**The Silent Dialogue: Understanding Therapeutic Rupture in Amnesia**

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Lastly, an acknowledgement must go out to copyright law that shall preserve the originality of my work.

**Declaration**

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree. This project is entirely the work of the writer’s own investigation.

Signed

George Armour

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# **Abstract**

While researchers have been interested in the clinical manifestations of the amnesic syndrome since the 1950s, the amnesic patient has very rarely been observed in the psychotherapeutic context; one that entails the study of their emotional problems as well as their cognitive deficits. The proposed study was an attempt to study the therapeutic working alliance formed between an amnesic patient and his therapist, by investigating the occurrence of alliance ruptures between them.

24 psychotherapy sessions from a 70-session long therapy were transcribed. A thematic analysis of these transcripts was carried out and a database was generated for the categorisation of discovered themes.

Therapeutic alliance ruptures were seen to manifest in therapy through the occurrence of disruptive silences that disturbed the flow of the alliance. The ruptures were identified as having either of two functions: consolidation or resolution of emotional upheaval (defensive function) or spontaneous forgetting of the topic of discussion (non-defensive function). The nature of these ruptures were found to implicate treatment outcomes in the psychotherapy of amnesia.

# **Introduction**

The organization of memory systems in the human brain has for a long time been a widely debated topic, and memory continues to be a widely researched topic today. The fact that memory disorders can manifest in different neuropsychological contexts does not do much to help this complicated neural network. Possibly the most important discovery that helped make important strides towards the understanding of the intricacies of memory disorders was that of the existence of multiple memory systems (Schacter, Peter Chiu, & Ochsner, 1993; Tulving, 1991). Before this important realization was reached, it was unanimously believed by the scientific community that only two distinct forms of memory systems existed: the short term and long term memory stores (Baddeley, Scott, Drynan, & Smith, 1969; (Baddeley & Warrington, 1970). However, the theory behind these memory stores was excessively preoccupied with the temporal characteristics of memory and only focused on those characteristics to describe how material was remembered. Eventually, the complexities around the concept of memory began to surface and researchers were convinced that the nature of the material that is remembered or forgotten is just as important as the time it was held in memory for.

Thus, when Tulving (1972) charted out the difference between episodic (memory of individual events) and semantic memory (general world knowledge) and later (Tulving, 1985, 1991) described that memory is formed of dissociable systems that can be broadly divided into declarative (conscious) and non-declarative memory (unconscious), the understanding of memory and memory disorders discovered new directions. The most common form of memory impairment has always been anterograde amnesia i.e. an inability in laying down new episodic memories. As was found from consequent research, and from the very nature of the memory systems, these patients seemed to have fewer problems than expected in acquiring new procedural skills. This point has been best explained by the well-known case of HM, whose pure memory impairment was first described by Scoville & Milner (1957). Follow-up studies by Milner, (1962), Corkin (1965) and Corkin, (1968) established the fact that a number of implicit learning abilities such as those used in learning sensorimotor skills and in perceptual priming are preserved in amnesia. Since patients of amnesia have a maladaptive memory network, they may never really overcome problems associated with learning, but the fact that some forms of implicit learning can be seen in these patients can be used as a plus point for their successful rehabilitation. It may never be possible to restore their memory to an earlier state before their brain- injury, but their preserved learning capacities can be well employed in order for them to learn to compensate for their deficits.

To understand the memory systems, and thus better understand the intricacies of memory disorders, three traditional approaches have been used widely in the literature. These approaches are the classic experimental approach with the list-learning experiments, the neuropsychological approach that involves studying lesions in brain-injured patients and the animal model approach characterized by a replication of comparable human lesions in primates (Nadel & Hardt, 2011). Each of these approaches have, over the years, elaborately explained the structural network of memory and have described the cognitive deficits associated with its malfunctioning.

While a large proportion of these studies have focused on identifying these deficits, a relatively smaller proportion has focused on strategies for their treatment and rehabilitation; and those that have, show little ecological validity (Jung, 2015). This may be because most treatment plans that are devised from the study of the amnesic cognitive profile are limited merely to the treatment prospect of cognitive rehabilitation (Parkin, Miller, & Vincent, 1987; Wilson, 1996; Armengol, 2000). Most cognitive rehabilitation strategies aim to teach amnesic patients how to compensate for their cognitive deficits, but pay little attention to the emotional and social difficulties they face as a consequence of their brain injury. The problem with this scenario lies with the fact that brain-injured patients are often not motivated enough to undergo rehabilitation; not just because of the nature of their cognitive deficits (such as learning difficulties in amnesia), but also because of conflicting affective experiences that they have to live with on a day-to-day basis. Thus, if these patients are unable to resolve their emotional conflicts, they don’t really benefit much from the rehabilitation anyway because they lack the motivation to really want to undergo improvement. The fact that these day-to-day experiences cannot be easily followed in a structured intervention strategy makes their amelioration all the more difficult. It is no wonder that many of these patients drop out of treatment (Corrigan & Hull, 2015) and choose not to complain about the difficulties of daily living. They may refuse to acknowledge their deficits, appear to be unconcerned about them, or may completely withdraw from social interactions and choose isolation over the stress of being in company as they fear repeating themselves time and again in conversations (Baddeley, Kopelman, & Wilson, 2003). Whatever the case, good outcome rehabilitation is incapacitated.

Therefore, in order to facilitate good outcome rehabilitation, it may be important to look into the emotional and social consequences of the brain-injury along with the cognitive deficits. According to Prigatano, Pepping, & Klonoff (1986) and Prigatano (1999), cognitive processes cannot be treated if the interaction between cognitive and emotional processes is not acknowledged. The patient’s subjective affective experiences carry their fragmented thoughts and feelings, and are seldom accessible to their conscious mind. These fragmented thoughts are conflicted in nature and are the roots of the underlying motivational factors that contribute to their decision-making, and hence their choice of life. Patients with brain-injury are often unable to access and acknowledge these conflicts in order to rectify them, and end up living with emotional distress culminating under the surface without them being aware of it.

According to Prigatano (1999), the application of psychodynamic psychotherapy to neuropsychological rehabilitation is an appropriate means to help brain-injured patients access their fundamental subjective emotional conflicts. Not only would this address the everyday problems that these patients encounter, but it would also act as motivation for them to undergo cognitive rehabilitation, deriving from their newfound ability to overcome their emotional roadblocks. Since implicit learning is preserved in amnesia, the prospects of these emotion-based learning skills being acquired and sustained are phenomenally high, as has been demonstrated by Turnbull, Evans, Bunce, Carzolio, & O'Connor (2005) and Turnbull, Zois, Kaplan-Solms, & Solms (2006).

Since psychotherapy is a crucial determinant of neuropsychological treatment outcome, studying the theoretical context of this mode of intervention is important. This may be necessary to eventually help understand the measurable outcome of the therapy. A core psychotherapy process that has been found to be the strongest predictor of treatment outcome is the therapeutic alliance (Horvath & Symonds, 1991; Martin, Garske, & Davis (2000). Loosely, this alliance can be described as a dynamic interpersonal process that integrates specific intervention techniques to form a meaningful patient-therapist relationship (Butler & Strupp, 1986; Safran & Muran, 2000). The formation of the alliance is an interactive process that can be hindered if the collaboration between the therapist and the patient is negatively affected. This dysfunction, that is quite an inevitable phenomenon, is called a therapeutic alliance rupture, a mutual deterioration in the quality of the therapeutic alliance, wherein both the patient and the therapist attempt to cope with defensive experiences that are brought up in the therapy (Samstag, Muran, & Safran, 2004). Unlike other negative phenomena that affect the alliance such as resistance, negative transference and counter-transference, ruptures are of a mutual nature and their cause cannot be attributed to either the patient or the therapist entirely. This makes it a challenge for ruptures to be measured effectively using traditional self-report means such as The California Psychotherapy Alliance Scale (CALPAS) (Bordin, 1979), The Helping Alliance Questionnaire (HAQ) (Luborsky, McLellan, Woody, O'Brien, & Auerbach, 1985; Luborsky, et al., 1996) and The Working Alliance Inventory (WAI) (Horvath & Greenberg, Development and validation of the Working Alliance Inventory, 1989). This is because the mutual nature of the rupture makes aspects of it unavailable to awareness.

Alliance ruptures are inevitable in all psychotherapeutic frameworks, but more so in the case of patients with brain injury who have a greater need than usual to establish a collaborative alliance with their therapist. This is because their therapist is their only solid link to their subjective emotions, i.e. they are altogether incapable of identifying and assimilating their emotions because of a confused cognitive schema (Klonoff, 2010). The occurrence of an alliance rupture in this context is more likely than usual due to the patients’ own defensive, conflicting emotions that refuse to allow them to acknowledge the reality of their situation; all of this in addition to their existing cognitive deficits (for example, memory impairment in amnesia).

**Rationale**

The focus of the present study is to understand the manifestation of therapeutic ruptures in the context of amnesia, so as to be able to better conceptualize the nature of the therapeutic alliance with patients of amnesia. Once this understanding is reached, it may then be possible to design treatment strategies that work harder on strengthening the therapeutic alliance, increasing the prospects of rehabilitative outcome. It is assumed that the study of the inevitable alliance rupture will by omission better promote ways and means to improve the therapeutic working alliance.

Due to the nature of the memory impairment in patients of amnesia, the use of self-report checklists such as the CALPAS may be difficult and altogether inaccurate, which may lead to an inaccurate understanding of the therapeutic rupture in psychotherapy of amnesic patients. In order to better measure/ analyse these therapeutic alliance ruptures, studying the ruptures by investigating the silences may be more fitting than asking the patients to describe it.

# **Scope of research**

The difficulty with creating a comprehensive picture of rupture without an extensive budget (Samstag, Muran & Safran, 2004) put together with the repercussions of memory impairment in amnesic patients has necessitated an alternative, more economically viable assessment plan for the effective recognition of these therapeutic ruptures. Once these ruptures are identified in such clinical populations, the task of rectifying the conflicted affective experiences that underlie their maladaptive behaviour is likely to improve.

In order to identify these ruptures in the psychotherapy of an amnesic patient, the following research questions were formulated:

1. Do problems related to memory impairment in an amnesic patient manifest in the psychotherapeutic context in the form of therapeutic ruptures?
   * This question was so formulated with the assumption that the ruptures that are to be observed in the therapy is likely to have a direct connection with the patient’s intrinsic memory impairment due to his amnesia.
2. What may be the nature and function of these ruptures?
   * The underlying factors that usually contribute to a therapeutic rupture are defensive, conflicting experiences that may be difficult for the patient to deal with while in therapy. In the context of amnesia, there may be more idiosyncratic cognitive factors at play, such as spontaneous forgetting or attention deficits. A deeper understanding of these factors using thematic analysis was proposed in the study.
3. Would there be any trends or patterns in which these ruptures are observed?
   * An exploration of the pattern in which these ruptures manifest was proposed in order to make a prediction about the nature of the therapeutic alliance that was formed during the therapy. Such a prediction is likely to help tailor future psychotherapeutic intervention strategies that are better equipped to understand and handle a rupture episode.
4. How does the patient overcome these problems and re-establish rapport with the therapist?
   * An explicit investigation of how the patient recovers from the ruptures was undertaken using thematic analysis in order to establish a suggestible pattern in which this happens in amnesic patients. The understanding of such a pattern is likely to help therapists identify the typical coping strategies that patients of amnesia use to re-engage in the therapy. The knowledge of these strategies may help them formulate a more tailored treatment plan that is better suited to rehabilitation of an amnesic patient.

**Method**

**Case presentation**

The study followed the psychotherapy of a single participant, JL, aged 38 years at the time of psychotherapy. He had been a diabetic patient for a long time, and in 2011, as a result of diabetic ketoacidosis – a poisonous build-up of ketones that rendered him unconscious, he experienced an anoxic brain injury. After being admitted to the hospital, he suffered three cardiac arrests in quick succession, causing further neurological damage that resulted in a dense anterograde amnesia. In concurrence with the characteristics of such damage, JL was rendered incapable of laying down new episodic memories, but retained his ability to recall events prior to the injury. As a consequence of his memory impairment, JL has had to live in an inpatient residential unit in the rehabilitation facility of Cherry Orchard Hospital. During his stay at the rehabilitation facility, he was recommended psychotherapy on account of misdemeanor and aggressive behavior with hospital staff, and he underwent 70 sessions of therapy.

Having been diagnosed with anterograde amnesia, certain typical characteristics associated with his memory impairment could be seen in the therapy. These have been exemplified using the following excerpts from the transcripts of the therapy:

1. The following excerpt from session 3 is an example of JL’s memory impairment explicitly coming up in the therapy:

*JL: It’s like, I couldn’t tell you your name. What is your name?*

*Paul: Paul.*

*JL: Paul.*

*Paul: Some weeks when you come in you say ‘Hi Paul’. So some weeks you remember and some weeks you don’t.*

*JL: Paul, your surname begins with M.*

*Paul: That’s right.*

*JL: Morton or Morgan or…*

*Paul: Moore.*

JL: Moore

1. The following example from session 49 is an implicit manifestation of JL’s memory impairment, in which JL seems to have forgotten having mentioned something earlier in the same session:

*P: Im just wondering what was it like for you there to have forgotten you'd told me that already?*

*JL: I don't know. Just making sure that I told you (chuckle).*

*P: So it must be very difficult for you sometimes to know you've said something before.*

*JL: Mm-hmm. (45 second pause).*

*Did I tell you about swimming yeah?*

*P: Mm-hmm. You mentioned you might be going Friday. The beginning of the session is gone from your mind?*

*JL: Mmhmm. (38 second pause)*

1. Another implicit manifestation of JL’s memory impairment can be seen in the following example, which shows his disagreement with the therapist over the nature of the James Joyce Bridge. JL’s insistence, over a period of 4 sessions, that it was only a footbridge is a clear representation of his memory impairment:

*Paul: We had a discussion, it wasn’t last week, I think it was previous to that about whether it was a footbridge.*

*JL: Oh yeah, yeah*

*Paul: Or a bridge that traffic went over*

*JL: Yeah no it’s just a footbridge. I’m adamant it’s just a footbridge, you’re adamant it wasn’t it was a traffic bridge. It’s not, it’s just a footbridge. I know it’s just a footbridge, you can only walk across it. Did you go and check it out no?*

*Paul: I did yeah*

*JL: And can you only go and walk across it?*

*Paul: No, you can drive across it.*

*JL: No you can’t drive across it… no way you could drive across it. (10 sec pause) It’s only about a metre and a half wide.*

*Paul: I drove over it on the way here today*

*JL: You’re talking about a different bridge, you’ve got to be*

*Paul: I think it’s the same bridge you know. I wonder is it something about how the bridge is remembered, what happens to the bridge in your mind?*

*JL: I dunno, I’m just trying to picture a car on the friggin’ thing, a car’s too big for it. There’s no way!*

**Procedure**

The therapy sessions were audio recorded by the therapist after informed consent and ethical approval were obtained. For the purposes of the current study, the audio recordings from the entire therapy were sorted into three broad consecutive phases, so as to facilitate the observation of emerging trends over time. Sessions that were not clearly audible were excluded from the study, returning a total of 21 sessions from the therapy available for analysis, which were transcribed verbatim. Of these transcribed sessions, 8 were from phase 1, 6 from phase 2 and 7 from phase 3.

**Data analysis**

The selected sessions were subjected to preliminary exploratory analysis that found episodes of therapeutic disengagement that were coded according to inclusion and exclusion criteria.

The following extract from session 5 has been used to demonstrate the inclusion criteria for the coding and what constituted one coded defensive episode:

*P: So maybe there’s a…, you know a feeling about how things should be, but the understanding doesn’t match the feeling sometimes. Or an expectation of how things should be but it doesn’t actually seem to be like that.*

*JL: Umhum (25 second pause)*

*P: And its, its hard for you to know, to know what thats like but there’s a feeling around its...*

*JL: Not quite right.*

*P: Not quite right.*

*JL: Umhum.*

*P: So that you know that might be like an anxious feeling... maybe you feel a little anxious about the thing that’s not right? JL: Yeah.*

*(185 second pause)*

*JL: Here do you know what they call that pedestrian bridge that crosses the Liffey down there?*

The following extract from session 7 has been used to demonstrate the inclusion criteria for the coding and what constituted one coded non-defensive episode:

*Paul: Do you get many opportunities to cook now?*

*JL: Once a week*

*Paul: Okay.*

*JL: Mm-hmm. I think it's once every two weeks now because there's another group pulling in.*

*(115 seconds pause)*

*So what happened to you last week?*

As can be seen from the above extracts, two different tones of conversation preceding the disruptive silences were observed. The criteria for the inclusion of each of the features of the episode(s) is as follows:

1. The clear presence of an interruption in the flow of therapeutic conversation, seen to manifest through a long silence sustained for a significant length of time, ideally more than 20 seconds.
2. A marked discontinuity between the material preceding the silence and the material following it, shown by a sharp change in topic by virtue of the silence in question.
3. A tone of conversation preceding the silence that depicted defensive mannerisms in the patient were coded as defensive episodes.
4. A tone of conversation preceding the silence that depicted non-defensive mannerisms were coded as non-defensive episodes.

The exclusion criteria used were as follows:

1. Silences that were longer than 20 seconds but did not show marked discontinuity in the flow of the conversation were not considered. For example:

*P: You beat up an egg as well and mix it in with them?*

*JL: Oh yeah. (37 second pause). I’m trying to think what else I can make if they’re not there, because I don’t reckon they’ll be there, I reckon they’ll be tossed out anyway.*

*(145 second pause). How else could you cook tinned tuna?*

*P: I don’t know. An omelette maybe?*

1. Silences that were not followed by JL restarting the conversation were excluded. For example:

*P: What’s that like... not being able to remember that?*

*JL: Don’t know. Should be kind of annoying but it’s not, really doesn’t bother me that much.*

*P: Do you think you’ve kind of come to terms with it?*

*JL: Oh yeah.*

*(50 second pause)*

*P: It’s interesting that you, you know you remember some things. Your able to you know, put down a new memory for some... some information*

*JL: Mm-hmm*

Thus, the preliminary analysis established that the coded fragments of data or episodes comprised of one continuous disruptive silence, a specific tone of conversation preceding the silence, and the re-initiation of conversation by the patient after the silence. These episodes were then collated into a database and organized into themes as per the guidelines set out by Braun and Clark (2006) to meaningfully describe the data with respect to the research questions.

**Results**

**Question 1: Do problems related to memory impairment in an amnesic patient manifest in the psychotherapeutic context in the form of therapeutic ruptures?**

The major finding of this study was that the patient, JL was found to repeatedly disengage from the therapeutic dialogue, causing a marked discontinuation in the flow of conversation and hence a rupture in the therapeutic alliance. Each of these ruptures were characterized by disruptive silences held for a significant length of time, unlike anything traditionally seen in psychodynamic therapeutic interventions. A total of 72 disruptive silences were found from the analysis of 21 sessions of therapy, with an average duration of 111.2 seconds. 40.3% of these silences were found in phase 1, 26.4% in phase 2 and 33.3% in phase 3.

Figure 1

**Question 2: What may be the nature and function of these ruptures?**

Once the occurrences of the ruptures in the form of silences was established, it was further found that two different kinds of phenomena were involved in these occurrences. This differentiation was found by virtue of the contrast in conversation tones found in the content that preceded the silences. Silences following a defensive tone, termed ‘’Defensive Ruptures’’ were found to occur 37 times in the therapy, and silences following a non-defensive tone, termed ‘’Non-defensive Ruptures’’ were found to occur 35 times in therapy.

In order to further identify whether the Defensive and Non-defensive ruptures were the result of emotional conflicts, or whether they were idiosyncratic manifestations of the amnesic syndrome itself, a thematic analysis of both types of ruptures was carried out, and four major themes were identified. These were:

* Repercussions of Brain Injury – Abbreviated as ‘’Repercussions’’
* Life at Residential Unit (LRU) – Abbreviated as ‘’Life at unit’’
* Relationships (R)
* Hobbies & Interests (HI)

For the purposes of simplification, the themes with larger names were abbreviated. ‘’Repercussions of Brain-injury was abbreviated to ‘’Repercussions’’, ‘’Life at Residential Unit’’ was abbreviated to ‘’Life at unit’’.

DEFENSIVE RUPTURES

Figure 2a

As can be seen from the figure, the most commonly occurring theme with respect to the defensive silences was RBI, followed by LRU, R and HI. These themes predominantly show how the rupture in the therapeutic alliance may have been a result of underlying emotional conflict:

The theme ‘’Repercussions’’, as the name suggests was found to be characterized by conversation topics revolving around the brain-injury, such as living with the consequences of it, which may have been emotionally troubling for JL. The following example from session 9 shows how the consequences of his impairment may have been hard for him to acknowledge:

*Paul: I wonder, is there something in the… why that comes up here… that particular film and that particular line? That you know truth is hard to handle, you know… maybe some parts of what's happened to you? Your memory… hard to acknowledge at times?*

*JL: Don't know… (19 second pause)*

*Paul: The way things are for you now…? (136 seconds)*

The notion of regret, over not having looked after himself, was also found to come up in this theme; another repercussion that possibly makes him guilty and brings up emotional conflicts. Following is an example of such regret from session 5:

*P: Well I just recall from a previous session, you mentioned about the, the diabetes, and not, not taking care of it as well as you could have.*

*JL: Oh yeah.*

*P: There may be, maybe you regret some of that.*

*JL: No use regretting over it, it’s too late now, it’s done, you know that sort of way. If I had to looked after myself a bit better then I wouldn't be here you know that sort of way. What’s done is done now its... no use crying over spilt milk. (120 second pause)*

The theme ‘’Life at unit’’ was found to be characterized by conversations about his living situation at the rehabilitation facility, which was restricting and frustrating at times. As can be seen from this example from session 3, JL talks about his life at the residential facility with a defensive tone, illustrating these feelings of frustration:

*JL: Well like you said, I stopped worrying about it now at this point in my life. Either I get it (insulin) in the morning and I eat my breakfast or I don't eat my breakfast and I don't get it so.*

*Paul: It's like you've given up on the hope that things will change?*

*JL: Oh yeah. Mm-hmm.*

*Paul: It feels pointless.*

*JL: Can't teach an old dog new tricks, that sort of way. (150 seconds)*

JL’s frustration with his life at the residential unit is easily detectable in the following example from session 8, in which he is fiercely intent on getting his assessment done on himself so that he can be allowed to leave:

*Paul: What are your thoughts about spending Christmas in Cherry Orchard?*

*JL: Honestly, it doesn't bother me, just another day of the year to me. Mm hmm. Hopefully it'll be my last year in there. Just got to nail Petrous down now and get him to give me my assessment and then I'm fucking gone.*

*Paul: It didn't happen last week? JL: No. We didn't have our cooking last week so I didn't see Petrous. (580 seconds pause)*

The theme ‘’Relationships’’ was not found to induce a defensive silence too many times, although the few times that it occurred, it was seen to comprise of conversation content that brought up conflicting emotions, as can be seen in the following example from session 51:

*JL: Yeah, Sandra is my youngest sister. I haven't seen her for year. I don't know where she lives.*

*Paul: Is it Sandra and Michelle?*

*JL: Mm-hmm.*

*Paul: She's in… Sandra's in Ireland somewhere?*

*JL: Yeah. Well. Last I heard, yes.*

*Paul: You have no contact?*

*JL: Nope.*

*Paul: What's that like for you?*

*JL: Don't know, I haven't heard from her for a while before I even got sick so. (92 second pause)*

The theme HI was not found to occur in regard with the defensive ruptures at all.

NON-DEFENSIVE RUPTURES

Figure 2b

As can be seen from the figure, the most commonly occurring themes with respect to the non-defensive silences were ‘’Relationships’’ and ‘’Hobbies & Interests’’. These themes predominantly show how the rupture in the therapeutic alliance is not associated with any emotionally distressing content, and is possibly a manifestation of spontaneous forgetting associated with JL’s amnesia; an idiosyncratic memory-related occurrence that disrupts the therapeutic alliance.

The theme R is characterized by JL’s relational interactions with the different people in his life, and includes discussions about the functionality and significance of these relationships. The tone in which JL talks about these relationships is either positive or neutral, as can be seen from the following example from session 24:

*Paul: So it was that brother, what’s his name?*

*JL: Michael.*

*Paul: He brought you camping?*

*JL: Oh yeah.*

*Paul: Is he the eldest in the family?*

*JL: No, he's the second eldest. The eldest brother lives in the States.*

*Paul: Do you have any contact with Michael?*

*JL: Ah yeah, he was over here four weeks, five weeks ago. Came over to say hello.*

*(57 seconds)*

This theme also includes JL’s relationships with various staff at the residential unit, including people he liked and people he didn’t. For example, in this example from session 49, when JL talks about his relationship with the nurse Michelle, there seems to be no emotionally conflicting material in the conversation and it is in fact seen to carry quite a pleasant tone:

*P: And what’s it like to have Michelle?*

*JL: Ah it’s great.*

*P: You get on very well with Michelle.*

*JL: Yeah. (Pause). I don't know when she’s on I never have any problem getting my insulin on time or anything. (80 second pause)*

The other commonly occurring theme, ‘’Hobbies & Interests’’, is characterized by conversation topics related to JL’s hobbies and interests, particularly interests that he shares with the therapist. This theme, too, carries no conflicted content and is merely a chance for JL to discuss his opinions about matters that are equally important to both of them, as can be seen from the following example from session 46:

*JL: They always have one short guy, there's always one short guy on the team. And he’s down lower than all the big top guys and he can run and dribble the ball and they can’t really get the ball because the ball is down too low for them. (30 second pause).*

*Another game is wheelchair basketball, that's very violent. Because they crash into each other in the wheelchairs. (67 seconds)*

Another aspect of this theme was a discussion of JL’s hobbies and how they are a means for him to relax and unwind. As can be seen in the following example from session 49, there is no conflicted content in the conversation and the silence that ensues is clearly not a sign of a defensive response:

*P: I think its satisfying as well because its about bringing all these bits together.*

*JL: Yeah, joining them up, and seeing the end product.*

*The nurse was telling me she was going to get me two sheep.*

*P: Two sheep?*

*JL: Yeah, for the wool.*

*P: Haha right. (60 second pause)*

The theme ‘’Life at unit’’ did not occur as frequently as the themes described above, as the topic of living at the residential unit was clearly a more defensive one than non-defensive, as has been mentioned in the previous section. However, it was found to be quite prevalent as compared to ‘’Repercussions’’, which being a purely defensive theme was not prevalent with respect to the non-defensive ruptures at all. This is likely to have occurred because not all events that transpired at the unit during JL’s therapy affected him adversely. There were times when JL seemed content with the way things were, possibly because it was easier for him to accept his living situation as opposed to the consequences of the brain-injury. An example of this positive valence, in the form of optimism and progress can be depicted through the following excerpt from session 24:

*Paul: At least it's going to happen.*

*JL: Ah yeah.*

*Paul: That's going to be a good thing.*

*JL: Mm hmm.*

*Paul: After all this time waiting for it.*

*JL: Yeah, a bit of progress anyway. We got to the swimming pool this time, I told him that much. Paul: So you went to play snooker instead.*

*JL: Yeah. He beat me at that so. (195 second pause)*

Another reason why this theme could have a dual role in the therapy could be the fact that there were times when JL was simply describing aspects of his life at the unit by narrating neutral events and experiences that carried no underlying emotional conflicts. Though these situations still depict his life at the unit, they do not represent denial or withdrawal on JL’s part. This can be further explained through this excerpt from session 31, which is a merely a neutral description of the kitchen:

*JL: Well that's the unit that has a kitchen for us to cook in. Yeah it's one of those specialised kitchens where the cooker can go up and down and all that sort of craic. It must have cost a few euros to put that kitchen in. And it only gets used three times a month, every second month.*

*P: Really?*

*JL: Otherwise you go in there and there's all plants all over the place and everything.*

*P: Plants?*

*JL: Yeah. They do their gardening group there.*

*P: Okay. (47 second pause)*

The equal prevalence of both themes R and HI is a likely indicator of the fact that non-defensive content that led to alliance ruptures is not dependent on the specific nature of the non-defensive content. The different aspects of conversation that the different themes entail, do not affect the upcoming rupture in the alliance. Thus, it can be said that these ruptures were not context-dependent, and were likely a pure manifestation of JL’s memory impairment.

**Question 3: Are there any visible trends in the occurrences of these ruptures?**

Figure 3a Figure 3b

The frequency of occurrence of the ruptures was found to be irregularly distributed across the three phases. This irregularity may have occurred because of the fact that each phase carried a different number of sessions. The maximum number of sessions analysed were indeed in phase 1 (8 transcripts analysed), the least number of analysed sessions were in phase 2 (6 transcripts analysed) and the last phase comprised of 7 analysed sessions. Thus, the total frequency of silences displays an inconsistent trend. However, since the total frequency of silences is not 0 at any phase, it can be said that the occurrence of therapeutic ruptures in the form of silences is a significant phenomenon in the psychotherapy of an amnesic patient. Aside from the frequency of occurrence of ruptures, the average duration of the silences that characterized the ruptures was also found, and a consistent trend was found to emerge: 142 seconds in phase 1, 121 seconds in phase 2 and 67 seconds in phase 3.

Figure 3c Figure 3d

With the defensive and non-defensive ruptures, the trends were clearer than the scenario involving all the ruptures considered together. A fair, though not consistent, decline in the percentage of defensive silences over the therapy was observed, indicating a somewhat meaningful therapeutic pattern, even though the decrease over the phases was not linear. On the other hand, the percentage of non-defensive ruptures was found to increase linearly over the three phases of therapy, indicating a solid trend in the way non-conflicting ruptures occur.

Figure 3e

All four themes discovered were not evenly distributed across the defensive and non-defensive silences. As stated before, RBI and LRU were the more defensive themes and R and HI were the more non-defensive themes. However, this does not mean that only two themes were observed for each type of silence. It only means that the four themes formed a continuum, where RBI was the most defensive silence that did not occur at all in the case of the non-defensive silences, and HI was the most non-defensive silence that did not occur at all in the case of the defensive silences.

As can be seen from the graph, the defensive themes display a steady linear decrease from ‘’Repercussions’’, the most defensive theme to ‘’Hobbies & Interests’’, which is the least defensive theme. In concurrence with what the themes represent, this is a valid observation: topics of conversation related to JL’s brain injury were the hardest for him to engage in, followed by the restrictions and other problems associated with his life at the residential unit, followed by discussions about his relationships with various people in his life.

On the other hand, it is evident from the graph that no definite patterns in the occurrence of non-defensive themes was observed, except for the fact that ‘’Repercussions’’ being a purely defensive theme was not observed in the non-defensive episodes at all, while the other three themes seem to be almost equally prevalent in the non-defensive episodes.

**Question 4: How does the patient overcome these ruptures and re-establish rapport with the therapist?**

While the content of conversation preceding the disruptive silences was found to describe the nature of therapeutic rupture in the context of amnesia, an investigation of the conversation content following the silences was found to describe the patient’s means to overcome the rupture.

Figure 3e

A thematic analysis of the material after the silences found four themes that demonstrate four distinct strategies employed by JL to overcome the rupture. The general idea behind these strategies was to direct the conversation to a safe ground; one that alleviates JL’s discomfort and re-establishes his rapport with the therapist. Three of the themes identified were identical to themes that were found before the silences. These were ‘’Hobbies & Interests’’, ‘’Life at Residential Unit’’, and ‘’Relationships’’. The fourth theme was ‘’Attention Drift to External Stimuli’’.

The utility of these strategies was not concerned with the nature of the ruptures, but with merely the overcoming of these ruptures, which were likely to have been an awkward disruption for both JL and the therapist. However, an important finding, as can be seen from the figure above was with the theme ‘’Hobbies & Interests’’, which was found to occur 57.5% of the time with respect to defensive ruptures and 50% of the time with respect to non-defensive ruptures. The fact that this theme majorly (>50%) characterized both defensive and non-defensive ruptures, is indicative of the fact that this was the most comfortable topic of retreat for JL after having experienced an awkward disruption. The important implication of this finding is the fact that JL was only able to use this theme as a means of recovery from the rupture because he had learned over time, from his interactions with the therapist, the fact that this theme encapsulated a topic of mutual interest. He had thus learned from his emotional bond with the therapist, what the therapist also liked to talk about and then put this learning to use by employing it as a strategy of re-establishing rapport.

An example of an occurrence of this theme can be shown through the following excerpt from session 7:

*Paul: What was it like not having a session last week?*

*JL: I don't know…It just… you know… I don't know how I felt…*

*Paul: Did you miss it?*

*JL: Yeah.*

*Paul: And we had a bank holiday the week before that…?*

*JL: Mm-hmm.*

*Paul: So it's been two weeks since we've… well three weeks… we missed two sessions…*

*(85 seconds pause)*

*JL: Did you watch any football over the weekend?*

The theme ‘’Life at Residential Unit’’ was characterized by JL’s attempts to re-engage in conversation by recounting an interesting experience from the rehabilitation facility that he remembered. The strategy behind this theme was to regain the therapist’s attention by narrating an interesting story that is likely to bring the flow back to the conversation, as is described by the following excerpt from session 24:

*Paul: So it was that brother, what’s his name?*

*JL: Michael.*

*Paul: He brought you camping?*

*JL: Oh yeah. Paul: Is he the eldest in the family?*

*JL: No, he's the second eldest. The eldest brother lives in the States.*

*Paul: Do you have any contact with Michael?*

*JL: Ah yeah, he was over here four weeks, five weeks ago. Came over to say hello.*

*(57 sec pause) JL: Did I tell you what happened with the swimming?*

The theme ‘’Relationships’’ was characterized by JL’s attempts to re-engage in conversation by discussing his relationships with the prominent people in his life, including the therapist himself. The strategy behind this theme was to reconnect with the therapist by asking him personal or intimate questions or initiating conversation about intimate relationships with other people in his life, as is described by the following excerpt from session 7:

*Paul: Do you get many opportunities to cook now?*

*JL: Once a week*

*Paul: Okay.*

*JL: Mm-hmm. I think it's once every two weeks now because there's another group pulling in too.*

*(115 seconds pause) So, what happened to you last week?*

The theme ‘’Attention Drift to External Stimuli’’ was characterized by JL’s attempts to re-engage in conversation by talking about any external stimulus from his immediate surroundings that catches his attention. The strategy behind this theme was to re-initiate conversation by making a striking observation that can be picked up for further discussion, as is described by the following example:

*Paul: So these are the things that get kept, that get remembered… the bits that excite you?*

*JL: Oh yeah.*

*Paul: That feel exciting… you know there's a certain amount of pleasure you get from them?*

*JL: Mm-hmm*

*(82 second pause) Reminds me of the kitchen door we had in South Africa… that noise…*

In sum, this study found the occurrence of interpersonal disruptive silences that formed therapeutic ruptures in the working alliance between an amnesic patient and his therapist. The core nature and function of these ruptures were identified by using thematic analysis on defensive and non-defensive episodes of coded data, categorising the data set into four major themes that were ‘’Repercussions’’, ‘’Life at unit’’, ‘’Relationships’’ and ‘’Hobbies & Interests’’. The most defensive themes were ‘’Repercussions’’ and ‘’Life at unit’’ and the most non-defensive themes were ‘’Relationships’’ and ‘’Hobbies & Interests’’. The theme ‘’Life at unit’’ was a unique finding that was found to hold significant relevance for both defensive and non-defensive ruptures, pertaining to its broad nature that could accommodate both the positive and negative valence of JL’s living situation. However, it is worth mentioning that the occurrence of this theme was slightly higher in the case of the defensive ruptures (32.4% > 31.4%), which might have been so because living at a residential unit constantly reminded him of the consequences of his brain injury. The theme ‘’Repercussions’’ was found to be a purely defensive theme, possibly because of its more specific nature. The non-defensive themes were found to occur indefinitely, indicating that the context of the ruptures only mattered exclusively when the ruptures were defensive in nature.

In addition to uncovering the nature of the ruptures, this study also attempted to investigate the patient’s use of strategies to recover from them in order to re-establish connection with the therapist. Findings from the investigation suggest that the amnesic patient JL, over the course of the therapy, learns to use strategies to overcome the therapeutic rupture by virtue of the emotion-based information from the sessions that is retained in his memory, such as their mutual interest in sport. Since the therapeutic alliance is by its very nature a mutual, interactive process, this learning of mutual content can also be considered an improvement in the therapeutic alliance in spite of the occurrence of the ruptures, ultimately paving the way toward therapeutic success.

**Discussion**

The purpose of this study was to investigate the occurrence of long periods of disruptive silences that were found to disrupt the continuity of a session in progress, thus causing a therapeutic rupture in the working alliance between an amnesic patient and his therapist. As was discovered from this qualitative approach to the study of psychodynamic therapy in amnesia, the disruptive silences observed within the sessions were unlike the common silences found in the psychodynamic context, and were seen to have a negative impact on the therapeutic alliance by virtue of the substantial discontinuity it brought to the flow of the session. A thematic analysis of the coded content associated with these ruptures was carried out to discover patterns in the way these ruptures occurred.

The four major themes uncovered using thematic analysis methodology were the determinants of the underlying nature and function of these ruptures. Each theme was found to contribute significantly to the ultimate manifestation of the rupture in either a defensive or non-defensive manner. The most commonly found defensive themes were ‘’Repercussions of brain injury’’ and ‘’Life at residential unit’’. As their names suggest, both themes were found to be representative of JL’s obligatory living situation that seemed to have changed drastically after the injury. He had been very aware of the fact that he no longer had a normal life and that he probably would never be able to have a normal social interaction again. The silences that are seen following these defensive themes could either represent an attempt to access the underlying conflicts that JL experiences in order to resolve them, or they could be a desperate attempt on his behalf to suppress the conflicting emotions that are already emerging at the surface. Either way, his withdrawal from the psychotherapeutic dialogue to pursue these ventures is not a healthy practice, as JL is essentially taking away from his therapist the chance to help him with those very ventures. Particularly in the case of neuropsychological deficits, underlying conflicting emotions that are not allowed to come to the surface, can spell further potential distress to the patient, and can negatively affect treatment outcome.

The most commonly found non-defensive themes were ‘’Hobbies & Interests’’ and ‘’Relationships’’, which were both found to be equally prevalent, followed closely by the theme ‘’Life at residential unit’’. The only theme that was not seen with respect to the non-defensive silences was ‘’Repercussions of brain-injury’’, possibly because any therapeutic conversation that had anything to do with JL’s brain-injury was likely to induce in him a defensive response. The similar percentages of occurrence of the themes ‘’Relationships’’, ‘’Hobbies & Interests’’ and ‘’Life at residential unit’’ possibly indicates that non-defensive content that led to alliance ruptures did not necessarily bring about the ruptures. In other words, , the disruption in the alliance was not likely to have happened because of a specific topic or context of discussion, but simply because of JL’s cognitive inability to hold on to the topic of discussion, causing him to spontaneously forget what was being spoken about. It may thus be assumed that JL was forced to disengage from the session due to this forgetting. Thus, it can be said that these ruptures were not context-dependent, and were likely a pure manifestation of JL’s memory impairment.

The theme ‘’Life at residential unit’’ was a unique finding in this study as it was found to hold significant relevance for both defensive and non-defensive ruptures. This was possibly because this was a rather broad theme, and was thus capable of accommodating both the positive and negative valence of JL’s living situation. Due to this, it was not possible to establish which kind of rupture it was more representative of. However, it may be worth mentioning that the occurrence of this theme was slightly higher in the case of the defensive ruptures than the non-defensive ruptures (32.4% > 31.4%), which might have been the case because living at a residential unit constantly reminded him of the emotional and social consequences of his brain injury.

Since these disruptive silences were representative of ruptures, which tend to have a prominent role in treatment outcome, a note was made of the major trends found in their occurrence. A fair, though not consistent, decline in the percentage of defensive silences over the therapy reflects a somewhat meaningful role of the therapy in reducing the occurrence of underlying conflicted emotional material, even though the decrease over the phases was not linear. Since the occurrence of defensive ruptures was found to decrease, it is implicated that a growth in the therapeutic alliance over the course of the therapy must have occurred. This is because a drop in the number of defensive ruptures over the three phases of therapy suggestively indicates that the patient had fewer reasons to withdraw from the psychotherapeutic dyad towards the end of the therapy.

While a decrease in the occurrence of the defensive ruptures over therapy indicated an improvement in the therapeutic alliance, the simultaneous linear increase in the occurrence of non-defensive ruptures was suggestive of the fact that this psychotherapeutic intervention was possibly not adequately equipped to facilitate cognitive rehabilitation in the amnesic patient, JL. The viability of this suggestion can be seen in the fact that this therapy was recommended for JL on account of his aggressive behaviour, a probable manifestation of suppressed emotional conflicts. Thus, the therapist may have adopted an intervention approach that was limited to the remediation of JL’s emotional problems, rather than a more structured approach targeted at his cognitive rehabilitation. This finding suggests that the context of psychotherapy may only work well for rehabilitation in amnesia if its structure also accommodates cognitive rehabilitation along with the remediation of everyday emotional problems. Otherwise, it may become necessary to use a conjoined treatment strategy that combines psychotherapy with some other form of structural cognitive rehabilitation programme that accounts for the remediation of the patient’s cognitive deficits.

Although this form of disengagement does not have any emotional underpinnings, it is still eligible to be considered a therapeutic rupture as it involves a break in the therapeutic bond.

In addition to uncovering the nature of the ruptures, this study also attempted to investigate the patient’s use of strategies to recover from them in order to re-establish connection with the therapist. Findings from the investigation suggest that the amnesic patient JL, over the course of the therapy learns to use strategies to overcome the therapeutic rupture, based on the concepts he picks up from the sessions such as the mutual interest in sports he shares with the therapist. This can be considered an instance of emotion-based implicit learning that has earlier been found to be preserved in amnesia.

Since the therapeutic alliance is by its very nature a mutual, interactive process, this pattern of learning can also be considered an improvement in the therapeutic alliance, ultimately indicating therapeutic success. Not only do these findings speculate the breadth of learning that the patient has acquired in therapy, they also give us an idea of the patient’s level of motivation to be actively involved in the therapy despite being neurologically impaired.

The study of ruptures in the therapeutic alliance would be incomplete if it weren’t followed up by an investigation of rupture resolution. This study’s attempt at such an investigation found atypical patterns in the way the patient recovers from the alliance rupture, described by the themes ‘’Hobbies & Interests’’, ‘’Relationships’’ and ‘’Attention Drift to External Stimuli’’. While each of these themes were characterized by neutral conversation content facilitating a scope for safe ground for JL’s return to the conversation, the most striking theme that was found to occur more than 50% of the time in both the cases of defensive and non-defensive ruptures was ‘’Hobbies & Interests’’. The high frequency of occurrence of this theme suggests that JL has learned through the context of psychotherapy, a means to strategically overcome the rupture in the alliance, based on concepts he has picked up from the sessions such as the mutual interest in sports he shares with the therapist. This learning of mutual interests effectively suggests that aspects of the therapeutic alliance between JL and his therapist that had a strongly collaborative quality were learned and retained better as compared to aspects of the alliance that did not. This finding further validates the understanding that a collaborative working alliance better contributes to successful treatment outcomes because a stronger emotional connection with the therapist has been facilitated. Each of these findings collectively contribute to the existing literature that states that emotion-based learning is preserved in amnesia. The incorporation of this knowledge in future psychotherapeutic intervention designs for amnesic patients is likely to help the therapist be more aware of what his patient is capable of retaining from the sessions and what he is not.

# **References**

Armengol, C. G. (2000). Acute oxygen deprivation: neuropsychological profiles and implications for rehabilitation. *Brain Injury, 14*(3), 237-250.

Baddeley, A. D., & Warrington, E. K. (1970). Amnesia and the distinction between long-and short-term memory. *Journal of verbal learning and verbal behavior, 9*(2), 176-189.

Baddeley, A. D., Kopelman, M. D., & Wilson, B. A. (2003). *The Hnadbook of Memory Disorders.* Sussex: John WIley & Sons.

Baddeley, A. D., Scott, D., Drynan, R., & Smith , J. C. ( 1969). SHORT‐TERM MEMORY AND THE LIMITED CAPACITY HYPOTHESIS. *British Journal of Psychology, 60*(1), 51-55.

Bordin, E. S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, research & practice, 16*(3), 252.

Butler, S. F., & Strupp, H. H. (1986). Butler, S. F., & Strupp, H. H. (1986). Specific and nonspecific factors in psychotherapy: A problematic paradigm for psychotherapy research. *Psychotherapy: Theory, Research, Practice, Training, 23*(1), 30.

Corkin, S. (1965). Tactually-guided maze learning in man: Effects of unilateral cortical excisions and bilateral hippocampal lesions. *Neuropsychologia, 3*(4), 339-351.

Corkin, S. (1968). Acquisition of motor skill after bilateral medial temporal-lobe excision. *Neuropsychologia, 6*(3), 255-265.

Corrigan, F. M., & Hull, A. M. (2015). Neglect of the complex: why psychotherapy for post-traumatic clinical presentations is often ineffective. *The Psychiatrist, 39*(2), 86-89.

Horvath, A. O., & Greenberg, L. S. (1989). Development and validation of the Working Alliance Inventory. *Journal of counseling psychology, 36*(2), 223.

Horvath, A. O., & Symonds, B. D. (1991). Relation between working alliance and outcome in psychotherapy: A meta-analysis. *Journal of Counseling Psychology, 38*(2), 139.

Jung, S. (2015). *Ecological Validity of raditional Neuropsychological Tests: Role of Memory, Executive Skills, and Learning in Predicting Everyday Functioning in a Clinical Population.* (Doctoral Dissertation).

Kiesler, D. J. (1986). Interpersonal methods of diagnosis and treatment. In J. O. Cavenoar, *Psychiatry.* Philadelphia: Lippincott.

Kiesler, D. J. (1988). *Therapeutic metacommunication: therapist impact disclosure as feedback in psychotherapy.* Palo Alto: Consulting Psychologists Press.

Kiesler, S., & Sproull, L. (1982). Managerial response to changing environments: Perspectives on problem sensing from social cognition. *Administrative Science Quarterly*, 548-570.

Klonoff, P. S. (2010). *Psychotherapy after brain injury: Principles and techniques.* Guilford Press.

Luborsky, L., Barber, j. P., Siqueland, L., Johnson , S., Najavits, L. M., Frank, A., & Daley, D. (1996). The revised Helping Alliance questionnaire (HAq-II): psychometric properties. *The Journal of psychotherapy practice and research, 5*(3), 260.

Luborsky, L., McLellan, A. T., Woody, G. E., O'Brien, C. P., & Auerbach, A. (1985). Therapist success and its determinants. *Archives of General Psychiatry, 42*(6), 602-611.

Martin, D. J., Garske, J. P., & Davis, M. K. (2000). Relation of the therapeutic alliance with outcome and other variables: a meta-analytic review. *Journal of Consulting and Clinical Psychology, 68*(3), 438.

Milner, B. (1962). Laterality effects in audition. *Interhemispheric relations and cerebral dominance*, 177-195.

Nadel, L., & Hardt, O. (2011). Update on memory systems and processes. *Neuropsychopharmacology, 36*(1), 251-273.

Parkin, A. J., Miller, J., & Vincent, R. (1987). Multiple neuropsychological deficits due to anoxic encephalopathy: A case study. *Cortex, 23*(4), 655-665.

Prigatano, G. P. (1999). *Principles of neuropsychological rehabilitation.* Oxford University Press.

Prigatano, G. P., Pepping, M., & Klonoff, P. (1986). Cognitive, personality, and psychosocial factors in the neuropsychological assessment of brain-injured patients. *Clinical neuropsychology of intervention*, 135-166.

Safran, J. C., & Muran, J. C. (2000). Resolving therapeutic alliance ruptures: Diversity and integration. *Journal of Clincial Psychology, 56*(2), 233-243.

Samstag, L. W., Muran, J. C., & Safran, J. D. (2004). Defining and identifying alliance ruptures. *Samstag, L. W., Muran, J. C., & Safran, J. D. (2004). Defining and identifying alliance ruptures. Core processes in brief psychodynamic psychotherapy: Advancing effective practice*, 187-214.

Schacter, D. L., Peter Chiu, C. Y., & Ochsner, K. N. (1993). Implicit Memory: A Selective Review. *Annual review of Neuroscience, 16*(1), 159-182.

Scoville, W. B., & Milner, B. (1957). Loss of recent memory after bilateral hippocampal lesions. *Journal of neurology, neurosurgery, and psychiatry, 20*(1), 11.

Tulving, E. (1972). Episodic and semantic memory. In E. Tulving, & W. Donaldson, *Organisation of Memory* (pp. 381-403). New York: Academic.

Tulving, E. (1985). How many memory systems are there? *Am. Psychology, 40*, 385-398.

Tulving, E. (1991). Concepts of Human Memory. In L. R. Squire, G. Lynch, & J. L. McGaugh, *Memory: Organization and Locus of Change* (pp. 3-32). New York: Oxford University Press.

Turnbull, O. H., Zois, E., Kaplan-Solms, K., & Solms, M. (2006). he developing transference in amnesia: Changes in interpersonal relationship, despite profound episodic-memory loss. *Neuropsychoanalysis, 8*(2), 199-204.

Turnbull, O., Evans, C. E., Bunce, A., Carzolio, B., & O'Connor, J. (2005). Emotion-based learning and central executive resources: An investigation of intuition and the Iowa Gambling Task. *Brain and Cognition, 57*(3), 244-247.

Wilson, B. A. (1996). Cognitive functioning of adult survivors of cerebral hypoxia. *Brain injury, 10*(12), 863-874.