Making Connections: The Relationship between Trauma and Alzheimer's Disease

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Abstract

The subject of this paper is the interacting triad of trauma, dementia and life history. Aging is an inevitable life passage. Trauma is a universal human experience. Personal, social and medical history are mitigating factors in the patterns of trauma and aging. Such history is examined here with the view that its contribution about the life experiences of the Alzheimer's patient may provide invaluable clues which explain the present day emotional reality, symptoms and resulting behaviour of the patient.

Research material will focus on the formation of memory, emotion and behaviour as they relate to trauma and dementia. The possibility of a causal connection between unresolved trauma and the occurrence of Alzheimer's Disease in early old to old age is discussed. Pertinent questions about the relationship between trauma and Alzheimer's disease are included to encourage further inquiry into a possible causal connection.

The emotional resolution of difficult life experiences frequently predicts how we negotiate our declining years. Important to titrating these life experiences is the need for empathic relationships. Knowledge of another's history provides the material for creating meaningful connections which ultimately lead to compassionate and caring relationships.

Information which may be found in the life history of the Alzheimer's patient can be invaluable to caregivers in the formation of their treatment plans. The importance of educating professionals and caregivers about the value of a comprehensive personal history as an aid to providing humane care, and building supportive relationships with the

dementia sufferer and the trauma victim will be discussed, with suggestions as to how this may be facilitated.

The examination of the potential interrelationship between personal history, trauma and dementia will be explored through autobiographical narratives, subjective observations, case examples and supporting literature.

Introduction

“What’s the matter with me ? Maybe I’m like this because it’s too painful to remember.”

This comment, made by a woman about to enter a geriatric psychiatry unit for assessment of her dementia, encapsulates the focus for this writing. It describes the emotional and mental confusion, and resulting suffering, of an Alzheimer's patient. I propose that it also describes, in poignant and accurate detail, a possible connection between the life experience of trauma and the occurance of Alzheimer's disease.

I do not propose to describe the intricacies of the neurobiological processes which are involved in either trauma or dementia. Details of these mechanisms are beyond the scope of this paper. I will present only enough information so as to outline those areas of the brain which are active in these systems and which seem to be compromised. More detail of the neurobiological processes can be found by the reader in the increasing volume of literature available on the topics of trauma and of dementia, some of which are referenced here. My interest is in the impairment effects that both trauma and Alzheimer’s disease have on the lives of their victims.

The slow deterioration of my family elders’ mental capacities due to senile dementia, Alzheimer’s disease and cardiovascular dementia led me to exploring alternative avenues of communication with them. My curiosity also unfolded due to a series of personal, life altering experiences which, over time, had provided me with some insight into the patterns and connections between traumatic events in my life and my behaviour and attitudes. I have included descriptions of the more intimately illuminating of these experiences, those which have given me a deeper sense of self-understanding.

Titled ‘narratives’ in the following writing, these originated from personal journalling which I employ as an ongoing process of self reflection. In this context they provide the framework for discussion of relevant research material and literature on trauma and Alzheimer’s disease.

I had the opportunity to interact with patients suffering from Alzheimer’s disease while completing an eight month graduate student practicum at a residence which specialized in Alzheimer’s disease care. My role was to offer support and counsel as Resident and Family Services Provider. As such, I witnessed the emotional, physical and mental behaviour of Alzheimer’s victims and their family members.

Concurrantly, I completed a practicum in the field of Somatic Experiencing®, a form of therapy specifically designed to alleviate the pervasive effects of trauma. This practicum consisted of one hundred supervised hours of clinical sessions with clients who had experienced life altering traumatic events.

As a result of the overlapping of these two practicums, I integrated my knowledge of trauma in my interactions with those suffering from Alzheimer’s disease. I describe here some of the more commonly observed behaviours of the Alzheimer’s victims with whom I worked, those for whom trauma seemed to have been a major factor in their lives. Included are observations which detail some of the recurrent and revealing material which I believe elucidates the potential connection between earlier traumatic life experiences and the later development of dementia. By presenting these potential links I hope to stimulate further investigation into the possible psychophysiological connection between the two increasingly common health issues of trauma and Alzheimer’s disease.

Thirty-six people suffering from Alzheimer's disease were included in the fieldwork. Because the relationship between symptoms and traumatic life histories is a key point in indicating the possibility of trauma as a cause of Alzheimer's disease, case examples have been chosen as a way of reporting observations of some of the more frequently seen behavioural phenomena. Each case example reports on, but does not factually represent, a person's or persons' history.

Narrative, as life story, reappears as the focus for a discussion of the importance of an awareness of personal history as an essential inroad to interpersonal relationships with people who suffer from both trauma and Alzheimer's disease. Acceptance of the reality of the Alzheimer's patient is compared to the setting of initial conditions, or joining, between client and therapist which is necessary for a successful therapeutic relationship. I present my ideas about how gathering the elements of a history can provide the basis for the initial conditions required for meaningful communication with Alzheimer's patients.

Narrative

In some dementia residences, care conferences are an integral part of the treatment of each resident. The purpose of these conferences is to review the care of residents from the perspectives of nurses, care aids, dietitians, social workers, activity workers, and family members, all of whom participate in the conferences. The conferences take place on an annual, or as needed basis. There are a number of criteria covered during these conferences, such as the psychological, physical, social, orientation and self - care aspects of the resident's status. Family members are asked to contribute

any information which might be helpful to staff, or which is of concern to them as part of the care team. At one care conference the following story emerged.

During a Christmas party held for residents, a small group of children from a local school came to sing carols. One resident spent the entire carol performance trying ‘to get the children out of the way’ by gently pushing them over to the side of the room.

Later in her care conference staff learned that the resident had served as an air traffic controller in wartime England. While on leave one day she walked the road of a village just outside of London. She heard the sound of an overhead plane, then the whine and explosion of a bomb. She turned to see only the remains of a bridge which, minutes before, had contained some twenty children and their school teacher out for a field trip. All but the two ends of the bridge had disappeared.

This event was described by her husband who was in attendance at the care conference. The resident’s ability to communicate verbally in a comprehensible way had disappeared long before, due to advanced Alzheimer’s disease, but her behaviour told the story of her implicit memory of this event. She remains agitated, and talks incoherently almost constantly. Her eyes are alert and on guard, but she is gentle and quiet in her nature.

A few days after this care conference, there was a meeting in the dementia unit with a group of student care aids. The Director of Care spent some time discussing, among other topics, his belief in the importance of establishing a trusting and caring relationship with people suffering from dementia. All too often, he suggested, the physical needs of such patients are attended to, while their emotional needs are neglected. He discussed the value of a personal history in providing an inroad to being sensitive to

the emotional and social, as well as the physical, needs of residents. For instance, knowing that a resident has a very shy nature enables the activity worker to be discriminating about the social wishes of a resident, and the need for medical staff to respect the resident's desire for privacy.

As a participant in the meeting I asked the Director if I could pose a question to the group of students. I was curious to know if they had noticed any correlation between the repetitive behaviour of their residents and the recorded history provided in the resident's chart. I explained my interest from the point of view of the reenactment, through repetitive behaviour, of unresolved trauma in dementia residents.

As I was speaking, I felt the woman's hands on my shoulders and turned to receive a soft kiss on the cheek. Did she know that I was thinking about her story when she entered the room and heard me ask the question ? The Director invited her in, offered her his chair and sat beside her with his arm around her shoulder. All the while, she was talking. Her speech was frequently interspersed with words such as "couldn't help", "death", and "the children". The Director, while talking quietly to her, continued to hold her and addressed her concerns with words of understanding and consolation.

Thanks to this gentle woman, the students and I had witnessed first hand, and in perfect detail, all that we had just discussed. We observed the importance of a caring relationship when interacting with a person suffering from dementia. We had seen a demonstration of the importance of knowledge of a personal history in order to respond to the emotional needs of a resident in the advanced stages of dementia. And we had, I believe, observed the residual activation and anxiety held in the implicit memory of

people who suffer from unresolved trauma and dementia. My interest in the connection between trauma and dementia was intensified by this experience.

Current Research

There is a surprising paucity of material on the potential psychophysiological connection between psychological trauma and Alzheimer's disease. Much of the material on the topic consists of research about the trauma of suffering from the onset or effects of Alzheimer's Disease, or, alternately, the development of Alzheimer's Disease as a result of head trauma, as in physical injury to the brain. The following research material was of interest to me because it indicates the possible contribution, *causally,* of trauma to the occurrence of Alzheimer's Disease.

During the war between Croatia and Bosnia-Herzegovina the Ministry of Health organized health care for displaced people. This consisted of a psycho-social support team for those traumatized by the war. Working with a control group and a group of refugees (each a group of five hundred and thirty-eight individuals aged forty-five or more) researchers compared the incidence of Alzheimer's disease in the traumatized and the non-traumatized group over a thirty month period of time (Folnegovic-Smalc, Folnegovic, Uzun, Vilibic, Dujmic, Makaric, 1997).

Initially, the incidence of Alzheimer's disease was similar in both groups. After the thirty month period the incidence of Alzheimer's type dementias was significantly higher in the group of war refugees. More than two thirds of the group who developed signs of Alzheimer's disease had experienced five or more war related traumatic experiences. The incidence of other forms of dementia, such as dementias due to vascular or other physical disorders, remained the same in both groups.

Added to this was the fact that there was a marked increase in the symptoms of Alzheimer's disease in all age groups except the group of refugees seventy-five years of age and older, the age group in which Alzheimer's disease most commonly occurs. The researchers stated that they believed "the abrupt and overwhelming change in their lives" may have been the precipitating factor in the development of Alzheimer's disease for the refugees experiencing repeated trauma (Folnegovic-Smalc, Folnegovic et al., 1997, p. 275). The authors wrote "it is very difficult to explain our findings with any of the current theories of Alzheimer's disease..." (Folnegovic-Smalc, Folnegovic et al., 1997, p. 275).

In a more quantitative form of research, Myhrer suggests that "harmful psychological events" may cause damage to the neuronal pathways of the brain due to the malfunction of glutamatergic systems (Myhrer, 1998, p. 131). Glutamate is an single amino acid neurotransmitter found in several areas in the brain, especially in the prefrontal cortex and hypothalamus. Elevated levels of stress hormones produced by the adrenal causes stimulation of glutamate production in neural cells. Prolonged elevation of glutamate levels has been shown to be toxic to neural cells causing swelling and cell death. This mechanism may be partially responsible for the cellular changes seen in Alzheimer's disease.

Myhrer pointed out the difficulty of synthesizing a definition of stress which respects its multifaceted nature. He suggested that a way to circumvent this might be to examine the relationship between "long-lasting episodes of life crisis" and the development of Alzheimer's disease (Myhrer, 1998).

In his writing titled "Crowded Minds", Robert Adler described the effects of prolonged emotional and physical abuse on a thirty three year old woman which resulted

in a diagnoses of personality disorder. The subject was found to have "a dramatically shrunken hippocampus...as shrunken as if she had suffered from Alzheimer's disease" (Adler, 1999, p. 28). Adler reported that patients with combat related Post Traumatic Stress Disorder (PTSD) and adults with PTSD from childhood abuse were shown to have hippocampal degeneration and exhibited memory and thinking deficits. He stated that stress and depression are also closely linked to hippocampal damage (Adler, 1999). This was confirmed by Marikis (2002) who described the frequent occurrence of hippocampal atrophy in those who suffer from chronic depression.

Mittall, Torres, Abashidze and Jimerson (2001) discuss the effect of cognitive decline on the symptoms of PTSD. Three case studies of men, fifty-seven to seventy years of age, with histories of war related trauma, exhibited an increase in their symptoms of PTSD with the onset of Alzheimer's disease, alcohol-related dementia or vascular dementia. The research described the common occurrence of hippocampal atrophy "which correlates with impaired declarative memory function" in patients with chronic stress, depression and PTSD (Mittal et al., 2001, p. 19). Of note here was the significance of the following statement:

> The pathophysiology described...may be similar to Alzheimer's disease, where the neural hallmark is degeneration of the hippocampal system. In the early and middle stages of Alzheimer's disease, patients develop a marked impairment of declarative (hippocampal) memory with sparing of non declarative (amygdaloid) memories like social skills (Mittal et al., p. 19).

It is interesting to note that the medical history of these subjects' parents contained, in case one, Alzheimer's and Parkinson's disease, in case two, chronic depression and suicide, and in case three, a sibling's history of anxiety disorder (Mittall et al., 2001). Given this evidence we might also question the relationship of

multigenerational trauma and the advent of so called ‘genetically inherited tendencies’ toward Alzheimer’s disease.

In a recent study Lupien, Wilkinson, Briere, Ng Ying Kin, Meaney and Nair demonstrated that prolonged elevated cortisol levels seemed to have a significant effect on memory recall in the elderly who lived in chronically stressful situations. They further suggested that memory function in elderly humans can be significantly changed by pharmacological manipulation of glucocorticoid levels (Lupien at al., 2002).

In a review of three hundred and fifty-seven papers on the subject of free radical formation and aging, Beckman and Ames (1998) suggested, as part of their thesis, that the cell death pattern noted in Alzheimer’s disease may be related to intracellular damage caused by free radical formation, the consequence of which is that normal biological enzymatic processes become increasingly inefficient with age.

The hippocampus is vital to the cognitive recall of personal experiences, all that has been heard, seen and felt in a situation. It binds together information from many different areas of the brain. If there is excessive hippocampal damage, the ability to access new or previously stored memory is severely affected.

Adler states that the hippocampus is “the battleground where traumatic stress, memory and our sense of who we are collide” (Adler, 1999, p. 31). Hippocampal damage, exhibited as memory loss, is a focal point at the onset of Alzheimer’s disease. Hippocampal damage is also commonly found to be present in people who have suffered from complex, or prolonged psychological, trauma.

The research articles described here contain similar interacting elements: traumatic life experiences, prolonged stress, hippocampal damage, memory loss and

Alzheimer's disease. This commonality of factors speaks to the possibility that trauma may contribute to the occurrence of Alzheimer's disease which manifests itself in the sufferer as pervasive memory loss and a profound loss of self.

Could overwhelming physical and emotional trauma be seen to predict the occurrence of Alzheimer's disease in older age ?

Narrative

Mexico is a country of vibrant extremes. The people are fun-loving, and express their emotions, both sad and happy, with a freedom not often seen in Canada. The flowers in Mexico are big, bright and beautiful. Some roads are slick highways, and many others are bumpy and full of potholes. The food is hot and spicy, but sometimes creamy and smooth. The climate is, at times, gentle and at others, wild and uncontrollable. The people walk slowly, and often drive like maniacs. Relationships are the essence of Mexican life, where family and guests are greeted with enthusiasm and humour, or at times, uninhibited impatience or outrage .

I love Mexico, having spent some quite extended holidays there. I have suggested to my family that when all else fails due to my old age - sight, hearing, motor control - they "take me on a holiday" to Mexico by merely holding a slice of lime under my nose for a few minutes. The scent of lime stimulates in me a sudden rush of all the vibrant sensations associated with the sights, sounds and smells of that country. The effect of a sniff of lime is almost as good as being there!

Another equally as vigorous, but much less pleasant, reactivation of memories is of an experience which happened to me fifteen years ago. In the early hours of the morning I received a phonecall from the hospital to inform me that my eldest son had

been in a car accident. He had been admitted to the hospital with serious injuries. I quickly dressed and drove to the hospital.

I remember nothing of the days following the accident, of whether or not I went to work, who cared for the other children in the family and who paid the bills. I do remember my son's bleeding face and bruised body. I remember the smell of the hospital rooms and the sounds of life support systems, the call button and the doctor's paging system.

With time my son recovered, but the sensations associated with his near fatal accident are still fresh in my memory. If the phone rings after I have gone to bed, I wake, and those disturbing memories are alive again. My heart pounds, my breath shortens and my hands shake. It takes some time for them settle again after a middle of the night phonecall.

Memory and Trauma

"Memory is the way past events affect future function" (Siegel, 1999, p. 24). Implicit memories consist of all forms of memory which do not require the process of decoding by the brain. They manifest themselves in behaviour, images, emotions and somatic sensations. When we experience an event, the brain forms a schema which exists as a mental model of all aspects of that experience. In creating the schema we are enabled to interpret the event, as well as anticipate its occurrence in the future. The schemata is also affected by our experience of the past and can bias, or activate, our present perceptions; it is the basic component of implicit memory.

Implicit memory functions independently of the hippocampus. It depends on brain structures which are mature at birth and which remain intact throughout life, suffering no

deterioration with the onset of age or illness. These structures include, primarily, the amygdala, basal ganglia, and the motor, perceptual and somatosensory cortices of the brain.

Explicit memory is that which is consciously accessible, the memories which we can bring to mind at will. Explicit memory consists of semantic memory, or the recall of factual information, and episodic memory, which provides us with autobiographical 'episodes' of ourselves in a temporal, social world. The activation of explicit memory requires the cooperation of retrieval cues, the storage of which are primarily in the hippocampus. Explicit memory is enhanced by associations with our senses and emotions, but requires focal, or conscious attention to be encoded. In explicit memory mechanisms, the coming together of retrieval cues and memory representation is called 'ecphory'. Explicit memory is "context dependent" which explains why we may recollect the felt sense, or ecphoric sensation, of an event (Siegel, 1999, p. 41).

Explicit memory consists of cognitive mapping, by hippocampal processing, of the spatial and sequential aspects of memory. Selected portions of the multitude of received perceptions are placed in working memory, or the "chalkboard of the mind", which allows us to reflect on, manipulate, and store, past and present occurrences into long-term memory (Siegel, 1999, p. 35). Long-term memory does not last permanently, but requires consolidation which is thought to take place by a process of rehearsal in the cerebral cortex. Once this consolidation has taken place the hippocampus is no longer needed for the retrieval of explicit memories.

In the book "I of the Vortex", Llinas discusses referential memory. Referential memory is formed by the combination of phylogenetic memory (the evolutionary

memory of our species) and electrochemical memory (the oscillatory memory of brain cells). Referential memory cannot be altered, *except through damage to the central nervous system*. Referential memory creates the substance of an individual's world and creates reference points for context in both implicit and explicit memory systems (Llinas, 2001). If one examines the symptoms of Alzheimer's disease and the effects of unresolved complex trauma, referential memory appears to be severely compromised.

Implicit memory requires 'priming', or the activation of memory by contextual cues. Although implicit memory may take the form of emotional reactions, behaviour responses, attitudes and beliefs, activation of implicit memory by itself does not engage a sense of recollection, or the explicit. *If implicit memories are activated without the explicit aspect of the memories, we act, feel, perceive, and sense as though we are in the present occurrence of things.*

Early Alzheimer's disease presents with the progressive loss of explicit memory. Personal belongings, facts and activities are forgotten, misplaced or misrepresented. The behaviour and emotional life of the Alzheimer's patient frequently appears to emanate from the implicit memories of prior life experiences. In the final stages of Alzheimer's disease, the body 'forgets' to function physiologically as "the prime directive...to promote survival and procreation" (Perry, 1999, p. 1). One would assume this is due to the loss of referential memory because of cell death.

Does the Alzheimer's patient suffer from the activation of the implicit memories associated with past traumatic events, while 'lost' in a present day world of the explicit ?

Case Example: The Holocaust Victims

Worldwide, residences for the elderly are homes to many people who are survivors of the Holocaust. Their history is one of experiencing the horrors of the most systematically inhumane treatment of man the world may have seen. For those who lived in Nazi concentration camps during the war, the experience of being confined in an institution can reactivate terrifying memories.

At Memonedes Geriatric Centre in Montreal, doctors in white coats, nurses with medication and care staff with unfamiliar medical equipment can be reminders of the persecutors and murderers of family and friends during the war years (Bell, 2002). Similar reactions have been seen at Baycrest's Apotex Centre, Jewish Home for the Aged in Toronto, where care of Holocaust survivors has been carefully fashioned to consider their experience during the war (Wong, 2002).

The dental clinic has no gas, residents do not line up for flu shots and flashlights are not used at night by staff members. As early as the nineteen fifties, Baycrest changed its resident pajamas from striped to coloured fabrics because of the frightened reaction of some of its residents.

Strangers can be extremely threatening to residents, as is a patient left moaning in a bed. Elevator alarms, bedside rails, loud voices and shoe heels clicking on hard floors activate memories of experiences and which haunt the confused minds of residents.

At Memonedes Geriatric Centre, staff realized that the green and gray bathrooms with bare pipes still visible on the ceiling were a source of terror for residents who had lost family members to the gas chambers. Today the bathrooms are decorated with pastel colours and wallpaper, and music is piped into the room.

Sounds, sights and smells resembling the sensations associated with the war years are the stimuli for reactions of fear and horror by many residents. It is as though they return, in an instant, to the trauma of wartime. Residents, lacking the advantage of short term memory to ground their reality, suffer vividly, yet again, as the horrors of war invade their consciousness. For these people "yesterday can become today" and memories "can be brought back in a heartbeat" (Bell, 2002).

What defines Trauma ?

The DSM-IV definition of trauma is "experienced, witnessed, or...confronted...events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others" (Scaer, 2001, p. 1). Peter Levine, author of "Waking the Tiger", defines trauma as "a single overwhelming event" which can "throw...[us] into...emotional and physical suffering". He stresses that most definitions state that trauma is outside the range of "usual human experience" (Levine, 1996, p. 3). As a result he takes many definitions of trauma to task, suggesting that they do not allow for common events which have the potential to be traumatic.

Meaney discusses the importance of the relationship between personal resources and the demands of a situation as being the critical factor in the experience of events as traumatic. He suggests that our *perception* of the ability to maintain control of circumstances is paramount to our interpretation of events, and states that "when disaster is uncertain it deprives us of ever feeling safe" (Meaney, 2001, p. 4) .

Threat and overwhelm are the keywords in the description of trauma. Regardless of the severity of an event, if the experience exists in the form of emotional, mental and physical overwhelm, our sense of control and our ability to thrive feels to be at stake.

Therefore our sense of personal safety is the defining factor between what we experience as a traumatic event and a normal occurrence.

The initial impact of any event on the brain is called an engram which consists of memories at all levels of experience. These memories comprise the autobiographical, somatic, perceptual, emotional and behavioural aspects of the experience. When we remember an event, we form an engram of that event; the engram also includes remembered elements of other, past and present, related experiences. These engrams join to form cognitive schemata which act as filters for future experiences by selecting perceptual details for newly forming neural pathways. The recollection of any experience is a continuously evolving process where cues are added and revised as new information is integrated into both implicit and explicit memory. We rely on our brains to sense, perceive, process and mobilize our responses. Therefore *"what constitutes trauma is highly personal and depends on preexisting mental schemata"* (van der Kolk, van der Hart, Marmar, 1996, p. 304).

In traumatic situations, we react with a total neurobiological response. The cognitive, emotional, social, behavioural and physiological residue of these experiences may impact us for a lifetime. Experiences which are repeated, or are emotionally arousing, are encoded with the greatest impact.

The effects of unresolved, or still activated but frozen, trauma schemata, can be dire. Because of this activation, the ability to integrate, find meaning, and modulate life experiences may be severely impaired. There is a profound inability to find a coherent sense of self which, in turn, affects the ability to engage in secure intimate relationships

with others. Cognitive function can be impaired, as is the ability to perform tasks under normal levels of stress.

> "If events are overwhelming...a number of factors may inhibit the hippocampal processing of explicit memory, and therefore may block explicit encoding and subsequent retrieval...Such conditions allow implicit memory to be encoded while explicit processing is impaired" (Siegel, 1999, p. 47).

Several factors associated with the freeze response to a traumatic experience are responsible for these impairments. Most intrusive is the excessive discharge of stress hormones, which, when stimulated, affect the functioning of the hippocampus. Although events may not be encoded in explicit memory, the person may be "prone to experiencing continually intrusive implicit" experiences, or trauma reenactment, in the form of emotional responses, body sensations and visual images (Siegel, 1999, p. 52); our memory of traumatic events stimulates a chain reaction of neural responses which can severely disrupt our ability to function. "This lack of [trauma] resolution can produce lasting effects throughout the lifespan and influence self-organization across generations" (Siegel, 1999, p. 297). Lack of self regulation can cause damage to the "individual's deepest sense of self" (Siegel, 1999, p. 295).

Robert Scaer in his book "The Body Bears the Burden", describes the reverberations of trauma on memory. He uses words such as distortion, suppression, arousal, triggering, resurfacing and enhancement when describing its effects, and suggests that all forms of memory are involved (Scaer, 2001).

'Memory states' emerge again and again with the arousal of the threat related stimuli associated with trauma memories (Perry, 1999). The term 'kindling" is taken from the word used to describe the state of spontaneous combustion of materials. Similarly, repetitive activation of memory states, which are the result of a freeze response to trauma,

permanently change the excitability of associated neural connections in the brain; thus the term is used to describe the state of trauma activation (Scaer, 1999). “One of the great mysteries of the processing of traumatic experience is that, as long as the trauma is experienced as speechless terror, the body continues to keep score and reacts to conditioned stimuli as a return of the trauma” (van der Kolk & Fisler, 1994, p. 9).

The central player in this neural drama is the limbic brain which is composed primarily of the amygdalas (one on each side of the brain) and the hippocampus. The limbic brain responds to emergency stimuli with such speed and efficiency that the thinking brain, or neocortex, is not initially aware of what has occurred. The amygdala is responsible for storage of emotionally significant events, whether they be joyful or horrific. Daniel Goleman in the book “Emotional Intelligence” calls the amygdala the “psychological sentinel” (Goleman, 1995, p. 16) when describing its role as the referee of our emotional memory.

If the amygdala deigns an event significant, that message is projected to all parts of the brain. Fight-or-flight hormones, muscles and the autonomic nervous system are activated. Cortical memory systems are on alert to retain any information which is relevant to the emergency.

At this stage the amygdala proceeds to scan, compare and associate all previous experience, then responds to the information it gathers by alerting the body accordingly. At the same time the hippocampus comes into play by discerning the significant facts of the situation. This contextual information provides the backdrop for the emotional work of the amygdala. Because it is responsible for protecting the body, the amygdala reacts instantly, somewhat like a smoke alarm. If the ‘message’ smells like smoke we smelled

when our house burned to the ground twenty years ago, the amygdala sounds the alarm, even if it is only that the toast is burning ! The amygdala is the area of the brain which is most susceptible to kindling.

Research indicates that the mind can recreate patterns of activation, or disorganized traumatic states of mind, independent of input from the neocortex. Most important (to this text) is the fact that these impressions and memories of the trauma may exist *without our conscious awareness*. "This hair trigger phenomenon is a hallmark of emotional trauma of all kinds..." (Goleman, 1995, p. 202).

Peter Bernhardt defines trauma as an event which causes activation of the shock mechanisms of the nervous system and associated physiological systems, which result in a negative shift in the system's ability to return to "normal homeostatic control" (Bernhardt, 1997, p. 151). Stress hormones which are 'stuck on go' can have toxic effects on self regulating systems.

Stress situations are known to cause prolonged elevation of glucocorticoids in the brain. As previously noted (Mittal et al., 2001) this has been demonstrated to cause damage to the hippocampal and prefrontal cortex regions of the brain. Stress reactions cause elevated glutamate levels in these regions, and prolonged elevated levels of glutamate has been shown to be excitotoxic to neural cells, causing intracellular swelling leading to cell death (Myhrer, 1998).

The aging brain seems to be particularly vulnerable to the detrimental effects of glucocorticoids (Myhrer, 1998). This vulnerability and the resulting impairments, particularly to the prefrontal cortex, caused by excessive secretion of glucocorticoids, may be the key to the connection between trauma related stress and Alzheimer's disease.

If the cells of the prefrontal cortex are damaged they are unable to dampen the response of the amygdala which eventually leads to chronically elevated stress hormone levels. In time this causes more glutamatergic cell response and more neuronal death in both the prefrontal cortex and the hippocampus. Meaney comments that "the most fascinating aspect of these mechanisms is that the same set of responses that help to ensure that we will survive...under conditions of stress, also promote illness" (Meaney, 2001, p. 1).

What if Alzheimer's disease, pathologically, is hippocampal damage resulting from an overdose of stress hormones due to chronic, unresolved trauma ?

Emotion, Behaviour and Trauma

Telling stories is a way of constructing our world, of processing thoughts and of making a connection with other human beings. It involves retrieving the memory of information and events and the ability to organize them so that, in their expression, we can make meaning of them to ourselves and to others. Stories, whether spoken, written or represented symbolically, establish the basis for states of mind, dreams, and sensations. They are dynamic in nature, changing moment to moment to fit the profile of the life and relationships of the individual.

Stories express the emotions of the moment. "Emotion serves as the central organizing process within the brain...[and] patterns of relationships and emotions directly affect the brain" (Siegel, 1999, p. 4). Siegel describes primary emotions as the "textural quality" of "the shifts of brain state" that are the results of the orientation and appraisal of an experience (Siegel, 1999, p. 125). Categorical emotions are the further differentiation of primary emotions into universal emotions such as anger, joy and disgust. What is important in this context is that primary emotions can exist *without consciousness or*

words, but with varying degrees of activation. They can be diverse in nature, from subtle to persistent and intense (Siegel, 1999).

Affect is the non-verbal expression of emotion. Affect describes our emotional state through the language of facial expression, body position and tone of voice. "Emotional state[s]...provide the trigger and internal context for action" (Llinas, 2001, p. 156). Movement reveals the quality of calm or arousal of an individual's emotional state of mind. Behaviour is the response to stimuli, the expression through movement, of emotion.

The amygdala is pivotal in the appraisal of stimuli, functioning as the control center for incoming and outgoing information. As a result it is sensitive to extremes of arousal. Our "gut feeling" is "the somatic representation in our brains" of the body's emotional response to a stimulus (Siegel, 1999,p 135). While we often believe that we think an emotion first and then experience the sensations associated with it, it is in fact our unconscious sensory reactions which first inform us as to our emotional state.

The sense of overwhelm associated with a traumatic experience disrupts the ability of the brain to organize information and input. The activation of the primary emotions which are the result of disorganized traumatic states can overrule all reason in a person, influencing both their internal and external processes. Conscious intention is necessary for the alteration of these reflexive behaviour patterns. My observations are that these unconscious behaviours are as much a part of the behaviour observed in persons with advanced Alzheimer's disease as they are for those suffering from PTSD.

Intention is the "premotor detail of the desired result of movement through which a particular emotional state is expressed" (Llinas, 2001, p. 228). Intention indicates our

conscious choice in terms of behaviour and requires that a goal, in terms of the behaviour, be intact. If movement is planned then intention is present. *Much of the behaviour of the Alzheimer's patient, as of those with PTSD, is highly intentional. When corroborated with the stories of their personal traumas the meaning of the behaviour usually becomes clear.*

"The appraisal of stimuli and the creation of meaning are a central function of the mind that occur with the arousal process of feelings" (Siegel, 1999,p 139). The orbitofrontal cortex is the area of the brain in the prefrontal lobe which is the core of this complex process of integrating the elements of stimuli, feelings, cognition, and time, which in turn allows for a shift of intention. The orbitofrontal region is active in changing unexpected external and internal conditions and creating more flexible behavioral and cognitive responses to replace automatic reflexive ones. This process includes the regulation of attention and emotion and the coordination of sensory, perceptual and appraisal systems to create new meaning and behaviour. In this way, new narratives, decisions, and self reflections can be based on perspectives of past, present and future (Siegel, 1999, p. 139-141). *Deficits in these response-flexibility systems appear to be those systems most visibly lacking in PTSD, and in the Alzheimer's patient.*

The concept of the *"*kindling" of responses associated with PTSD provides a comprehensive picture of the mechanisms involved in traumatic reenactment. If the body remains in a natural freeze response to trauma, stress hormones continue to be secreted in the event of any activating internal or external stimulus, which causes an "uninhibited autonomic cycling between hyperarousal and freeze-dissociation" (Scaer, 2001, p. 44).

Recurrent memories, arousal responses, and repetitive behaviours, as well as disorganization of thoughts are common symptoms of kindling.

Does the Alzheimer's patient exhibit the unconscious, kindled, emotional and behavioural component of unresolved trauma and the disorganized states of mind associated with it .

Case Example: Ted

In a newsletter published by Dementia Services Development Centre in Sterling, Scotland there appeared a story about a man named Ted. Ted lived at home and attended a day centre for those with Alzheimer's disease. Ted and his wife Jenny exercised daily at a school playing field near their home. Ted would jog three sides of the field while his wife walked the distance across the field ! He was admired by young students for his agility; this buoyed his spirits considerably, as his disease often caused him periods of depression.

One day Ted was travelling by bus from the day centre to his home. His wife described an ordeal that Ted had experienced. The bus became stuffy and, because of language difficulties due to Alzheimer's disease, Ted was unable to articulate his need for air. Jenny described Ted as "being strapped in with a seat-belt, not being allowed to get off the bus, and feeling suffocated by the lack of oxygen" all of which led to panic, which caused Ted, and subsequently the driver, great distress (Croft, 2000).

Ted became quite aggressive and after arriving home Ted stated repeatedly to his wife that he was not a violent man. He was obviously embarrassed by his uncontrollable behaviour, which was assumed to be a result of his discomfort during the bus ride.

A detail mentioned in Ted's history was that he had lived in England all his life. At seventy years of age he would have been an adolescent during the bombing of WW

II. One wonders if the bus could have contributed to activating his implicit memories of refuge in cramped, airless bomb shelters as child during the war? Could this have been the real cause of the panic attack at being ‘strapped into’ the confines of the stuffy bus ?

Patterns of Attachment and Dissociation

Relationships in early life predict the shape of our reality in later life. The patterns of behaviour which we manifest in adulthood are the result of primary attachment patterns between child and caregiver and contrary to earlier beliefs, not solely genetically inherited personality traits. The brain’s ability to process motivation, emotion and memory is ‘attached’ to the patterns exhibited in early childhood by caregivers: caregivers are our template for learning.

Secure attachments present the child with a coherent and flexible ideal for behaviour. Insecure attachments in early life model inconsistent availability of connection and emotional support. Jane Middleton-Moz (1990) emphasized that much of the anxiety of childhood relates to the fear of isolation and abandonment, which emerges from our dependency on caregivers for survival in our early life. This refusal to provide ‘life’ support promotes feelings of unworthiness and self blame .

Poor early attachment patterns “impair the mind’s ability to develop an integrated sense of self across time [and] in relationship to others” (Siegel, 1999, p. 99). For instance, disorganized attachment patterns, exhibited by a parent or caregiver who is frightened, disoriented or dissociated, creates a disorganized state of mind in the child. In adult life this results in memory deficits, poor communication skills and dissociative tendencies. Secure attachments provide the consistent support which is essential to

"internal regulation of affective states and behaviour modulation" (van der Kolk & Fisler, 1994, p. 2).

Our natural ability to self regulate our emotions can be profoundly affected by childhood trauma (Hunter & Maunder, 2001; Perry, 1999; van der Kolk, van der Hart & Marmar, 1996). The freeze response associated with trauma, which results in feelings of helplessness and overwhelming lack of control, causes us to suffer from shameful feelings of inadequacy. We learn to mask these emotions in an attempt to avoid the possibility of being mocked, ridiculed or, worse still, physically harmed.

This aberrant self regulation of emotions can become drastic in some circumstances, to the extent that it prevents any expression of intense feelings. When self regulation fails to allow for the expression of emotion to the external world, a sense of social isolation occurs. When self regulation fails to allow for the internal experience of emotions, dissociation occurs.

Dissociation provides the victim of perilous circumstances, a safe, albeit unreal, escape from overwhelming experiences. However it does not allow for the release of the freeze response and the emotional and implicit memories associated with traumatic experience. A pattern of dissociation is the end result of severe or repeated experiences of disruption and disorientation, and, if dissociation persists, it can destroy the ability of a person to achieve the natural self regulation of emotions. This inability to self regulate can be the predisposition to "clinical symptoms of dissociation" and "post traumatic stress disorder" because "the core of the self remains fractured" (Siegel, 1999, p. 318-19).

A chronically dissociated person exhibits discontinuity of mental functioning, memory impairment, lack of integration of identity and disruption of conscious

awareness. There are altered somatic perceptions and a loss of the sense of self. Robert Scaer describes many patients who suffer from the symptoms of PTSD as expressing that "they no longer know who they are and that they are…living a strange and unrecognizable life" (Scaer, 2001, p. 99).

Were I to take these same symptoms, magnify them, and apply them to an elderly person I would have a precise description of the majority of the behavioural symptoms of Alzheimer's disease.

> "Late somatic dissociation, therefore represents re-experiencing of survival based messages, and maybe cognitive, perceptual, autonomic or sensorimotor in expression. I believe that the entire state and experience of dissociation represents an altered state of cognition and somatic perception, driven by attempts to integrate fragments of unresolved traumatic procedural memory and shaped by the state of... the freeze response". (Scaer, 2001, p. 117).

Could the Alzheimer's patient be frozen in a chronic dissociative state which is the result of lifelong post traumatic stress disorder ?

A Comparisons of Symptoms

In his writing on information processing, Daniel Siegel refers to a "fearful state of mind" as "the clustering of related processes" such as "heightened caution, focal attention, behavioural hypervigilance, memories of past experiences [and] emotional arousal alerting the body and mind to prepare for harm" (Siegel, 1999, p 208-9).

Perry, in his writing titled "Memories of Fear", describes how elements of experience can be carried across time because the body stores information, all information, in patterns of activity. Hunter and Mauder (2001) discuss attachment theory and its relationship to illness behaviour. Illness, seen as a bodily threat in people who have a history of unresolved psychological trauma, manifests itself in anxious or avoidant attachment behaviour. van der Kolk and Fisler (1994) describe childhood abuse as playing a significant role in storing life-long, unresolved, traumatic emotional and

physical states which exhibit as an “an impaired sense of being able to positively affect ones environment” (van der Kolk & Fisler, 1994, p. 1). Scaer takes “the concept of the whiplash experience [as a result of car accident] as a model for traumatization, with longstanding, and at times permanent, neurophysiological and neurochemical brain changes that are experience-based rather than injury-based”. To quote Scaer “these changes are triggered by a cascade of neural impulses and neurotransmitters precipitated by a continuous state of intense arousal, alternating with reoccurrence of the freeze response” (Scaer, 2001, p. 33).

Whether the threat to safety is experienced in physical trauma or emotional trauma, the primary symptoms of post trauma seem to be the same. Levine describes four primary initial responses to trauma: hyperarousal, constriction, helplessness and dissociation. If the trauma reactions settle more deeply into the physical and emotional body the symptoms may become more expansive to include hypervigilance, intrusive imagery and flashbacks, sensitivity to sound and light, hyperactivity, exaggerated emotional and startle responses, mood disturbances such as swings from rage to shame, inability to manage normal levels of stress and sleep disturbance and nightmares (Levine, 1997, p. 143-47). “Trauma victims often report alterations in the experience of time, place and person” (van der Kolk et al., 1996, p. 313).

While not all responses to threat become symptomatic, those that become habitual and chronic, those that are the result of ‘frozen’ fearful states of mind in the trauma victim, have the potential, over time, to create symptoms of traumatic anxiety, or PTSD. *What becomes striking is the profound similarity of the behaviour exhibited in those suffering from PTSD and the behaviour of those diagnosed with Alzheimer’s disease.*

While there is a remarkable similarity of behaviour between the two conditions, it is important to note that the degree to which the behaviour is exhibited in Alzheimer's disease is markedly more severe.

According to Scaer, the cognitive and emotional behaviour exhibited in PTSD consists of the following:

- short term memory impairment
- attention deficits
- distortions of time (confusion of night and day)
- random and disjointed behaviour, such as missing meals, poor personal hygiene
- flashback memories with distorted or exaggerated interpretation
- perseveration and anxiety
- muted and/or limited range of emotional response
- confusion of purpose
- forgetfullness, absentmindedness
- social isolation
- obsessive compulsive disorders

(Scaer, 2001, p. 102-4)

According to Malloy and Caldwell the symptoms common in those suffering from Alzheimer's disease are:

- short term memory loss
- learning difficulties
- spatial and temporal disorientation
- self neglect and carelessness
- hallucinations and delusions
- anxiety
- depression
- mood disturbances
- apathy
- sleeplessness
- poor judgment and reasoning

(Malloy & Caldwell, 1998, p. 29)

Alzheimer's disease is a progressively fatal neurodegenerative brain disease which can only be definitively diagnosed at autopsy when there is evidence of microscopic damage to individual neurons, as well as surrounding tissues. The damage is

not uniformly present in the brain but confined to the gray matter of the cerebral cortex and the hippocampus. The cellular pathology of Alzheimer's disease is defined by the formation of senile, or neuritic, plaques and an accumulation of neurofibrillary tangles in the brain tissue.

The neurofibrillary tangles (which may be abnormal thickenings of intracellular structures) choke the brain cells. The origin of the senile plaques is unknown but they may be collections of abnormal proteins which cause cell death. Senile plaques are commonly seen in the aging brain, but develop more dominantly in the brains of those with Alzheimer's disease, particularly in the hippocampal region (Malloy & Caldwell, 1998).

Genetic predisposition, severe or repeated head injury, lower levels of education and, more recently, a history of depression have been correlated with the occurrence of Alzheimer's disease. (It is well recognized that traumatic life circumstances frequently result in the advent of depression.) Remick reported that "hippocampal neuronal atrophy" results from "the psychological stress" associated with prolonged depression (Remick, 2002). Myhrer suggested that "stress may represent a potential risk factor" for Alzheimer's disease (Myhrer, 1998, p. 131).

There is a marked increase in the occurrence of Alzheimer's disease, particularly in developed Western nations. Since its description one hundred years ago its incidence has reached epidemic proportions which is explained only partially by increased longevity in an aging population. Of note however is the generally accepted premise that we live with considerably higher levels of stress in industrialized nations. The deterioration of the extended family, also well recognized in today's society, would

predict a less supportive role by family members during times of stress. Also apparent is the decrease in the use of ritual and ceremony allowing for the expression of emotions associated with trauma, grief and loss; one would wonder about the contribution of these factors to an increasingly stressful environment which may contribute to the increase in the incidence of Alzheimer's disease.

Could early resolution of traumatic stress result in the reduction of the incidence of Alzheimer's disease in the later life.

Case Examples: Women and Depression

Four fifths of the thirty-six people in the study group for this research were woman. Of these, a large number had a history of chronic depression. Women are twice as likely to suffer from depression as men (Marikis, 2002). Depression frequently appears to be linked with traumatic incidents (Levine, 1997). Scaer states that if symptoms of PTSD persist, depression will eventually ensue (Scaer, 2001).

The list of symptoms of depression, as with the symptoms of Alzheimer's disease, compares closely to those of PTSD and includes lethargy, fatigue, poor concentration and memory, psychomotor problems and sleep difficulties. Researchers are also investigating difficulties with anger regulation and aggressive behaviours both of which reappear as common occurrences in Alzheimer's disease. The five women to which I refer below had traumatic histories as children.

Dodie's father was killed in World War I when she was five years old. She was often kept home from school to care for her brother while her mother was at work. Her brother had a chronic, life threatening illness. In her dementia she becomes extremely upset, feeling abandoned and as if nobody cares about her if she does not receive a phonecall daily from a family member. She has had depressive issues all her life.

Bonnie's sixteen year old sister died when Bonnie was eight. Family life was comfortable until her sister died, at which time her mother became very harsh in her discipline of Bonnie. Her educational opportunities were cut short when she was in her early teens because her father felt that her brother's education was more important. Bonnie suffered from depression and excessive alcohol intake for most of her adult life. In her dementia, she talks persistently of her father's extreme cruelty to the animals on their farm. She attends, quite compulsively, to the cat who lives in her residence and becomes extremely agitated if the cat disappears.

Nina also lived on the family farm. One of eight children she had no educational opportunities; instead she was made responsible for the care of her younger siblings and shared the farm work. Depression haunted Nina in adulthood and, after her husband died thirty years ago, she made numerous suicide attempts. She can be forceful, stubborn and aggressive in her dementia behaviour and becomes especially upset if she has nothing to occupy her.

Janet's childhood includes the death of a brother from unknown causes. There is the indication in Janet's history that she was sexually abused as a child. She experienced a psychotic break in early adulthood and suffered from severe depression from that time onward. In her dementia Janet has extremely violent reactions to bathing and any other medical or sanitary care necessary for her comfort. She swears loudly if angry but is very obliging and cooperative if she is approached with caring and consideration.

How can we best assist in the process of resolving the suffering which is the result of traumatic experience and Alzheimer's disease ?

Empathic Connections

While the internal disconnection from our emotions may result in dissociative behaviour, the inability to express powerful emotions to the external world contributes to a painful sense of social isolation. We define ourselves through relationship with others. Where trauma exists in our minds and in our bodies, we are isolated from our inner world and, in the outer world, from others; we are 'frozen' in the past.

van der Kolk et al. (1996) posited that the treatment of chronic or acute trauma has three essential steps: regaining control of the physiological and biological reactions to stress, coming to terms with the overwhelming experience, and reestablishing social connections and self efficacy. He emphasized that trauma resolution results from effectively responding to threat; that PTSD symptoms are the result of the suppression of fight-flight responses to threat in the body and the brain, in memory and in emotions.

Trauma victims have a fragile sense of self, safety and stability. The importance of redefining each of these in a new and secure context is vital to the person's ability to move toward the repair of the emotional and physiological disruptions caused by traumatic experience. By gradually integrating new information into the body systems and mental states, self reintegration can take place.

"The first step in experiencing is sensation" (Perry, 1999, p. 3). Awareness of body sensation is the path to knowing our emotions. The signals we receive from our body directly shape our emotions. Siegel calls them "somatic markers" (Siegel, 1999, p. 143). Body state changes inform us as to how we feel; once we know how we feel we can begin to put words to our emotions.

Somatic Experiencing®, developed by Peter Levine, is a therapeutic method of working toward the resolution of trauma. It is based on attentiveness to the body sensations associated with both the trauma and personal resources. Levine (1996) believes that the natural regulatory mechanisms in our bodies, derived from innate animal instincts, are often overridden by the human mind in the event of the 'fight or flight' reaction to trauma. Awareness of the body's sensory reactions creates access [to] restorative physiological action patterns, allowing...survival energies to be...neutralized" for the healing of trauma (Levine, 1996, p. v).

When connecting to the experience of body sensation, the arousal based implicit memories of trauma inevitably emerge. Joined and facilitated in the process by a trained therapist, the activated trauma energy can be titrated, or safely contained and discharged, with the concurrent exploration by the trauma victim of safe and pleasurable resources. *This process facilitates the release of the frozen implicit memories of trauma without the necessity of reliving the details (thus the overwhelming experiences) associated with the traumatic event.* The body's instinctive fight and flight movements are discharged, resulting in the deactivation of the regulatory sensorimotor responses to threat.

Of importance in this process is the subsequent shift in the self regulatory mechanisms of the brain, the amygdala in particular, which ceases its stimulation of stress hormones. The mechanisms which hold the body in a hypervigilant state return to more normal function. Unlike many of the so-called 'cathartic' methods of working with trauma, the gentleness of this approach does not invite the 'flooding' of emotions and resultant stress hormones and protective stances often experienced. Levine believes that flooding drives the implicit memory of trauma deeper into the body and the unconscious,

contributing to an even greater freeze response, which prevents the renegotiation of the trauma.

Employing this titration technique also provides the therapist with a subtle but effective method of working with the dissociative behaviours often developed as a natural protective response to emotionally and physically painful events (Scaer, 2001, p. 171). Scaer states that traumatic memory is deeply stored in implicit memory and cannot be effectively accessed through cognitive processes. He recommends a greater integration of "somatically based therapeutic techniques" in the treatment of trauma and PTSD (Scaer, 2001, p. 183).

The public continues to be exposed to articles which associate trauma with mental illness and addiction issues, and which discredit the pain and suffering that Post Traumatic Stress Disorder inflicts on ever larger numbers of our population (Evenson, 2002, p. 48-56). If trauma continues to be treated as an illness which can be 'corrected' by altering the body chemistry with drugs, or altering the mind with cognitive intervention, Post Traumatic Stress Syndrome will continue to plague the population.

As previously described, the effects of excessive stress hormones on brain cells can be alleviated by discharging the energy of the frozen protective and arousal systems of the body. As indicated by my observations and case examples, I believe that much of Alzheimer's disease behaviour has its roots in earlier trauma experiences. However, the brain cell damage which has occurred in advanced Alzheimer's disease makes trauma therapy difficult, if not impossible. The lack of verbal skills, self-reflection, and logical thinking creates a challenge when interacting with the Alzheimer's patient .

van Loon poignantly describes the need to "untangle the self from its symptoms" when working with the confused or disoriented elder person (van Loon, 2002). My observations of the frail elder, whether they suffer from other dementias or Alzheimer's disease, have confirmed the value of recognizing the symptoms of the freeze, flight or fright reactions to perceived threat in the victim. When implicit memories are inadvertently stimulated in the elder and they are unable to articulate their anxiety, or act to 'defend' themselves, understanding their trauma related behaviour is invaluable in responding to them with empathy and understanding.

A gentle and empathic way of addressing unresolved memories in the Alzheimer's patient, which mirrors Somatic Experiencing in many ways, is Validation therapy. Developed by Naomi Feil specifically for building relationships with the very elderly, Validation therapy encourages the expression and reflection of the thoughts and feelings of the elder, on the assumption that "*they are in the final stage of life [and are] trying to resolve unfinished issues in order to die in peace"* (Peskind, 2000, p. 1); the non-judgmental attitude of a caring listener is invaluable.

Feil developed Validation therapy in response to her dissatisfaction with behaviour modification and reality therapies employed by many institutions when working with the disoriented elderly. As detailed by some who have used cathartic methods of working with trauma (Levine included), Feil noticed that there was a marked increase in the level of agitation and disoriented behaviour when the dementia patient was confronted with the facts of their behaviour. Instead, expressed painful or disturbing feelings are validated by the caregiver who joins with the elder by listening and reflecting feelings.

Similar to the behavioural changes resulting from effective trauma therapy, Validation therapy appears to offer resolution of activation through the acknowledgment and acceptance of the reality of the memories of the dementia patient, whether accurate, implicit or explicit. Listening to and reflecting on the expressed emotions of the Alzheimer's patient, whether they are articulated in verbal or body language, parallels the process of titrating the body sensations with the personal resources of the trauma victim. The affirmation of the reality of the victim is the critical factor. Over time, the resolution of agitation appears in the form of greater social control, decreased crying, pacing and aggression, and improved verbal and non-verbal communication skills (Feil, 1993). "Unlocking these feelings lessens the intensity, and patients are less likely to withdraw into further stages of disorientation" (Peskind, 2000, p. 1).

Trauma victims often experience the violent rupture of personal boundaries, and the subsequent loss of their sense of personal space and safety. This invasion, alluded to in many of the case examples of Alzheimer's patients, is the frequent cause of vigorous reaction to what is perceived as invasive touch, such as bathing, toileting and medical procedures. Important to understanding the extremes of these reactions is the knowledge of how touch may simulate previously experienced trauma such as sexual abuse, rape, physical confinement or assault. "Self organization...emerges [or in this case is disrupted] out of self other interactions" (Siegel, 1999, p. 8).

Dementia and Alzheimer's patients frequently present with a history of hallucinations and delusions which are often accompanied by behavioural 'disturbances'. These can consist of the need for escape, attempts to fight an assailant, and accusations of robbery or intrusion. Halroyd suggested that these delusions and hallucinations are the

result of "dysfunction of a network of areas in the brain, both cortical and subcortical" (Halroyd, 2000, p. 116). I would suggest that they are most often the result, not of dysfunction, but of the reactivation of implicit memories of the earlier invasion of personal boundaries. Halroyd does not discuss the content of the hallucinations and delusions, nor does she mention the previous life history of the patient as being relevant. Although delusions and hallucinations may not be factually accurate, the mental state of 'being assaulted' (perhaps the memory of an insensitively managed medical procedure) may be a very real unresolved trauma in the mind of the patient.

The subject of behaviour as it relates to trauma and dementia becomes most interesting when viewed alongside the current research and written material on the subject of attachment theory. Hunter and Mauder (2001) explored illness behaviour as it related to attachment theory. Because attachment to the adult caregiver provides an infant with its only source of survival and protection and the base for the safe exploration of its environment, attachment can predict the resources, flexibility and coping skills in the adult 'child' especially in situations of threat. Illness, because it is interpreted as threat, will illuminate the distress and behaviour of the insecure child in the adult. Dementia in particular can be seen to place the elderly in a particularly vulnerable position. The loss of physical, emotional and cognitive skills leaves even the most secure of person's in a position of feeling threatened and disoriented.

Understanding of attachment styles can assist caregivers in understanding the illness behaviour of both the traumatized person or the demented elderly. An adult who has experienced secure attachment as an infant will likely reflect a resilient, coherent and organized reaction to illness and the resultant dependency on others for care. On the

contrary an adult who has had an insecure and avoidant attachment in early childhood will likely be distant, difficult to a connect with emotionally and exhibit compulsive self reliance with regard to self care (Hunter & Mauder, 2001).

Practicing the use of validation with the elderly and the traumatized need not only be expressed through the acts of listening and verbal affirmation. We can also attune to the agitated, aroused state of the Alzheimer's patient particularly well through the sensitive use of touch, tone of voice, body language and facial expression. Permanent damage to self regulatory systems also makes minimizing stimulation in the physical and relational environment for the elder with Alzheimer's disease critical. When words no longer make sense, a calm, non intrusive affect can be crucial to displaying empathy and understanding.

Siegel uses the term "feeling felt" when describing the gratifying experience of mental state attunement (Siegel, 1999, p. 148). While we can convey our emotions through words, it is often much more telling to observe and display intentions by the nuances of body language for the accurate dispatch and discernment of emotional states. "As adults, we need not only to be understood and cared about, but to have another individual simultaneously experience a state of mind similar to our own" (Siegel, 1999, p. 22).

Resolutions

We are trained by our culture to value words as the most efficient method of communication. When words are silenced by fear, shame or disability, we need to know how to help. Communication involves much more than words; it requires harmonizing the energy and information between two people.

PTSD and Alzheimer's disease can be paralleled in that conscious awareness is impaired. Intentions are confused by implicit memories. Strategic planning becomes difficult to conceive; in short, life doesn't flow very well. As informed persons we can provide the missing links between the conscious and the unconscious worlds of victims. We can witness them, reflect their reality, and help provide a sense of internal and external organization. Our balance can provide a fulcrum for the creation of balance in their world. By joining with them, or attuning as Siegel (1999) refers to it, we relieve the internal and external isolation which is the result of traumatic life experiences and dementia.

> "We can...propose that a transforming attuned relationship would involve the following fundamental elements: contingent, collaborative communication; psychobiological state attunement; mutually shared interactions that involve the amplification of positive affective states and the reduction of negative ones; reflection on mental states; and the ensuing development of mental models of security that enable emotional modulation and positive expectancies for future interactions" (Siegel, 1999, p. 118).

Case Example: Kate

She was a woman whose mom was in care for her advanced Alzheimer's disease. She visited daily, bringing her mother small treats and trying to make her life more comfortable. Her mom raged in her Alzheimer's, using foul language and often striking out at care workers. Her daughter was inconsolable. Her mom wasn't comfortable in her room. She wasn't getting enough to eat. Her clothes weren't being kept clean. She was spending too much time in bed. She was being helped out of bed too early in the morning. Nothing seemed to be good enough. The staff dreaded the daughter's visits and avoided her if possible. The daughter verbally attacked them, and complained constantly to the administration about the care her mother received.

When talking with a counsellor one day, the counsellor asked what would make the daughter more comfortable with her mom's situation. The daughter began to recite her complaints, almost as if by rote memory. The counsellor listened, and asked the question again, and again she noticed the rote-like delivery of the daughter's grievances. It was as though she was playing a piece of music over and over again. The counsellor felt it would be helpful to know more about the two women and asked about the mom's life and the daughter's relationship with her mom.

As a young adult her mom had found herself pregnant by an uncle at a time when society shunned abortions and unwed mothers. Her family had forced her to leave home to live in an institution for unwed mothers. Her brothers had arranged for her baby to be taken from her at birth and 'adopted out'. Many years later, the child, now the distressed daughter, found her mother and they began to build the relationship which they had been denied since her birth. A short time later her mother was diagnosed with Alzheimer's disease. The daughter was losing her mother again, and her mother was, yet again, institutionalized against her will.

The Need to Know

The reaction of staff to the resident with Alzheimer's disease, as well as her daughter, was 'appropriate' for the behaviour that each exhibited. Both mother and daughter were responding in a way which made caring difficult and prevented the daughter from becoming a positive and integral part of her mother's care team.

However, when the counsellor learned their trauma stories, the situation took on a very different meaning: incest, emotional abuse, attachment issues, grief and loss, and forced confinement, to name a few. These fully explained the rage of the mother in her

dementia behaviour, her thrashing out at her 'restrainers' and her abusive language. Her daughter's concern for her mother's comfort, health and safety was understandable, once the counsellor knew of the long separation from her birth mother that she had experienced as a child, which explained her anger and grief around the impending loss of her mother's presence in her life.

In her Canadian Broadcasting Company radio documentary, Susan Bell said:

> "the underlying theme…for any survivor of any trauma…whether they are a victim of rape or the Holocaust, is the loss of control that…sends them right back to whatever their particular nightmare is, as though it were happening to them today…that is why (staff) sensitivity is so very important."

Summary

Emotional trauma, whether it takes the form of a severe fall or prolonged sexual abuse, can remain in the brain and the body in its unresolved state for a lifetime. It can create havoc in the emotional and physical life of the victim, whether it manifests in nightmares, anxiety or chronic mental or physical illness. Further research into the possible causal connection between unresolved trauma and Alzheimer's disease remains to be accomplished. It is my belief that there is a direct contribution of the former to the latter. Although I am not in the position to do the research, I hope that the questions formulated in the process of this writing may encourage others with a research background to gather enough interest to explore the topic further.

I am however in the position of being able to encourage the education of a more empathic and compassionate treatment of people suffering from both trauma and Alzheimer's disease by those professionals responsible for their care. In a medical association handbook on Alzheimer's disease there is a chapter entitled "Caring for Someone with Alzheimer's Disease". It outlines a 'care plan' and discusses 'strategies'

and ways to ‘manage’, ‘deal’ and ‘cope’ with the behaviour of the Alzheimer’s patient. When looking for clues to difficult behaviour, the checklist consists of possible medical and environmental causes. The list of environmental causes includes loss of sleep, hunger, the need for physical activity or not enough supervision. At no point is the reader advised to consider the person behind the behaviour, the life experiences and facts present in the environment which may activate exciting, painful or sad memories, and the behaviour associated with them.

We all relive memorable moments from the past which have been stimulated by our sensory experience - a smell or perhaps a tune on the radio. We are able to communicate and share these moments with others and in doing so we can revise their meaning in the context of our day to day learning. We are able to conceptualize our world, our reality, through our perceptions of it. How we act is based on what things mean to us.

Alzheimer’s patients have lost many of the threads from the fabric of their lives. They have only random words or fragments of behaviour with which to express the emotions which overwhelm them as a result of the stimuli associated with lifetime events. In many ways trauma victims suffer very similar afflictions. Both groupings live in a socially isolated world. *We need to know the stories of their lives*. We can alleviate, perhaps even resolve, the Alzheimer’s patient’s emotional pain by our interactions with them, if we combine an understanding of their life history with empathic collaboration; in the same way we can therapeutically renegotiate unresolved trauma in its victims.

Rather than ‘cope’ or ‘deal’ with, or ‘manage’ these moments, we can empathically **share** them in a way which may lead to some resolution of lifelong issues.

In doing this we may assist in bringing some peace of mind, particularly to those in their final years of life. “Stories **require** us to participate in the active construction of the mental lives and experiences of the characters” (Siegel, 1999, p. 61).

References

Adler, R. (1999). Crowded minds : Can one body harbour more than one personality ? New scientist : 164, (2217), pp 26-31.

Bell, S. (2002). When memory fails. Canadian broadcasting corporation, Radio Documentary, December 18, 2002.

Bernhardt, P. (1997). Somatic approaches to traumatic shock (or post traumatic stress). Embodying the mind & minding the body. Macnaughton, I., (Ed.), North Vancouver, B.C : Integral Press.

Cortext Education Seminars (2001). Stress disease : Who gets sick and who stays well. Victoria, B.C : Meaney, M.

Cortext Education Seminars (2002). Understanding depression : Biological, psychological and social issues. Victoria, B.C : Marikis, D.

Damasio, A. (1999). The feeling of what happens : Body and motion in the making of consciousness. New York, N.Y : Harcourt Brace & Company.

Dementia Services Development Centre, (2000). Communication day by day. Sterling, Scotland, Croft, J.

Feil, N. (1982). Validation : The Feil method. Cleveland, OH : Edward Feil Productions.

Folnegovic-Smalc, V., Folnegovic, Z., Uzun, S., Vilivic, M., Dujmic, S., Makaric, G.(1997). Psychotrauma related to war and exile as a risk factor for the development of dementia of Alzheimer's type in refugees. Croatian Medical Journal,: 38(3): pp 273-276.

Goleman, D.(1995). Emotional intelligence. New York, N.Y : Bantam Books.

Holroyd, S. (2000). Hallucinations and delusions in dementia. International psychogeriatrics, 12, suppl.1, pp 113-117.

Hunter, J., Maunder, R. (2001). Using attachment theory to understand illness behaviour. General Hospital Psychiatry, 23, pp 177-182.

Levine, P. (1996). Trauma healing articles. Lyons, CO: Foundation for Human Enrichment.

Levine, P. (1997). Waking the tiger : Healing trauma. Berkley, CA : North Atlantic Books.

Llinas, R. (2001). I of the vortex : From neurons to self. Cambridge, MA : A Bradford Book.

Lupien, S., Wilkinson, S., Ng Ying Kin, N., Meaney, M., Nair, N. (2002). Acute modulation of aged human memory by pharmacological manipulation of glucocorticoids. The journal of clinical endocrinology and metabolism, 87, (8), pp 3798-3807.

Malloy, W., Caldwell, P. (1998). Alzheimer's disease. Toronto, ON : Ken Porter Books.

Mittal, D., Torres, R., Abashidze, A., Jimerson, N. (2001). Worsening of post-traumatic stress disorder symptoms with cognitive decline: Case series. Journal of geriatric psychiatry and neurology ,14, pp 17-20.

Myhrer, T. (1998). Adverse psychological impact, glutamatergic dysfunction, and risk factors for Alzheimer's disease. Neuroscience and behavioral reviews, 23, pp 131-139.

Perry, B. (1999). Memories of fear : Hoe the brain stores and retrieves physiologic states, feelings, behaviours and thoughts from traumatic events. The child trauma academy. www.childtrauma.org/Memories.htm, 1/10/2002.

Peskind, F. (2001). "Exquisite listening' key o understanding old age. Validation training Institute. www.vfvalidation.org/article4.html, 04/12/2002.

Remick, R. (2002). Diagnosis and management of depression in primary care: a clinical update and review. Canadian medical association journal, 167,(11), pp 1253-1259.

Scaer, R. (2001). The body bears the burden : Trauma, dissociation, and disease. New York, N.Y : Haworth Medical Press.

Siegel, D. (1999). The developing mind : Toward a neurobiology of interpersonal experience. New York, N.Y : Guilford Press.

van der Kolk, B., Fisler, R. (1994). Childhood abuse and neglect and loss of self-regulation. Bulletin of the menninger clinic. 58, (2), pp 145-171.

van der Kolk, B. (1994). The body keeps the score. Trauma information pages, www.trauma-pages.com/vanderk4.htm, 27/11/2002.

Van der Kolk, B., van der Hart, O., Marmar, C. (1996). Dissociation and information processing in post-traumatic stress disorder. In B. van der Kolk, A. McFarlane, L. Weisaeth (Eds.) Traumatic stress : The effects of overwhelming experiences on mind, body and society. New York, N.Y : Guilford Press.

Van Loon, J. (2002). We all fall down : Recognizing, preventing, and treating trauma reactions in the elderly and caregivers. N2N conference presentation : Los Angeles, CA. November 8-14, 2002.

Wong, J. (2002). The return of the Auschwitz nightmare. The globe and mail : Toronto, ON: 09/21/02