

**“Almost one in five people will attempt suicide after a TBI”
(Simpson & Tate 2002)**



ACQUIRED BRAIN INJURY AND SUICIDE: Cause for Alarm

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PURPOSE OF THIS REPORT

The purpose of this report is to create awareness of the issue of suicide and people with acquired brain injury; it also flags the issue of acquired brain injury as a consequence of failed suicide attempts. Information is provided as to why people with acquired brain injury (ABI) may be more at risk of suicide and suicide attempts.

This is not a comprehensive report nor does it provide quantitative statistical Tasmanian data. It does however provide the opportunity to highlight this significant issue, and also raises some important issues that could be the impetus for further detailed investigation and research on people with acquired brain injury and suicide and acquired brain injury sustained after failed suicide attempts.

It is acknowledged that suicide is a complex, multi-faceted phenomenon that includes psychosocial, cultural, environmental and psychiatric variables.

The very nature of acquired brain injury and the associated cognitive problems that people may experience after sustaining an ABI renders them particularly at risk of suicide, suicide attempts and suicide ideation (having thoughts of suicide whether or not this includes a plan of action). Of significance is the research which indicates that people with ABI are at 2 to 4 times greater risk of suicidal behaviors than the general population. As reported by Simpson & Tate (2007)¹, "People with severe Traumatic Brain Injury are four more times likely to commit suicide compared with the general population and people with mild injuries (ie concussion) also have an elevated risk of suicide".

Given the numbers of people living with acquired brain injury in Tasmania (see below), the Brain Injury Association of Tasmania (BIAT) believe these findings warrant further investigation and should be included in any studies and/or consultations on suicide prevention strategies.

Grahame Simpson PhD has carried out extensive research on the issue of Traumatic Brain Injury (TBI) and Suicide and his findings are significant in understanding this very important issue. He can be contacted at:

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THE ABI POPULATION IN TASMANIA

BIAT estimate there are in excess of 2,500 Tasmanians acquiring an ABI, across all severities, each year. The actual numbers of Tasmanians who have sustained an ABI is much higher, because many people with acquired brain injuries are undiagnosed.

The most informative data about the ABI population in Tasmania can be drawn from those who report a degree of disablement – activity limitation and/or participation restrictions – as a result of their brain injury. Australian Institute of Health and Welfare (AIHW) analysis of the 2003 Australian Bureau of Statistics (ABS) Survey of Disability, Ageing and Carers indicates that in 2003 there were 12,600 people, across all ages, living with acquired brain injury in Tasmania.

DEFINITIONS

"disability", in relation to a person, means:

- (a) total or partial loss of the person's bodily or mental functions; or
- (b) total or partial loss of a part of the body; or
- (c) the presence in the body of organisms causing disease or illness; or
- (d) the presence in the body of organisms capable of causing disease or illness; or
- (e) the malfunction, malformation or disfigurement of a part of the person's body; or
- (f) a disorder or malfunction that results in the person learning differently from a person without the disorder or malfunction; or
- (g) a disorder, illness or disease that affects a person's thought processes, perception of reality, emotions or judgment or that results in disturbed behaviour;

and includes a disability that:

- (h) presently exists; or
- (i) previously existed but no longer exists; or
- (j) may exist in the future; or
- (k) is imputed to a person.

(Commonwealth Disability Discrimination Act 1992)

An acquired brain injury (ABI) is defined nationally as:

'...injury to the brain that results in deterioration of cognitive, physical, emotional or independent functions. It can occur as a result of trauma, hypoxia, infection, substance abuse, degenerative neurological disease or stroke. These impairments to cognitive abilities, sensory or physical functioning can be either temporary or permanent and cause partial or total disability or psycho social maladjustment' (Acquired Brain Injury Strategic Plan, DHS, 2001:2-3. Cited in Oliver & O'Brien)

Traumatic Brain Injury (TBI)

TBI is defined as an insult to the brain, not of degenerative or congenital nature, caused by an external physical force that may produce a diminished or altered state of consciousness, which results in an impairment of cognitive abilities or physical functioning. It can also result in the disturbance of behavioural or emotional functioning. TBI is the leading cause of death and disability in children and young adults. Shaken Baby Syndrome is a form of TBI. (Brain Injury Association of Texas – www.biatx.org)

Brain Injury vs. Head Injury

Head injury is a general term indicating damage to any part of the head, including the skin covering the skull, face or jaw, or the brain itself. Brain injury is a more specific term indicating damage to brain cells, causing temporary or permanent interruption of their functioning. (Brain Injury Association of Texas – www.biatx.org)

A Cognitive Disability

'The category of cognitive disabilities includes a range of disorders relating to mental process of knowing, including awareness, attention, memory, perception, reasoning and judgement. Cognitive disabilities include intellectual disabilities, learning difficulties, acquired brain injury, fetal alcohol syndrome, dementia, neurological disorders and autism spectrum disorders'. (Human Rights and Equal Opportunity Commission 2005)

Note: Traumatic brain injury is different from intellectual disability and psychiatric illness. Intellectual disabilities are congenital disabilities a person is born with, whereas TBI is acquired at a later stage of life, prior to which the brain functioned normally. Psychiatric illness is due to a patient's brain malfunctioning, possibly due to chemical imbalances. It is not caused by traumatic head injury, and is not the result of physical damage to the brain. People with an ABI do not necessarily experience a decline in their overall level of general intellectual functioning; rather they are more likely to experience significant cognitive changes that lead to limitations in their ability to perceive, recognise, understand, interpret, and/or respond to information.

The Brain Injury Association of Tasmania (BIAT) works state-wide to promote issues related to acquired brain injury (ABI), raise awareness of brain injury and reduce the incidence.

Raising community awareness of brain injury is crucial in the lives of people who are living with an ABI in order that they can receive appropriate and timely services and support. It is also essential in the prevention of ABI, as prevention is the only known cure for brain injury.

BIAT is concerned at the disquieting statistic that people with an ABI are at a two to fourfold greater risk of committing suicide. An acquired brain injury is potentially one of the most devastating disabilities, with a huge range of effects due to the complexity of the brain. These effects can change a person’s physical, cognitive, and emotional well being. Outlined below are some of the common effects that people may experience after sustaining a brain injury and the resulting difficulties experienced. These effects can play a significant role in a declining mental health status, thereby increasing vulnerability to suicide, suicide attempts and suicide ideation.

Although not all individuals experience the same changes or at the same intensity (as every individual’s brain injury varies in the extent and location of the damage), it is essential that staff and practitioners working with people with ABI are adequately trained and fully understand the implications of the effects following brain injury that may lead to impaired cognitive and physical abilities, and feelings of hopelessness and frustration experienced by people with ABI.

Cognitive and Neurological issues	Behaviour and personality changes:	Common lifestyle consequences
<ul style="list-style-type: none"> • Memory problems • Diminished concentration • Easily distracted • Difficulty in planning and organising thoughts 	<ul style="list-style-type: none"> • Impaired self awareness • Inflexibility • Lack of insight 	<ul style="list-style-type: none"> • Financial difficulties • Unemployment • Difficulties in retaining services due to forgetting appointments
<ul style="list-style-type: none"> • Depression • Sleep disturbance • Fatigue • Lack of motivation 	<ul style="list-style-type: none"> • Mood swings • Feelings of hopelessness • Obsessiveness • Self Centredness 	<ul style="list-style-type: none"> • Breakdown of family and social relationships • Poor coping skills • Isolation • Substance abuse
<ul style="list-style-type: none"> • Impulsivity 	<ul style="list-style-type: none"> • Unplanned actions • Disinhibition • Inability to foresee consequences of actions 	<ul style="list-style-type: none"> • Risk of entering the criminal justice system • Risk of suicide attempts • Other risk taking behaviour exacerbated

Table 1: Common effects of acquired brain injury

There can also be a wide range of physical changes including dizziness and unsteady balance, loss of taste and smell, epilepsy and seizures, visual and auditory problems, chronic pain and paralysis.

As previously stated, each individual may experience some or all of these changes differently. However, as illustrated, the common effects can be extremely detrimental to an individual's emotional well being and this does not appear to remedy itself over time. An individual sustaining an ABI may grieve for their previous life before brain injury; a life that may have included many valued social roles such as their employment (therefore ability to be financially independent), being a parent, partner/spouse, and/or friend, and participation in sporting and community organisations. Loss of these roles, particularly employment, family breakdown and isolation from friends carries significant emotional turmoil that can lead to a range of mental health issues including suicide, suicide attempts and suicide ideation.

Suicide, suicide attempts and suicide ideation after an ABI

Considering the above, individuals with an ABI are more at risk of experiencing mental health problems. As suggested by Trevena (2004) there is a higher lifetime chance of major depression occurring in patients with TBI compared with non-injured patients and coupled with this are feelings of hopelessness and feeling worthless.²

Issues faced by people with ABI include unemployment, loss of family and social networks, homelessness, alcohol and substance abuse, entering the criminal justice system and feeling disengaged from the community. These changes can precipitate feelings of isolation and hopelessness and places people living with an ABI at a greater risk of suicide.

Caution must be used when discussing suicide rates and ABI as it is not a common phenomenon, however studies that have been conducted on this issue indicate a higher number of TBI survivors will die of suicide than the general population.³ In fact, it has been widely reported that suicide rates are higher among people with ABI than the general population and in comparison, people with traumatic brain injury have a two to fourfold higher risk of death by suicide and a significantly higher lifetime prevalence rate of suicide attempts.⁴

Research conducted by Simpson & Tate⁵ has also indicated that there are a number of critical indicators of suicide risk for people with ABI including hopelessness (35%), clinically significant levels of suicide ideation (23%) and suicide attempts (18%) among TBI outpatients.

A high level of hopelessness has been suggested as a more powerful indicator of death by suicide and evidence suggests it is a more powerful predictor than depression per se. Levels of suicide ideation increase as levels of hopelessness increase and there is a relationship between the frequency of suicidal ideation and the probability of suicide attempts.⁶

As shown in Table 1, there are many factors that could increase the likelihood of a person living with ABI attempting suicide or having suicidal thoughts and plans. Besides emotional and psychiatric disturbance that is a common risk factor post injury, impulsivity has been suggested has a mitigating risk⁷ as impulsive behaviour is a commonly reported effect of the nature of ABI.

A person with ABI may have limited ability to self-manage mood state, impaired self-regulation of behaviour, and may also experience problems in selecting behavioural alternatives. Conceptual rigidity and impulsivity have been highlighted as having the potential to increase vulnerability to suicide.⁸

Following brain injury an individual has to negotiate an array of challenges, not only in how they react to certain situations and others, but also in forming and maintaining relationships, managing their own emotions and regaining the skills to know how to deal with these problems. Without appropriate supports, they may find themselves isolated and helpless.⁹

Age, sex and injury variables

Of significance, vulnerability to suicide in the ABI population cannot be judged on age, sex, severity of injury or length of time since acquiring the ABI. Suicide can be a life long risk for any individual post injury.

As noted in a survey conducted by Simpson & Tate 1999¹⁰, it was found from a sample of 130 outpatients of the Brain Injury Rehabilitation Unit NSW, that:

- Results of the statistical analysis suggest that a young person (eg. 18 years of age) who sustains a TBI is at no greater risk of becoming suicidal than an older person sustaining a TBI (eg. 55 years of age)
- People are equally likely to have a suicidal reaction regardless of whether their injury is mild or severe
- People with TBI may exhibit suicidal ideation at any time post-injury (evidence suggests that people can be equally at risk of suicide at any time from 12 months through to 20 years after TBI).
- No significant gender differences were found in the levels of hopelessness or suicide ideation
- Evidence suggests that people who make suicide attempts post-injury rarely have a pre-injury history of making attempts.

These findings are important in the consideration, planning and implementation of appropriate services and supports for people with ABI. Further, it is imperative that training and education for staff and practitioners who support people with ABI includes an awareness of the above findings. Considering, as previously discussed, that people with ABI are in a higher risk group for suicide, the importance of appropriate supports and appropriately trained staff cannot be underestimated, particularly in mental health services.

Appropriate supports

Across Australia, people with ABI have difficulty accessing mental health/psychiatric services even though they “have greater risk post-injury of developing depressive illness..... than the general population”.¹¹

As noted in a report by Trevena 2004¹² , in a cohort study conducted by Rapoport, McCullagh, Streiner & Feinstein, of 170 TBI patients who experienced major depression they had lower self-reported psychosocial function, greater psychological distress, more post concussive symptoms and greater neurobehavioral disturbances. The report concluded that major depression can affect multiple domains in TBI patients.

It should therefore be of significant concern that people with ABI have immense difficulty accessing appropriate services and supports and are falling through the gaps of service provision. Criteria for programs and services are often not inclusive of people with ABI and due to a general lack of awareness of what constitutes ABI, coupled with often restrictive legislation around eligibility criteria, people with ABI, particularly those experiencing mental health issues (that can lead to suicide tendencies), are often put at huge risk in our society. Further, people with ABI who may also have alcohol and substance abuse problems have compounded issues added to an already newly complex world that they have to negotiate.

It is essential that people with ABI receive timely supports and services that can effectively deliver appropriate intervention in suicidal individuals. The very nature of ABI and associated challenges (see Appendix 1) can be misinterpreted as challenging or attention seeking behaviour. It is therefore imperative that this very significant issue is brought to the attention of governments, policy makers, the general community and staff in a range of agencies that have direct contact with individuals with ABI.

As stated by the Acquired Brain Injury Outreach Service Queensland¹³, “Given the multiplicity of risk factors for people with brain injury, the provision of appropriately targeted and tailored mental health strategies is vital. However access to specialist psychiatric assessment and treatment is very difficult, especially for people with Traumatic Brain Injury. Mainstream psychiatric services don’t have a high level of interest in TBI and many ABI services have limited scope for targeted psychiatric treatments especially in the context of behavioural challenges.”

Given research findings showing high levels of a spectrum of suicidal behaviour ranging from hopelessness to suicide ideation, suicide attempts and death by suicide as a response to TBI, the development of suicide prevention training that directly targets staff (and agencies such as mental health services and drug and alcohol services) (sic) in the field is crucial.¹⁴

As previously discussed, as suicide attempts/ideation is not limited to particular times post-injury, nor limited to specific age cohorts, ongoing supports and services are crucial in the lives of people with ABI. This also extends to the areas of employment, education and meaningful and valued societal activities and roles.

As noted by Simpson ¹⁵ "It has been suggested that resuming meaningful activity is central to re-establishing a valued identity post-injury. Further, reduced neuropsychological resources to compromise an individual's adaptation post TBI can thereby result in elevated distress and increased suicide risk".

ABI as a result of failed suicide attempts

As well as suicide risk after sustaining an ABI, there is also a significant risk of sustaining an ABI following failed suicide attempts. Causes of suicide attempts related to TBI include intentional single vehicle attempts, hanging, overdose/poisoning, firearm injuries, near drowning, and electrocution.

Literature reviewed for this report indicates that hypoxic brain injury - a partial lack of oxygen to the brain - can also occur as a result of failed suicide attempts. Of particular relevance is brain injury sustained from Carbon Monoxide poisoning.

Noted in a Fact Sheet published by the Family Caregiver Alliance¹⁶, Carbon Monoxide poisoning, which appears to damage parts of the brain controlling movement, occurs in suicide attempts using automobile exhaust.... Even when a person has fully recovered consciousness, he or she might suffer from a long list of symptoms, in many ways these symptoms are similar to those commonly seen after a blow to the head. The effects can vary widely, but some of the cognitive (thought) problems are:

- Short-term memory loss
- Decline in executive functions such as reasoning, making judgments and synthesizing information that can lead to impulsive behaviour and poor decision making
- Difficulty with words also known as *anomia*
- Visual disturbances and a range of physical deficits including but not limited to; a lack of coordination, jerky motions, trembling, weakness of the arms and legs

As reported by Monash University¹⁷ "In 1996 carbon monoxide poisoning from motor vehicle exhaust gas was the second major method of suicide (in Australia), accounting for almost 22% of suicides. For some survivors there were lasting effects on the heart and the brain".

In addition to carbon monoxide poisoning, hypoxic brain injury can also be caused by a range of other factors. Of relevance to this report are those linked to failed suicide attempts: the brain can be starved of oxygen by overdoses (medications and alcohol) and other chemicals, (Simpson & Tate 2007 state that most suicide deaths and attempts now involve self-poisoning from, which is they say not surprising since that up to 80% of TBI patients use medication)¹⁸, near drowning, gunshot injuries, strangulation of the neck (attempted suicide by hanging) and electrocution.¹⁹

The unintended consequences of failed suicide attempts can, for some people, bring an array of future difficulties and complexities in which they must negotiate. Included in these complexities are accessing appropriate services that may already be under resourced or indeed ill equipped to deal with mental health issues (that can lead to suicide) with individuals with an ABI. They may also experience breakdowns in their family and social networks, unemployment, financial hardship, alcohol and substance abuse and homelessness. The high level of anxiety and stress that derives from these issues can easily lead to hopelessness.

Simpson ²⁰ speaks of these challenges and mentions a poem written by a person with TBI. The poem conveys the dilemma of facing multiple adaptive challenges that have to be negotiated post-TBI, but with reduced neuropsychological resources to undertake this process and in the light of this, how imminent and inviting the possibility of suicide can be.

Perhaps the poem reflects the feelings of many people with ABI/TBI and that is why it is crucial that the issue of suicide in this cohort is taken seriously and prompt attention is given to it. As discussed in this report, research has revealed that people with ABI are at 2 to 4 times the risk of committing suicide than the general population; this figure should make us all very alarmed.

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Appendix 1

IMPACT OF BRAIN INJURY

The number and severity of problems resulting from a brain injury will differ from person to person because each individual's brain varies in the extent and location of damage. The extent of some of these changes may only become apparent as time progresses.

Cognition

Cognition is the conscious process of the mind by which we are aware of thought and perception, including all aspects of perceiving, thinking and remembering. In general, cognition is knowledge – the way we learn and perceive the world around us.

Lack of insight

People with brain injury may have great difficulty seeing and accepting changes to their thinking and behaviour. The person may deny the effects of the injury and have unreasonable expectations about what they are able to do.

Memory problems

There are many ways memory can be affected. The most common is loss of short term memory, with problems in remembering people's names or appointments, passing on messages, or remembering details read in a book or newspaper. In therapy the person may forget what they are doing from one session to the next.

Poor concentration

A very common outcome is a tendency to lose concentration or be easily distracted from what the person is doing. This is usually because they are having difficulty concentrating. The person may have a short concentration span, which means they might jump from one thing to the next.

Slowed responses

The person with brain injury may be slower to answer questions or to perform tasks and may have difficulty keeping up in conversation. Their capacity to respond quickly in an emergency may also be lost.

Poor planning and problem solving

People with brain injury may have difficulty solving problems and planning and organising things they have to do. They may encounter trouble with open ended decision making and complex tasks may need to be broken down into a step by step fashion.

Lack of initiative

In spite of all good intentions, a person with brain injury may sit around at home all day and watch TV. If the problem is severe they may need prompting just to have a shower and get dressed or participate in conversation.

Inflexibility

People with brain injury can be very inflexible in their thinking. They can't always change their train of thought, so they may tend to repeat themselves or have trouble seeing other peoples' point of view. They may not cope very well with sudden changes in routine.

Impulsivity

People with a brain injury can be very impulsive because they may have lost the filtering system or control that makes them stop and think before jumping in. This can lead to a wide range of behavioural issues and problems with relationships and finances.

Irritability

People with brain injury tend to have a low tolerance for frustration and can lose their temper easily. If kept waiting for an appointment they may become agitated and walkout. They may become unreasonably suspicious and paranoid.

Socially inappropriate behaviour

People with brain injury may have difficulty judging how to behave in social situations. They may walk up to strangers and start telling them about their accident, they may be over familiar with therapists or they may make inappropriate sexual advances. This area can be incredibly difficult for families or partners. In more severe cases the person will often end up homeless or in the correctional system.

Communication

A broad range of social skills may be affected by a brain injury including the ability to start or take turns in conversation, interpret and respond to social cues, show interests in others, use humor appropriately, shift between topics or conversation and regulate the volume and tone of voice. People with brain injury often lose their listening skills and may talk excessively. Accompanying memory problems may mean that they often repeat topics.

Self-centeredness

People with brain injury will often appear to be self centered and may be very demanding and fail to see other peoples' point of view. When this happens resentment can build up from family members, and it is a key cause of losing friends and having trouble establishing new friendships.

Dependency

One of the possible consequences of self centeredness is a tendency for the person with brain injury to become very dependent on others. The person may not like being left alone, and constantly demand attention or affection.

Emotional lability

Just as people with brain injury have difficulty controlling their behaviour, they may also have difficulty controlling their emotions. They may cry too much or too often or laugh at inappropriate times, or they may suffer rapid mood changes, crying one minute and laughing the next.

Depression

Depression in a person with brain injury is a very common emotional consequence that usually comes some time after the injury. Signs of depression include lack of motivation, loss of sexual drive, sleep disturbance and tearfulness.

There can also be a range of physical changes after a brain injury including: loss of taste and smell, dizziness and balance problems, epilepsy and seizures, fatigue, headaches, visual and hearing problems, chronic pain, and paralysis. These problems of course vary from person to person and depend upon the type and severity of the brain injury.