in cartoon tasks for participants with and without TBI.

To read more about this study

Bibby, H., & McDonald, S. (2005) Theory of Mind after traumatic brain injury *Neuropsychologia*, 43, 99-114.



11. Why can't some people with TBI understand sarcasm?

Investigators: Ingerith Martin and Skye McDonald

What this study was about

When we use irony or sarcasm we mean something that is usually opposite to what we actually say. Many people with TBI have difficulty understanding sarcasm, because they commonly have damage to the frontal areas of the brain. The frontal areas of the brain are responsible for our 'executive functions'. Executive functions include attention, abstract thinking and problem-solving/ inference-making. One aspect of inference-making is the ability to make inferences about, or work out, what another person might be thinking. This is called Theory of Mind (ToM) and is believed to be necessary to understand irony and sarcasm. What is unclear is whether problems in ToM capabilities are due to a discrete impairment or are related to a more general impairment

with inference-making. This study investigated the relationship between failure to understand sarcasm, problems with ToM, and problems with more general inference making.

What we did

Sixteen individuals who had sustained a TBI and 16 age and demographic matched controls participated in the study. Participants heard, and could read along with, three different types of stories: 1) stories that required understanding a sarcastic or ironic comment; 2) stories that required understanding someone else's thoughts (ToM) and 3) stories that required making a general inference using logic (rather than knowledge of the character's mental state). See Box 2 for examples of stories used. TBI participants also completed several neuropsychological tests of executive functioning.

What we found

Participants with TBI had difficulty with all tasks. Nonetheless, results suggested that general inferential reasoning ability, rather than specific ToM impairments, accounted for poor comprehension of sarcasm/ irony in TBI.

To read more about this study:

Martin, I., & McDonald, S. (In press). Exploring the causes of pragmatic language deficits following traumatic brain injury. [Aphasiology](#)



BOX 1

Example of a Second Order Theory of Mind Story

John and Mary are in the park when they see an ice-cream truck. Mary would like to buy an ice-cream but has no money with her. The ice-cream man tells her to go home and get her money because he will be staying in the park all day. Mary goes home and John stays in the park. Then the ice-cream man tells John he is moving to the church. He drives off and John goes home. On his way to the church the ice-cream man meets Mary and tells her where he is going. They arrange to meet at the church so Mary can buy her ice-cream. Later John goes to Mary's house. Her sister says she has gone to buy ice-cream. John goes to look for her in the park.

Example Question: What was John thinking when he looked for Mary in the park?

Example of a Non-Mental Inference Story

Betty has been making arrangements for her wedding. She is very happy about the sculpture she has organised for the head table at the reception – a big, glittering swan carved out of ice.

On the morning of the wedding the weather looks perfect. But as the day continues it gets hotter and hotter, and people in the church look sweaty and uncomfortable. Just before the ceremony the reception centre calls Betty to warn her that the air-conditioning unit has broken down, but they are installing fans to cool off her guests when they arrive.

The ceremony goes smoothly, and everyone drives to the reception in good spirits. When they arrive, the room looks beautiful and everyone praise Betty's taste. But when she goes to sit down at the head table, the table-cloth is soaking and all the napkins are soggy. There is a big puddle on the floor.

Example Question: Why is there so much water on the head table?

Box 2

**Example of Theory of Mind Cartoon
Cartoon**Example Question:

- is the man thinking about the piano?

Example of a Non-Mental InferenceExample Question:

- are some models thrown away because they are 'straight'?

Box 3

Example of Sarcasm/ Irony Story

Tom was supposed to be going out on a date with Alice. Tom wanted to go out with the boys instead. He called Alice and told her he had to stay late at work and wouldn't be able to see her that night.

Tom and the boys headed to the pub for a drink. As it happened, Alice was at that same pub having a drink with her friends. She saw Tom and his mates, who were already drunk across the bar. She was so angry that she walked right up to Tom, gave him an angry glare and left straight away.

Tom looked guiltily at Alice as she left. One of his mates turned to him and asked, "Hey does Alice know you are the pub with us tonight?"

The next day, Tom was hung over and had a terrible headache. He called Alice on the phone. She asked him, "So did you get much work done last night?" Tom replied, "*Yes, I worked so late that I feel terrible today*".

Example Question: When Tom said, "*Yes, I worked so late that I feel terrible today*" was he: a) Joking to cover up his embarrassment; OR b) Lying to avoid getting caught.

Example of a Non-Mental Inference Story

Sarah is very long-sighted. She has only one pair of glasses, which she keeps losing. Today she has lost her glasses again and she needs to find them. She had them yesterday evening when she looked up the television programs. She must have left them somewhere that she has been today. She asks Ted to find her glasses. She tells him that today she went to her regular early morning keep fit class, then to the post office, and last to the flower shop. Ted goes straight to the post office.

Example Question: Why is the post office the most likely place to look?

Needed

Control Participants

If you are a family member or friend of someone who has had a brain injury you can be involved in research too!

The TBI Research Team at UNSW is always looking for people without a brain injury to participate as control subjects. We typically need males and females between the ages of 17 - 50 years who have NOT had extensive tertiary education.

If you are interested in participating, please contact one of the research assistants on: 9385 3310.