Chronic suicidal thoughts and implicit memory: hypothesis and practical implications

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Objective: *This paper outlines a hypothesis linking the development of implicit memory in infants and chronic suicidal thoughts in adults. In order to do this, the developmental trajectory of memory is reviewed, as well as how attachment experiences are encoded in implicit memory. The cognitive/emotional capacity of infants is then compared to the subjective experience of the chronically suicidal patient. This is used to develop the hypothesis that chronic suicidal thoughts are located in implicit memory, encoded very early in life. This idea is then used to explain why common responses by mental health workers to the chronically suicidal patient may inadvertently reinforce suicidal thoughts. Finally, understanding these concepts helps us to understand how psychotherapy can change chronic suicidal ideation.*

Conclusion: *A hypothesis is proposed to link infant memory systems with adult chronic suicidal thoughts, and is used to understand helpful responses for patients who suffer with chronic suicidal ideation.*

Key words: *development, implicit memory, psychotherapy, suicide.*

One of the most difficult patient groups to work with in psychiatry consists of those who are chronically suicidal. This is the patient, who, when asked how long they had felt suicidal, reports "all my life". Many of these patients will have borderline personality disorder (BPD), but there will be others that will have felt suicidal throughout their teenage and adult years, but don't have the mood instability and impulsivity of BPD. This article outlines a hypothesis linking chronic suicidal thoughts and early attachment experience, linked through the implicit memory system. This hypothesis may shed some light on why it is so difficult to change chronic suicidal thoughts, as well as shedding light on how psychotherapy may change such thoughts.

UPDATE ON MEMORY SYSTEMS

Memory is divided into two broad systems, implicit and explicit memory. The neuro-anatomy of implicit memory has not been fully elucidated, but certain areas seem to be implicated. For early emotional memory, the amygdala seems to organize implicit memory, with help from the basal ganglia and the cerebellum, particularly with organization of memory around fear. Indirect evidence suggests the posterior temporal-occipital-parietal region of the right hemisphere is also involved. Explicit memory is located in the hippocampus, parahippocampus, fronto-basal areas, rhinal and perirhinal areas.[1]

Implicit memory is fully activated at birth, and probably in the last trimester of pregnancy. It consists of three components: sensory, movement and interactional.[1] The sensory component encodes memory of sensory experience, developing a sensory map. In the first 2 months of life, basic arousal, satiety and physiological safety are most strongly represented. The movement component, including fine and gross motor skills, as well as where the body is in space and intentional location, is encoded in procedural implicit memory.

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Later on, this will include evermore complex movement routines such as sporting activities, playing a musical instrument, etc. The last component, and central to the purpose of this article, concerns interactions with others, predominately the primary caregiver. The actions, and emotional experience, of being with another, are also encoded in implicit memory.

Implicit memory is acquired slowly. It encodes specific situations over many repetitions, to build up a very specific knowledge about a very specific area, and is therefore precise and inflexible. It cannot be recalled, and explains why we have essentially no memory that we can recall before the age of 3 years. Later on it becomes 'reality'.[2] For example, with a 'neglect syndrome' from a right parietal stroke the patient may wake up with a 'foreign' leg and arm in the left side of the bed. No amount of explaining that this is their arm and leg helps, as there is no match between the obliterated sensory implicit memory and the current location of their arm and leg. Implicit memory is also the most robust memory system. Once learned, it is the most difficult to unlearn. When we learn how to ride a bicycle it is encoded as an action sequence located in implicit memory. Even after many years of not riding, the ability to ride is not lost, which gives rise to the oft quoted phrase "you never forget how to ride a bicycle". It is the last memory system to go in Alzheimer's disease.

The interactional component of implicit memory is particularly important in providing a template for future relationships, structuring our feelings and actions in response to other people, particularly when they have a strong emotional significance. In attachment theory, these are called attachment relationships. In the first year of life, interactions with caregivers, and the feelings that go with it, are encoded over many repetitions. It is important to remember, contrary to some early psychoanalytic theories, that there is no language or meaning at this stage.[3] The experience itself is encoded and stored, but cannot be recalled to conscious memory. Later on, as language is acquired, these implicit experiences of how others relate to us, and care for us, are acted out in a multitude of ways, primarily non-verbally. However, verbal elaboration also occurs through emotion, syntax, and pauses. In other words, the rhythm and feeling of language, as well as the complexity, rather than the content, convey our early relationship experience. An example of this is found when researchers assess the attachment relationship of an adult to their parents when the adult was growing up. The subject is asked to describe their experience of how their parents cared for them when they were growing up. It is not what they say (the content) that has been found to show poor attachment, but the way they tell the story.[4]

An example of how interactional implicit memory structures experience is described by Daniel Stern and others from the Boston Change Process Study Group.[3] They describe a videotaped home observation of a young depressed mother and her 18-month-old son. The mother is sitting on the couch and her son is sitting a foot or two away from her, drinking from his bottle. She is sitting stiffly in the far corner of the couch staring into space, smoking a cigarette with one hand and resting her other arm along the back of the couch in the direction of her son. Her toddler finishes his bottle and stands up on the couch, bouncing up and down for a minute or two. Then he pauses before flopping over onto his mother's lap. At this point, without moving her stiff and remote arms, she jerks her head towards him and barks, "I *told* you not to jump on the couch!". Her distaste is about him making playful physical contact with her. In other sequences on the same videotape, they describe her son walking up to her and reaching out his hand towards her knee, only to pull it away suddenly before actually touching her. His mother's aversion to affectionate touch appears to have led him to inhibit his own initiatives around seeking physical contact with her. As this pattern is repeated over time, it is being preserved as part of his implicit memory system. If it is repeated hundreds, or thousands of times, over his early development, as with a caregiver, it is likely to become a template for future interactions that involve affection and touch in relationships throughout his life. However, and this is crucial to understand, he won't know why he struggles with affectionate touch. He will have no memory of the laying down of these implicit memories. He will be able to remember later instances of difficulty with touch, perhaps describing a situation in high school where he found himself unable to cuddle his first girlfriend.

Explicit memory consists of two developmentally distinct components.[5] Semantic memory starts earlier and episodic memory somewhat later. Semantic memory starts in the second year of life, and is fully activated by 18 months. It coincides with language acquisition, so it is encoded and recalled through language. Knowledge about the world is stored in semantic memory as 'facts'. However, although the 'fact' can be consciously recalled, there is no memory of when or how these facts are acquired.[6] For example, the capital of France is stored in semantic memory. Most people know the answer, but few will be able to recall when or how they learnt this. Like implicit memory, this memory is experienced as 'reality', but is not held as rigidly as implicit memory. It is easier to talk someone out of a false geographical fact (semantic memory) than it is to talk someone out of the sensation they notice is occurring in their left thumb.

Episodic memory starts around 3–4 years old. It is the memory of events, or episodes. The episode can be recalled consciously. This may include some, or all, of the details of what happened, when it happened, who with, and how it felt. Episodic memory is the memory of stories and pictures. The first time you rode a horse, or went on an airplane, are examples of episodic memory. It requires one-trial learning. That means, only one experience for each episode (as against implicit memory, which requires many trials). It is less robust. Episodic memory is more easily updated, forgotten, or reshaped.[2] It is the first memory to be lost in Alzheimer's disease, with recent episodic memory going before remote episodic memory. Because it is easily reshaped, it is prone to false memories.[7] Episodic

memory is a more complex and sophisticated system than implicit memory. It includes action and feeling (as in implicit memory), but also includes language and meaning.

POOR EARLY CAREGIVING AND MEMORY SYSTEMS

When a baby is upset, powerful signals are sent to their caregivers to respond in a way that is soothing and relieves distress. What is encoded in implicit, and later in semantic memory, is who responded to the distress, in what way, and how much. The actions and feelings are stored, but cannot be consciously remembered. They are experienced as 'fact' or reality, but there is no memory of when the experience happened, why it happened, or who it involved. When adult caregivers have been unable to respond consistently to the baby's distress (usually because their parents did not respond well and this is stored in the caregiver's implicit memory, but may also be due to postnatal depression, concurrent adult physical illness, etc.), two broad sets of facts will be stored. The first will be something like "nobody cares" or "nobody responds", and the second will be "I'm not important" or "I don't matter". Because these experiences cannot be remembered consciously, rational thought or cognitive reframing cannot modify this. It is difficult to describe in language, as mostly those 'facts' are experienced and acted out in relationships throughout life, with little understanding where it comes from or why one feels this way.[2]

ORIGIN OF CHRONIC SUICIDAL THOUGHTS

How do we, as human beings, manage intense emotional distress? There seem to be four ways to do this. The most important, and most effective, is to stop whatever it is that is upsetting us. If that doesn't work, we may try and get help from someone else to either stop it or help us through it. Alternatively, we may try and manage it ourselves. Finally, if all else fails, we hope that it will go with time. Emotional pain that is intense, cannot be stopped, does not go away with time, and for which no one can help us, becomes unbearable. An analogy with physical pain is childbirth. If women had the intense pain of childbirth, and it went on forever, that would be unbearable and unmanageable. In this imaginary situation, as in the situation of intense emotional pain that is never-ending, the only solution is to die. The pain will never stop, there is no effective escape, it cannot be managed or diminished, and nobody can help. Then suicide becomes the only option.

In most situations as an adult, emotional pain can be satisfactorily diminished, or escaped from, or will reduce with time. Either on our own, or with the help of others, most emotional pain can be managed, such that death is not the only solution. However, there is a phase in life when we have little control over our actions, mind or feelings, and time is endless. In the first 8 months of life, babies have little control over anything unless a caregiver helps. Furthermore, in the first 7–8 months, babies do not have the mental capacity to bring up the past or speculate about the future.[8] The capacity to contextualize time as past or future occurs usually around age 8 months,[9] and may be part of the mechanism of stranger danger. Babies are 'in the moment',[10] and therefore suffering is endless (as is pleasure!). In the situation of chronic parental non-responsiveness, the baby is stuck in an endless suffering that is recorded in implicit memory, as the events of non-responsiveness are repeated many times. Any future experience of intense emotional pain will trigger encoded feeling/action experiences that say this pain is unbearable, endless, and there is no one there to help. As the feelings are experienced as an adult, but there is no recall of where it comes from in implicit memory, it is experienced as current and real to the present situation. When others try to understand why the patient feels that suicide is the only way to relieve the pain, they fail, as it makes no sense to them. They know that as an adult, the patient can act to reduce pain, or use mental strategies to diminish or contextualize suffering, or get help from other people, or know that time is likely to heal their hurt. Anyone trying to help does not realize that the patient is in the grip of an implicit memory system that says that there is nothing they or anyone else can do. If the helper tries to argue that there are things that can be done, it will seem like they are not in touch with what the patient is facing, and that they do not understand the patient's plight. Furthermore, if the helper tries to undermine suicidal plans, the patient is likely to feel that their one way of escaping unbearable and eternal pain is being stripped away. The patient then feels increasingly alienated, which reinforces the original implicit memory, that there is no one that can help. Suicidal urges are likely to be strengthened.

THE DESTRUCTIVE EFFECT OF DESPAIR AND ANXIETY

The chronically suicidal patient caught in this implicit memory system is likely to feel overwhelming anxiety and despair. As human beings are emotionally resonant, it is likely that anyone who cares about them, including mental health workers, will begin to feel helpless and anxious. There will be a need to do something to alleviate the patient's plight, and the health worker's concomitant anxiety and hopelessness. This pushes the health worker to try and do something to help the patient. The anxiety that the health worker feels will be exacerbated by extra anxiety from the patient's family or friends, our health colleagues (general practitioners, emergency departments, mental health community teams, mental health inpatient units, etc.) and the community (the press, the legal system etc.). This leads to a range of methods, often somewhat desperate, to either talk the patient out of their suicidal feelings, or to stop their suicidal plans. If these actions don't work, then usually the mental health worker becomes increasingly desperate,

often mounting 'heroic' attempts to stop suicidal thoughts, or collapsing into despair. The helper is caught in the same emotional web as the patient.

In the acutely suicidal patient, who is temporarily overwhelmed by emotional pain, the story is different. These patients are not in the grip of implicit memory, as the overwhelming suffering comes from later experiences, usually quite recent. The usual actions of explaining and reassuring (to help contextualize suffering), or problem-solving (to sort out the cause of suffering), or medication (to relieve some of the pain), or hospital (a combination of the above, plus the crucial element of extra time for emotions to change) are frequently helpful. In the chronically suicidal patient, the above methods usually do not help. Most of these patients have had reassurance and problem solving from a variety of friends, family and health professionals. They usually have had multiple psychiatric medications with no substantial reduction in suicidal thoughts. Reviews of studies of antidepressant medication in borderline personality disorder show little reduction in suicidal thoughts.[11] Finally, timeout does not work, as suicidal thoughts have been a problem for most of their teenage and adult life. In fact, hospitalization for patients with borderline personality disorder has been associated with increased long-term suicidal outcomes.[11]

An implicit memory of "I am in unbearable emotional pain, and there is no one who can help me, and it will go on forever", leading to the only manageable solution being death, is particularly difficult to shift. Part of the problem is that something has triggered the memory system, leading to intense suicidal ideas, but without any realization that this is a memory or where it comes from. It seems like it is coming from the present, and that the person who has triggered the system is the entire cause. There will be a strange disconnect for those observing from the outside. Although they will be able to appreciate that the trigger was painful, an outsider will struggle to see why this current event is seen as unmanageable and endless. The desire to tell the patient that "this is not so bad", "can be managed", or "will change with time" is natural, but unhelpful.

For the trigger to activate an implicit memory system, it has to be a repetition of the early experience encoded in implicit memory. Some form of non-responsiveness by an emotionally important person will usually be the trigger. It may be a major loss, such as the end of a love relationship, or maybe a seemingly minor event, such as a best friend not turning up to a regular lunch arrangement. The vulnerability to such minor events is the genesis of the "exquisite sensitivity to abandonment" criteria for borderline personality disorder.

With interactions in hospitals, community mental health teams, general practitioners or psychotherapy sessions, a health worker can easily trigger such an implicit memory system without realizing it. Any kind of emotional unresponsiveness from a health worker to whom the patient is attached can lead to a sudden upsurge in suicidal thoughts. . This is described by Meares[6] as a disjunction. Sometimes it will be an obvious trigger, such as having to cancel a psychotherapy session, or a community mental health team forgetting to ring back the patient. More commonly, particularly within sessions, it will be a series of small 'blows', where the health worker doesn't understand or pay attention to the emotional significance of what the patient is saying. Usually the patient will handle, without distress, one of these small 'blows', but when there are three or four in a row, the patient may sink into despair, as the implicit memory system becomes increasingly active. The end result will be a patient who says "I feel like killing myself, and I don't know why". It is likely that the health worker will not know why either, and will feel as impotent and trapped as the patient.

CHANGING SUICIDAL THOUGHTS, THROUGH CHANGING IMPLICIT MEMORY

Using this theory, suicidal thoughts can now be understood as an important access point to implicit memory. Explaining to the patient that their suicidal thoughts are part of implicit memory from the time they cannot remember, will not be helpful. It will make no sense to them, and will be experienced as an 'alien' piece of information. The best they can do is reject it, or comply with the health worker's 'superior knowledge', and pretend that this is helpful. Rather than trying to explain the unexplainable, a new experience of emotional responsiveness needs to be laid down.

In order to do this, the health worker has to do something that feels counterintuitive, even wrong, as it seems like it reinforces suicidal thoughts. If the health worker tries to talk the patient out of suicidal thoughts, or distract them from suicidal thoughts, inadvertently they trigger the non-responsive caregiver memory, and are likely to make the suicidal thoughts worse. By doing the opposite, and being interested in the suicidal thoughts, and the feelings that go with that in the here and now, the patient will feel that the health worker is interested and responsive, even to the most painful and shameful feelings and thoughts.

When suicidal thoughts emerge in a session, the health worker needs to go back and find out what went wrong between them, such that they were experienced as emotionally unresponsive by the patient. Sometimes the patient will know, and will be able to tell the health worker where they misunderstood or ignored an important part of the patient's experience. At other times the patient will not know, and the health worker will need to track back to when things seemed to be okay, and work slowly forward, looking for things that might have gone wrong. This initially needs to be understood as a problem in the here and now, such that the health worker needs to acknowledge that they were emotionally unavailable in some way. This can be difficult, as often the health worker is trying hard, and feels that it is unfair to acknowledge that they have done something wrong, especially if it is something that seems (to the health worker) trivial.

Suicidal thoughts, actions and deliberate self harm between sessions are an equally helpful access point to implicit memory systems involving suicidality. The patient will usually have no idea why they felt that way, or where it comes from. Going back over the thoughts and feelings and actions that occurred previously, when the patient reports suicidal thoughts or actions, can allow reflection and understanding of the here and now problem that triggered it. Whether using dialectical behavior therapy (doing a chain analysis of deliberate self harm) or a psychodynamic therapy (discussing what happened), the process is likely to be the same. Understanding and experiencing how emotional non-responsiveness has triggered suicidal experiences is the outcome. This is more than cognitive understanding or insight, as there needs to be an awareness of the whole experience, with emotional and cognitive processing occurring together. Later on, it may be possible to link the here and now trigger with previous experiences, which may in turn lead to understanding a pattern of behaviour with its roots in implicit memory.

As implicit memory is laid down over many iterations, these kind of repairs (within sessions) and understanding of suicidal experiences out of sessions need to be done again and again before the patient will internalize and encode a new paradigm of how people respond when the patient is in distress. It is probably for this reason that all the treatments that have been shown to be beneficial for borderline personality disorder involves relatively long-term psychotherapy work with frequent sessions. The recently published British NICE guidelines[11] suggest that, based on available evidence, effective treatment for borderline personality disorder needs to involve psychotherapy that is longer than 3 months (and most models suggest a minimum of 1 year) and involves twice-weekly sessions. This gives the opportunity for many experiences of therapist emotional responsiveness in the context of suicidal thoughts for patients with borderline personality disorder. Slowly, early problematic implicit memory may be replaced by healthier experiences of caregiver responsiveness, leading to the resolution of suicidal thoughts.

DISCLOSURE

The author reports no conflicts of interest. The author alone is responsible for the content and writing of the paper.

REFERENCES

1. Mancia M. Implicit memory and early unrepressed unconscious. *International Journal of Psychoanalysis* 2006; **87:** 83–103.
2. Cortina M, Liotti G. New approaches to understanding unconscious processes: implicit and explicit memory systems. *International Forum of Psychoanalysis* 2007; **16:** 204–212.
3. Boston Change Process Study Group. Foundational level of psychodynamic meaning. *International Journal of Psychoanalysis* 2007; **88:** 843–860.
4. Main M. *Attachment in the Preschool Years: Theory Research and Intervention.* Chicago: University Of Chicago Press, 1990.
5. Tulving E. Organization of Memory. In T.A. Donaldson, ed: *Episodic and Semantic Memory. New York ... etc.* T. A. Donaldson, ed. New York: Academic Press, 1972; 162–179.
6. Meares R. *Intimacy and Alienation.* New York: Brunner-Routledge, 2005.
7. Brown AS, Marsh EJ. Evoking false beliefs about autobiographical experience. *Psychonomic Bulletin & Review* 2008; **15(1):** 196–190.
8. Rose S, Feldman J, Jankowski J. The structure of infant cognition at 1 year. *Intelligence* 2005; **33:** 231–250.
9. Nelson C. The ontogeny of human memory: a cognitive neuroscience perspective. *Developmental Psychology* 1995; **31:** 723–738.
10. Stern D. Putting time back into our considerations of infant experience: a microdiachronic view. *Infant Mental Health* 2000; **21:** 21–28.
11. Kendall T *et al.* Borderline and Antisocial Personality Disorders: Summary of NICE guidelines. *BMJ* 2009; **338**: b93.