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University
of Glasgow

**A NOVEL MEASURE FOR THE EVALUATION OF AUTOBIOGRAPHICAL
MEMORY AND MENTALIZATION IN DIFFERENT SOCIAL CONTEXTS**

AND CLINICAL RESEARCH PORTFOLIO

VOLUME I

(Volume II Bound Separately)

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Mental Health and Wellbeing

August 2013

*Submitted in partial fulfilment of the requirement for the degree of Doctorate in Clinical
Psychology (DClinPsy)*

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Chapter 1: Systematic Review

A Systematic Review of the Effect of Cue Type on Autobiographical Retrieval in Psychosis

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Written according to guidelines for submission to the journal *Memory*
(see Appendix 1.1)

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Abstract

Background: Research, using memory cueing paradigms, has shown autobiographical memory to be impaired in psychosis populations. Researchers have started to adapt the types of cues used in these tasks to investigate disorder-specific issues.

Aims: This paper systematically reviews the current evidence regarding the effects of the cues used in autobiographical memory cueing paradigms on the latency and specificity of autobiographical memory retrieval in psychosis populations.

Methods: A systematic search of seven electronic databases was conducted against set eligibility criteria. The reference lists of eligible papers were also manually searched. A quality appraisal checklist was developed and applied to the included articles.

Results: Twenty-three articles met the eligibility criteria. These studies used emotional cues, cues prompting recall from particular lifetime periods, self-defining cues and one used noun cues. Retrieval was consistently overgeneral to emotional and lifetime period cues, whilst results were mixed for self-defining cues. Inconsistent results were also reported for retrieval latency following emotional cues. The effect sizes obtained were not related to the study's quality rating.

Conclusions: The cues used generally prompted overgeneral retrieval in psychosis, but more studies are required that assess the impact of individual sub-cues. Other methodological factors, such as the instructions or the time allowed for responding, may also affect retrieval patterns. The results support a variety of theoretical mechanisms for the disruption of autobiographical memory, particularly functional avoidance, but it is not yet possible to disentangle their individual contributions. Common study limitations were identified, including small samples, poor control of trauma as a covariate, and lack of reporting of power or effect sizes. However, research quality is generally improving over time.

Introduction

The accumulated evidence that autobiographical memory (AM) is impaired in schizophrenia (Watson et al., 2012) raises new questions that require research attention. What is the most reliable way of eliciting information from AM? How do different cue types (e.g. emotional vs. neutral words) affect AM retrieval? How do the retrieval patterns obtained map onto existing models of AM functioning? Given recent shifts in AM research towards adaptation of well-established cueing paradigms, this paper will systematically review the available evidence-base to address these questions. Additionally, it will comment upon the methodological quality of this evidence, both to contextualise interpretation of research outcomes, and to highlight absent or poorly executed empirical areas. In identifying these, the trajectory for future research may be discerned.

Autobiographical Memory and Psychopathology

Impaired AM is evident in many psychopathologies, particularly depression, post-traumatic stress disorder, personality disorder and schizophrenia (van Vreeswijk & de Wilde, 2004; Williams et al., 2007; Watson et al. 2012). Typical deficits include impoverished or over-general recall of personally experienced events. These have negative consequences for functioning in areas such as the development of self-identity, mood regulation, problem-solving, and the prediction of future events (Cohen, 1996; Conway & Pleydell-Pearce, 2000). In schizophrenia research, AM impairment has been associated with positive symptoms (D'Argembeau et al., 2008), negative symptoms (Harrison & Fowler, 2004), mentalization deficits (Corcoran & Frith, 2003), impaired sense of identity and subsequent difficulties with goal pursuit (Danion et al., 2001; Danion et al., 2005)

The Nature of Autobiographical Memory

As a form of episodic memory, AM is made up of mental representations of experiences, including sensory, perceptual, conceptual and affective components (Conway, 2009). It is thought to involve a number of different systems and processes. During encoding, executive processes direct attention to aspects of the experience, which are represented within working memory and actively maintained (Baddeley & Hitch, 1974; Baddeley, 2000). During consolidation, these memories are transformed into a more stable, permanent state and stored within the wider episodic memory system. This stored information can be brought into awareness through the process of retrieval. This occurs when a cue interacts with part of the stored mental representation of an event, thus reactivating the network in which the memory is stored (Marr, 1971; Nakazawa et al., 2002). Disrupted retrieval patterns may present as overgeneral memory (i.e. the tendency

for individuals to give descriptions of general categories of events, despite receiving instructions to describe specific autobiographical events), as well as variations in retrieval latency compared to non-clinical samples. Such biases in AM may arise as a result of disruption during encoding, consolidation or retrieval, or as a consequence of the way information is stored in the memory system. Research studies have explored various aspects of AM, including the organisation and storage of memories, the factors affecting retrieval, and the interaction between AM and other psychological processes. A brief review of these types of studies follows.

Assessing Autobiographical Memory Retrieval

Williams and Broadbent's (1986) Autobiographical Memory Test (AMT) is a widely used paradigm for assessment of AM. Subjects are asked to report specific memories (i.e. an experience that happened at a particular time and place and lasted a day or less) of personal events triggered by positive and negative cue words. Responses are coded as specific if they reflect a single experience, localisable in time and place, lasting less than a day (e.g. Blairy et al. 2008). Non-specific memories are either coded as overgeneral or further divided into subcategories. For example, Goddard et al. (1996) distinguished categoric memories (e.g. recurring experiences, such as going to work) from extended memories (e.g. an experience that lasted for longer than a day with a discrete start and end point, such as a holiday abroad). This paradigm and its derivatives are amongst the most widely used in AM research. Researchers have adapted aspects of the AMT in pursuit of disorder-specific knowledge of AM and its functions. Yet little is known about which methods are most robust for assessing AM.

In psychosis research, assorted retrieval cues have been used to examine memory organization and processing, and to impose varying retrieval demands. For instance, variations in word concreteness, and frequency of everyday usage, will alter response patterns (e.g. "lunch" vs. "schadenfreude" will provoke different response patterns). Examples of cue types used include emotionally-valenced words (e.g. "hopeless"; Kaney et al., 1999), sentences describing feelings or general situations (e.g. "a situation in which you feel angry"; D'Argembeau et al., 2008), and self-defining statements (i.e. "I am a mother"; Bennouna-Greene et al., 2012). Additionally, some studies have placed constraints on the lifetime period from which experiences are to be recalled (e.g. Riutort et al., 2003). It is unclear what effect cue type manipulations have on AM retrieval. However, research adopting different cues has prompted the following hypotheses about the causes of AM impairment in psychosis.

Potential Causes of Autobiographical Memory Impairment in Psychosis

Encoding Processes

One explanation for AM deficits is that the information to be remembered is not fully encoded in the first place, subsequently limiting accessibility to this information during retrieval. Findings of impaired conscious recollection of events, whilst implicit recognition memory remains intact, have been cited as evidence for this (Huron et al., 1995). It is proposed that the processes involved in organising and integrating all features of an event (e.g. what happened, where and when this was) during encoding are impaired, such that recognition of events occurs primarily based on “knowing” rather than “remembering” (Danion et al., 1999). Such a failure to adequately encode information may be a form of functional avoidance designed to manage memories that stimulate aversive affective arousal. For example, Kaney et al. (1999) proposed that overgeneral memory in deluded participants in response to both positive and negative cues results from a habitual general encoding style. They state that this strategy developed as a functional means of avoiding detailed memories of adverse past experiences.

Retrieval Processes

Retrieval is proposed to be an iterative process in which an intermediate description of the item to be retrieved is first constructed in the mind and used to search for memories that match the description (Bobrow & Norman, 1975; Norman & Bobrow, 1979). Consciously-controlled processes modulate the construction of descriptions, the verification of information retrieved from long-term memory and general problem-solving and executive processes (Burgess & Shallice, 1996). Conway and Pleydell-Pearce (2000) propose that AM is hierarchically organised from event specific knowledge through to general events, which in turn form part of lifetime periods. Retrieval occurs when autobiographical representations are formed from past events and associated semantic knowledge, in the context of the individual's current goals. Activation of representations occurs through either generative retrieval (an intentional, top-down memory search) or direct retrieval (rapid activation of event-specific knowledge, such as when a memory ‘pops into mind’). Conscious retrieval and the subjective phenomenon of remembering arise as a result of interactions between the eliciting cue, the stored representation of the event, and executive control processes. Activation of event-specific knowledge is highly associated with this experience, and may lead to memory vividness and re-experiencing of intense emotions from the time of the event. This can be problematic if it reinstates past goals and subsequently disrupts pursuit of current goals. In normal functioning, access to this information is selective. However, if this system of regulation is disrupted, this may further interfere with functioning.

Functional Avoidance

Generative retrieval in psychosis may be disrupted in a number of ways. Conway and Pleydell-Pearce (2000) propose that overgeneral retrieval results from premature termination of the search process when only general information has been accessed. They suggest this is a form of functional avoidance that inhibits arousal of negative affect associated with recalling unpleasant or traumatic events.

Executive Functioning Deficits

Disrupted executive functioning may also contribute to impaired AM in this population. Schizophrenia has consistently been associated with impairments in executive control processes (Heinrichs & Zakzanis, 1998; Reichenberg & Harvey, 2007). Both theories by Burgess and Shallice (1996) and Conway and Pleydell-Pearce (2000) implicate the coordination of multiple executive processes in generative retrieval of specific memories. Overgeneral retrieval may arise from impaired generation of a specific search description, or poor inhibition of irrelevant material. Hence, retrieval cues may alter the degree of cognitive effort required for specific recall. For example, cues with high imageability provide additional perceptual information that aid retrieval (Williams et al., 1999).

Attention Capture and Rumination

Finally, Williams et al., (2007)'s multi-component model of autobiographical memory (CaRFaX) proposes that attention capture and rumination also contribute to overgeneral memory. It proposes that aspects of the cue may activate self-related schema, triggering ruminative processes that interrupt execution of the retrieval process, leading to overgeneral memory. This hypothesis is supported empirically within the general population (Singer & Moffit, 1991), and in previously depressed and borderline personality disordered patients (Spinhoven et al., 2007). It is proposed that cues prompting self-relevant information are more likely to capture attention in individuals with poor executive functioning, such as those with psychosis, and to interfere with specific retrieval.

Summary and Aims of the Current Review

The range of cue types used to examine AM functioning in psychosis has expanded considerably over time and the associated research results have stimulated new hypotheses about the nature and cause of AM deficits. The scope of the literature now warrants a systematic analysis of how the form and content of cues used to trigger autobiographical recall in people with psychosis affects the specificity and speed of memory retrieval. This review aims to describe and analyse the variations of cue type used in AM research, and determine the relationship of these to the latency and specificity of AM retrieval. The results will be discussed within the context of existing models of AM and schizophrenia. Furthermore, the relationship between methodological quality and the

effect sizes reported within the research will be examined. This is intended to provide future researchers with a rational basis for interpreting and selecting different cueing paradigms. This will complement previous reviews of AM research in depression and trauma populations (van Vreeswijk & de Wilde, 2004; Williams et al., 2007).

Methods

The methods used for the implementation and reporting of this systematic review are based upon guidance outlined by the Centre for Reviews and Dissemination (2009) and the PRISMA Statement (Moher et al., 2009; Liberati et al., 2009).

Search Strategy

A systematic search of electronic databases was conducted. These included Medline and Embase (via OVID online), the Psychology & Behavioural Sciences Collection, CINAHL, PsycArticles and PsycInfo (via EBSCOhost), and Web of Science (via Web of Knowledge).

To identify potential articles, the following search terms and Boolean operators were entered, combined with the Boolean operator 'OR' when necessary.

- Schizophreni*; Psychosis; Psychotic; Hallucination*; Delusion*
- Autobiographic* memory
- Latency; Specific*; Overgeneral; Over general; Over-general

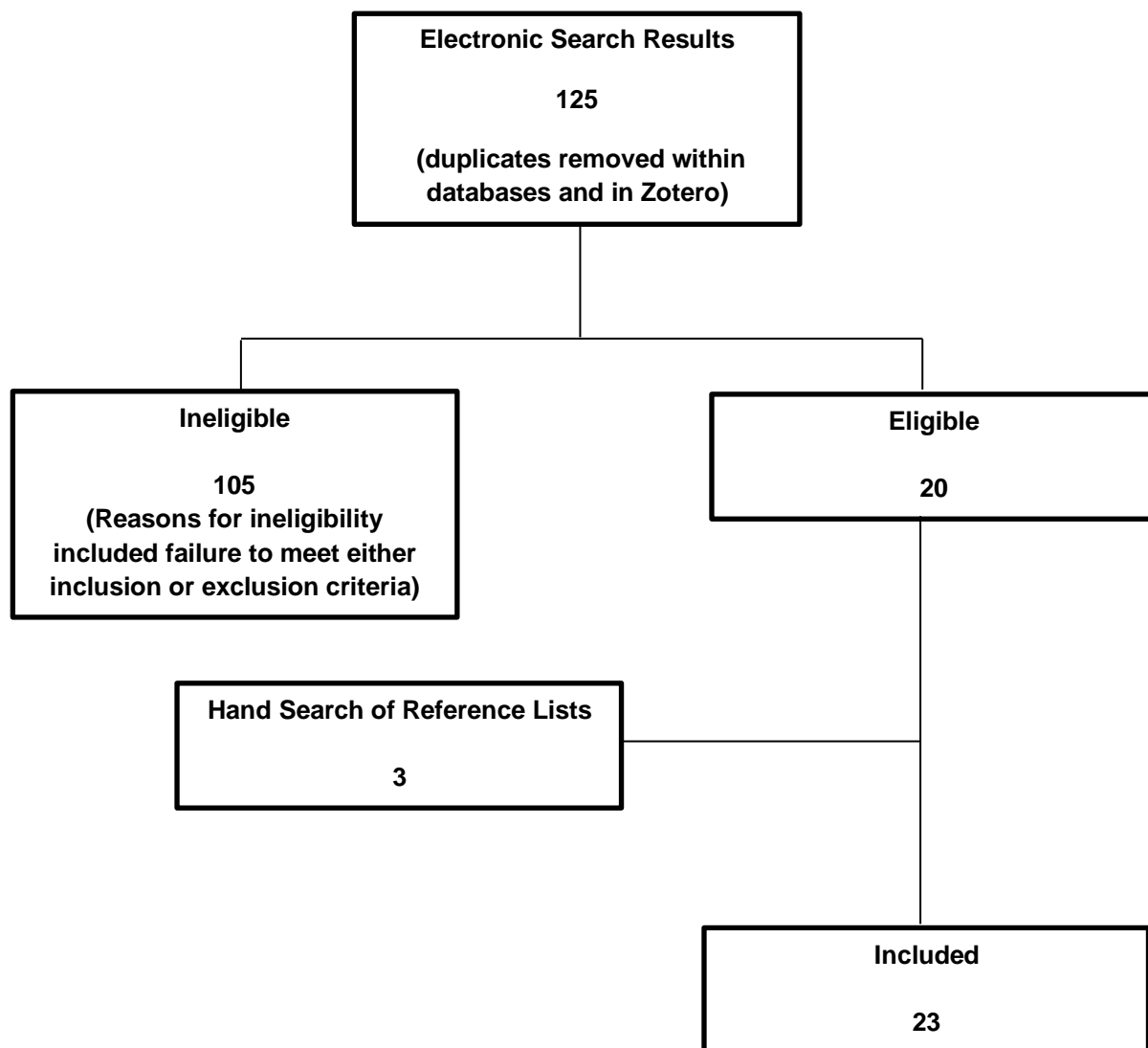
These were then combined with the Boolean operator 'AND' to produce the final output of relevant studies. Searches were limited to those published in the English language, and those with human subjects. Date of publication limitations were specified to include all articles published until the end of December 2012. Duplicates were removed.

The title and abstract of each paper identified were screened by the reviewer to determine eligibility for inclusion against the following criteria: a) AM retrieval specificity and/or latency was assessed using a structured method; b) participants had psychosis, as broadly defined, or were diagnosed with schizophrenia-spectrum disorders; and c) participants were adults aged between 18 and 65 years. The exclusion criteria included a) studies not written in English; b) unpublished research; c) abstracts and conference proceedings; d) book chapters; e) single case studies; and f) studies where psychotic symptoms were experimentally-induced, or where the cause of psychotic symptoms was a diagnosed neurological condition. Where it was not clear if all criteria were met, the full paper was obtained. Where eligibility for inclusion remained unclear, another researcher

(HM) reviewed the full article. A second independent researcher reviewed 20% of the papers identified by the electronic search, with 100% agreement.

Figure 1 illustrates this process of selecting studies for inclusion. Electronic searches identified 125 articles, of which 20 met the eligibility criteria. Hand searches of the reference lists of eligible articles detected a further 3 eligible studies.

Fig. 1 – Flow Chart of Search Results



Data Extraction

A data extraction sheet was developed to enable collection of the information required to fulfil the aims of this review (see Appendix 1.2). This was piloted on five randomly selected studies that met inclusion criteria. Data was extracted by the reviewer (ER). A second, independent researcher reviewed this process for a quarter of these studies with 100% agreement.

Quality Appraisal

As recommended within the PRISMA Statement (Moher et al., 2009; Liberati et al., 2009), the methodological quality of studies included in this review was evaluated using a quality appraisal checklist that assessed key methodological components (see Appendix 1.3). This was developed specifically for this review, using a structured approach. Its content was based upon existing frameworks, including the Clinical Trials Assessment Measure (CTAM; Tarrier & Wykes, 2004) and the structured approach proposed by Crowe & Sheppard (2011). It was piloted on five of the included articles and adjustments made accordingly. An independent rater reviewed the quality rating of half of these papers. Inter-rater agreement was excellent, with raters agreeing on 96% of scoring items. This increased to 100% following discussion.

Results

General Characteristics of Participants, Study Designs, Primary Outcomes and Autobiographical Memory Tasks

Table 1 summarizes the population samples, AM paradigms and cues used, outcome measures adopted, and the methodological quality rating score achieved. The majority of studies were conducted using participants with schizophrenia or schizophrenia-spectrum disorders, although two used more constrained diagnostic samples including delusional disorder (Kaney et al., 1999) and paranoid schizophrenia (Cuervo-Lombard et al., 2012). Sixteen studies allowed direct comparison of outcome measures for these clinical samples with non-clinical controls, and a further study utilized normative data for comparison. These studies form the main focus for this review. The remaining six studies either lacked a control group or made comparisons between schizophrenia samples that differed by variables including history of suicide attempts, presence of post-psychotic depression or participation in an AM intervention. All eligible studies measured the specificity of AM retrieval, whilst only four additionally assessed retrieval latency.

In terms of paradigms used, eight studies used the AMT or its adaptations, four used the Autobiographical Memory Interview (AMI; Kopelman et al., 1990) or its adaptations, three used adaptations of the Autobiographical Memory Enquiry (AME; Borrini et al., 1989), two used the Self-Defining Memories Questionnaire (SDMQ; Moffit *et al*, 1994; Singer & Moffit, 1991) and a further two applied both the AMT and AMI. The remaining four studies employed more idiosyncratic methods. The cue types used can be divided into four categories. These include cues of varying emotional valence (11 studies), cues that prompt recall of memories from particular lifetime periods (8 studies), cues that prompt

recall of important life events (4 studies) and word cues consisting of frequently spoken, vivid nouns (1 study). One study used a combination of emotion and lifetime period cues.

Effect Sizes

Because few studies reported effect sizes, the necessary data was extracted from the papers for calculation of Cohen's d .

Studies with Non-Clinical Comparison Groups

Emotional Cues

Table 2 summarises the five studies that utilised emotional cues and assessed specificity of AM retrieval. Three used positive and negative word cues (e.g. happy, guilty), with Warren and Haslam (2007) additionally using neutral words (e.g. grass). Neumann et al. (2007) employed positive and negative pictorial cues, featuring scenes involving people, animals or objects. All these studies consistently found that individuals with psychosis retrieved fewer specific memories compared to controls, with estimated effect sizes ranging from medium-large to large. Retrieval specificity for positive versus negative cues was compared in two studies (Kaney et al., 1999; Wood *et al*, 2006) but no differences were found.

Kaney et al. (1999), Wood et al., (2006), and Warren and Haslam (2007) assessed retrieval latency in response to emotional cues. Kaney et al. (1999) noted that individuals with Delusional Disorder (DD) took longer to recall compared to controls, with large effect sizes noted for group-wise comparisons by cue valence ($d = 1.40$ for positive cues; $d = 1.14$ for negative cues). Warren & Haslam (2007) also noted slower retrieval in those with schizophrenia, compared to controls, but this difference did not reach significance. In contrast, Wood et al. (2006) found those with schizophrenia responded faster than controls (effect size $d = 1.73$). Response latencies did not differ by cue emotional valence for DD participants (Kaney et al., 1999) or schizophrenia groups (Wood et al., 2006). In summary, individuals with psychosis consistently exhibited overgeneral memory in response to emotional cues. However, retrieval latency patterns varied.

Table 1. Summary of study sample characteristics, the autobiographical memory paradigm and cues used, outcome measures and methodological quality rating.

Study	Sample	Paradigm	Cue Type	Measures Specificity? (Y/N)	Measures Retrieval Time? (Y/N)	Quality Rating (out of 40)
Tamlyn et al. (1992)	5 Schiz.	AMI	lifetime periods	Y	N	11
Feinstein et al. (1998)	19 Schiz.; 10 Controls	AMI	lifetime periods	Y	N	17
Harrison & Fowler (2004)	38 Schiz.	AMT	emotional	Y	N	18 *
Corcoran & Frith (2003)	59 Schiz.; 44 Controls	AMI (AI only)	lifetime periods	Y	N	21
Kaney et al. (1999)	20 DD; 20 Depr.; 20 Controls	AMT	emotional	Y	Y	21
Taylor et al. (2010)	40 SSD with H _x of SA; 20 SSD with no H _x of SA	AMT	emotional	Y	N	22
Warren & Haslam (2007)	12 Schiz.; 12 Depr.; 12 Controls	AMT & AMI	emotional (AMT) & lifetime periods (AMI)	Y	Y	22
Petterson et al. (2010)	16 Schiz./SD with H _x of SA; 16 Schiz. with no H _x of SA	AMT	emotional	Y	N	23

Table 1 continued.

Study	Sample	Paradigm	Cue Type	Measures Specificity? (Y/N)	Measures Retrieval Time? (Y/N)	Quality Rating (out of 40)
Bennouna-Green et al. (2012)	25 Schiz.; 25 Controls	Novel Task	important personal events	Y	N	24
Cuervo-Lombard et al. (2007)	27 Schiz.; 27 Controls	Adapt. From Holmes & Conway (1999)	important personal events	Y	N	24
Wood et al. (2006)	20 Schiz.; 20 Controls	AMT & AMI	emotional (AMT) & lifetime periods (AMI)	Y (for AMT & AMI)	Y (for AMI only)	24
Blairy et al. (2008)	15 Schiz. Completed AM Int.; 12 Schizophrenia Controls	AMT (French Version)	emotional	Y	N	25
D'Argembeau et al. (2008)	16 Schiz.; 16 Controls	Adapt. of AMT	emotional	Y	N	25
Danion et al. (2005)	22 Schiz.; 22 Controls	Adapt of AME	lifetime periods	Y	N	25
Mehl et al. (2010)	55 SSD; 45 Controls	AMI	lifetime periods	Y	N	25
Ricarte et al. (2012)	24 Schiz. Completed AM Int.; 26 Schizophrenia Controls	Written Adapt. of AMT (Spanish Version)	emotional	Y	N	25

Table 1 continued.

Study	Sample	Paradigm	Cue Type	Measures Specificity? (Y/N)	Measures Retrieval Time? (Y/N)	Quality Rating (out of 40)
Riutort et al. (2003)	24 Schiz.; 24 Controls	Adapt. of AME	lifetime periods	Y	N	25
Potheegadoo et al. (2012)	25 Schiz.; 25 Controls	Adapt. of AME	lifetime events & emotional	Y	N	26
Raffard et al. (2010)	81 Schiz; 50 Controls	SDMQ	important personal events	Y	N	26
Cuervo-Lombard et al. (2012)	17 PS; 14 Controls	Novel Task	Nouns	Y	N	27
Neumann et al. (2007)	20 Schiz.; 20 Controls	Novel Task	emotional	Y	N	27
Raffard et al. (2009)	20 Schiz.; 18 Controls	SDMQ	important personal events	Y	N	27
Iqbal et al. (2004)	13 SSD with PPD; 16 SSD without PPD	AMT	emotional valence	Y	Y	29

Variables: Schiz. = Schizophrenia; Depr. = Depression; DD = Delusional Disorder; SD = Schizoaffective Disorder; SSD = Schizophrenia-Spectrum Disorders; H_x of SA = History of suicide attempts; PS = Paranoid Schizophrenia; AM Int.= Autobiographical Memory Intervention; AMI = Autobiographical Memory Interview (Kopelman et al. 1990); AI = Autobiographical Incidents; AMT = Autobiographical Memory Test (Williams & Broadbent, 1986); AME = Autobiographical Memory Enquiry (Borrini et al., 1989); SDMQ = Self-Defining Memories Questionnaire (Moffit *et al*, 1994; Singer &Moffit, 1991); Adapt. = Adaptation; Y = Yes; N = No; * indicates some quality rating items not applicable

Table 2. Summary of studies that used emotional cues, including descriptions of cues used, memory specificity indices, main findings and effect sizes.

Study	Cues	Memory Specificity Index	Main Finding	Effect Size Estimate (d)
Kaney et al. (1999)	6 positive words; 6 negative words	Proportion of Specific Memories	DD < controls	0.65 ^a (medium-large)
Wood et al. (2006)	6 positive words; 6 negative words	Proportion of Specific Memories	Schizophrenia < controls	3.66 ^a (large)
Neumann et al. (2007)	25 pictures of positive scenes; 25 pictures of negative scenes	Proportion of Specific Memories	Schizophrenia < controls	—
Warren & Haslam (2007)	5 positive words; 5 negative words; 5 neutral words	No. of Specific Memories	Schizophrenia < controls	—
D'Argembeau et al. (2008)	5 positive sentences; 5 negative sentences	Proportion of Specific Memories	Schizophrenia < controls	0.95 ^a (large)

Variables: DD = Delusional Disorder

Note: Dash indicates insufficient data available to calculate effect size.

^a indicates effect size for overall comparison between groups.

Time Period Cues

Table 3 presents outcome data for the eight studies that prompted recall of events from specified time periods. Most of these studies used the AMI (Kopelman et al., 1990), which attempts to elicit memories from lifetime periods consistent with childhood, adulthood and the recent past (e.g. incidents that occurred whilst the participant was at secondary school or his first job). Riutort et al. (2003) and Danion et al. (2005), also used cues about particular event types (e.g. a family event, or a journey) to further prompt recall within each lifetime period. The Potheegadoo et al. (2012) study is unique as it additionally used emotional valence cues to prompt memory recall within each time period, by requesting recall of pleasant and unpleasant memories.

Studies that used the AMI consistently reported less specific retrieval in psychosis compared to controls, with the three that reported sufficient data to estimate effect size observing large effect sizes. Riutort et al. (2003) adopted cues that defined time periods in relation to symptom onset (e.g. events that occurred in the time between symptom onset and one year prior to testing), to investigate the relationship between overgeneral memory and the illness process. They reported fewer specific memories in schizophrenia compared to controls, but only for time periods after symptom onset. The inclusion of multiple cue types in Danion et al. (2005) and Potheegadoo et al. (2012) did not alter the previously observed pattern of reduced specificity in psychosis, or the large effect size associated with this comparison.

Retrieval specificity across different lifetime periods is available for three studies. Whilst Riutort et al. (2003) and Danion et al. (2005) found no effect of time period, Wood et al. (2006) noted reduced specificity for childhood and early adulthood compared to recent life cues. Altogether, when time period cues are used instead of emotional cues, there is consistent evidence of overgeneral memory in psychosis. However, as none of these studies measured the retrieval latency, it remains unknown what effect this cue type has on the speed of retrieval.

Table 3. Summary of studies that used time period cues, including cue descriptions, memory specificity indices, main findings and effect sizes.

Study	Time Period Cue	Memory Specificity Index	Main Finding	Effect Size Estimate (d)
Tamlyn et al. (1992)	Childhood; Adulthood; Recent Past	AMI Total Score	Schizophrenia < normative data for all cues	—
Feinstein et al. (1998)	Childhood; Adulthood; Recent Past	AMI AI Score	Schizophrenia < controls for all cues	—
Corcoran & Frith (2003)	Childhood; Adulthood; Recent Past	AMI AI Score	Schizophrenia < controls for all cues	1.21 ^a (large)
Riutort et al. (2003)	Childhood to 10; 11 to Symptom Onset; Symptom Onset to 1 Year Pre-Testing; Current Year	Proportion of Specific Memories Within Each Time Period	Schizophrenia < controls for Symptom Onset to 1 year Pre-Testing and Current Year only.	—
Danion et al. (2005)	Childhood to 9; 10 to 19; 20 to One Year Pre-Test; Current Year	Specificity Rating on a 4 Point Scale	Schizophrenia < controls for all cues	1.76 ^a (large)
Wood et al. (2006)	Childhood; Adulthood; Recent Past	AMI AI Score	Schizophrenia < controls	1.91 ^b (large) 1.69 ^c (large) 2.18 ^d (large)
Warren & Haslam (2007)	Childhood; Adulthood; Recent Past	AMI AI Score	Schizophrenia < controls	1.49 ^a (large)
Potheegadoo et al. (2012)	Pleasant & Unpleasant Events from each Time Period - Childhood to 9; 10 to 19; 20 to One Year Pre-Test; Current Year	Specificity Rating on a 4 Point Scale	Schizophrenia < controls	0.81 ^a (large)*

Variables: AMI = Autobiographical Memory Interview (Kopelman et al. 1990); AI = Autobiographical Incidents

Note: Dash indicates insufficient data available to calculate effect size.

^a indicates effect size for overall comparison between groups.; ^b indicates effect size for comparison between groups for childhood periods

^c indicates effect size for comparison between groups for adulthood periods; ^d indicates effect size for comparison between groups for recent past periods

* indicates effect size calculated using grand mean and pooled standard deviation.

Important Personal Event Cues

Four studies utilised cues prompting recall of personal events of significance or importance to the participant. For example, Bennouna-Green et al., (2012) used “I am...[e.g. a teacher]” statements that participants had endorsed as self-defining. Table 4 summarises the results of these studies. None of the studies recorded retrieval latencies. The results are mixed. Cuervo-Lombard et al. (2007) and Bennouna-Greene et al. (2012) reported reduced specificity in the psychosis populations, with large effect sizes. The remaining two studies, both of which used the SDMQ, did not find a difference in specificity compared to controls.

Table 4. Summary of studies that used important personal event cues, including memory specificity indices, main findings and effect sizes.

Study	Memory Specificity Index	Main Finding	Effect Size Estimate (d)
Cuervo-Lombard et al. (2007)	Specificity Rating on a 4 Point Scale	Schizophrenia < controls	1.74 ^a (large)
Raffard et al. (2009)	No. of Specific Memories	Schizophrenia = controls	0.43 ^a (small-medium)
Raffard et al. (2010)	No. of Specific Memories	Schizophrenia = controls	0.20 ^a (small)
Bennouna-Green et al. (2012)	Proportion Specific Memories	Schizophrenia < controls	1.10 ^a (large)

Note: Dash indicates insufficient data available to calculate effect size

^a indicates effect size for overall comparison between groups.

Noun Cues

Cuervo-Lombard et al. (2012) completed the only study that used cues consisting of nouns that were frequently occurring in spoken language and highly imageable (e.g. car, school). No specificity difference was found between those with paranoid schizophrenia and controls, with a medium effect size for this comparison (d=0.54). However, the study excluded those who were deemed unable to perform the memory task from the schizophrenia group. It is therefore unsurprising that there was no group difference. This clinical sample is thus not generalizable to the schizophrenia population as a whole.

Psychosis Group Comparisons

Six studies used within subjects designs to assess AM in psychosis, rather than comparing AM retrieval between clinical and non-clinical groups. All used the AMT and emotional cues. These included positive and negative words, neutral words, and defeat/entrapment words (e.g. escape, loser).

These studies are important as they highlight the potential links between overgeneral memory in psychosis and aspects of psychological functioning. Investigating suicidality, Petterson et al. (2010) found more overgeneral memory in those with a history of suicide attempts than those without, whilst Taylor et al. (2010) noted the opposite relationship. Iqbal et al. (2004) found that the presence of post-psychotic depression did not impact on retrieval latencies or the number of specific memories recalled. Furthermore, Harrison and Fowler (2004) observed an association between reduced memory specificity and greater negative symptoms in schizophrenia. Overgeneral memory has also been shown to have the potential to change following targeted cognitive interventions (Blairy et al., 2008; Ricarte et al., 2012), which may in turn have positive implications for overall wellbeing.

The Methodological Quality of the Research

The ratings of the methodological rigor with which the research has been conducted ranged from 11/40 to 29/40 (see Table 1). The relationship between methodological quality and observed effect sizes was explored to determine if there were any obvious sources of bias in the results, as suggested by Wykes et al. (2008). A Pearson's product-moment correlation found no association between the effect size for specificity calculations and the study quality ($r = -0.306$, $df = 10$, $p=0.334$). There was insufficient effect size data to conduct this analysis for studies that assessed retrieval latency.

Discussion

This systematic review contributes to the already robust empirical base for an overgeneral memory effect in psychosis. A range of cue types have been employed in the assessment of AM in psychosis populations, including cues that are emotional, vivid and commonly used, or related to life time periods or important life events. In synthesising the evidence for the effect of cue type manipulations on the specificity and latency of AM retrieval, it has been noted that other methodological features of cueing paradigms may also play a role in determining AM retrieval patterns. The results provide support for existing models of AM and contribute towards explaining the role of AM in the functioning of those with schizophrenia.

The Effect of Task Methodology on Retrieval Specificity

The majority of studies included in this review employed the AMT or the AMI. There is consistent evidence, with large effect sizes, showing overgeneral retrieval in response to cue words of varying emotional valence, and to instructions to recall events from different time periods. However, there are too few studies available to determine the impact of using other cue types. Only one study has used noun cues, and did not show evidence of overgeneral memory in paranoid schizophrenia (Cuervo-Lombard et al., 2012), whilst mixed results were reported in response to cues that prompt important personal events.

In general, the methodological quality of the research in this area did not appear to impact upon the strength of specificity differences reported between clinical and non-clinical populations. However, there are a number of caveats to this finding. Firstly, effect size data for this analysis was only available for twelve of eighteen between-group comparisons of specificity. Additionally, whilst the quality appraisal rating scale provided a general indication of the research quality, the impact of some unanticipated methodological approaches may not have been fully represented (e.g. sampling biases, task instructions). Therefore, whilst this analysis is useful in providing a general overview of the impact of methodological rigor, more study-specific issues must also be considered. The studies that used noun cues and cues prompting important personal events did exhibit methodological concerns, for example biased recruitment procedures, small samples sizes and failure to account for known covariates. Whilst it is difficult to quantify the potential impact of these, it remains conceivable that overgeneral memory may occur more consistently in response to these cues under different experimental conditions.

In particular, systematic comparison of the study results suggests that variations in task instructions had a substantial effect on retrieval patterns. When using cues prompting important personal events, the two studies that found no specificity differences between patients and healthy controls applied the SDMQ. In this task, participants are oriented to produce a self-defining response with the instruction “think about a specific event in your past that you feel is still important and helps you define who you are” (Raffard et al., 2009, pp.30). The instructions do not define, or emphasize the need for, a specific memory. This provides a naturalistic method of memory cueing, similar to that used within therapy. Such spontaneous retrieval differs from that in the AMT or AMI, where a self-initiation of specific retrieval is required (Raffard et al., 2010). Overgeneral memory may thus be less problematic in real-life situations than less ecologically-valid research suggests. Furthermore, according to Williams et al.’s (2007) model, the attention shift to self-defining topics may trigger rumination which occupies executive resources, leading to more general recall. Rumination has been associated with negative symptoms in schizophrenia (Halari et al., 2009), as has impaired executive function (Addington et al. 1991). The link

demonstrated between negative symptoms and AM deficits (Harrison & Fowler, 2004) may thus arise as a result of this reduced executive capacity. Whilst the relationship between AM and rumination has not yet been investigated in psychosis, Raffard et al.'s (2009, 2010) findings seem to support Williams et al.'s (2007) hypothesis.

Nonetheless, overall, preliminary conclusions from this research into AM specificity do not favour one single mechanism in explaining the causes of overgeneral memory in psychosis, but rather support a number of AM theories. Overgeneral memory may result either from deficits at the point of encoding (Danion et al., 1999; Kaney et al., 1999), or from disruption to retrieval processes due to functional avoidance (Conway & Pleydell-Pearce, 2000), attention capture and rumination (Williams et al., 2007) or impairments in cognitive functioning, particularly executive functioning. Indeed, it may be a consequence of a combination of these processes. Further investigation is still required to tease these apart.

The Effect of Task Methodology on Retrieval Latency

The few studies that assessed AM retrieval latencies in response to emotional cues produced mixed results, with two reporting slower retrieval for schizophrenia groups compared to controls (Kaney et al., 1999; Warren & Haslam, 2007), and one reporting quicker retrieval (Wood et al., 2006). These findings may result from variations in the amount of time participants were permitted to think of a specific response. Studies that showed slow retrieval allowed more time for responding (i.e. sixty seconds or no time limit) compared to the study showing quick retrieval (i.e. thirty seconds). One interpretation is that these time intervals allow detection of two separate retrieval mechanisms in operation in schizophrenia that take different lengths of time to complete. Firstly, rapid recall may occur in instances where functional avoidance of negative affect prematurely halts the retrieval process (Conway & Pleydell-Pearce, 2000). Providing shorter time periods for responding may only allow detection of memories retrieved by this process, and associated reduced latencies. Secondly, when avoidance is not necessary, a more extensive (and therefore time-consuming) memory search may occur. This could additionally be captured within the latency data if longer time periods for responding are provided. Furthermore, this extensive memory search may take longer for the psychosis groups compared to controls due to impaired executive functioning (Williams et al., 2007) or higher levels of depressive symptomatology (which are associated with longer retrieval latencies; Serrano et al., 2007). In summary, shorter time limits for retrieval may only capture functional avoidance processes, resulting in shorter latencies, whilst longer limits provide opportunities for detection of impairments in the more extensive search process.

There was a lack of studies that measured retrieval latencies in psychosis. This needs to be addressed to aid our conceptualisation of AM in this population. As indicated above, retrieval speed may be contingent upon multiple retrieval processes (e.g. functional avoidance, executive functioning), the accessibility of stored information, and the task difficulty and effort required. To evaluate this further, more systematic recording of latencies, and investigation of how retrieval time limits impact these, is required. Additionally, this research requires greater control over potential covariates, such as depression.

The Impact of Sub-Cues on Autobiographical Memory

The studies that used multiple emotional sub-cues (i.e. positive vs. negative cues), consistently reported no difference in AM retrieval latency and specificity in response to the different sub-cues, whilst there were mixed results when comparing retrieval specificity across time period sub-cues. Data for the effects of sub-cues was only available for 42% of the specificity comparisons conducted, and 67% of the latency comparisons. Despite this limited information, the findings for emotional sub-cues are consistent with reviews in depression and trauma populations. These indicate no association between sub-cue type and specificity of retrieval, as well as an imperfect match between cue valence and the emotional tone of the memory retrieved (van Vreeswijk & de Wilde, 2004; Williams *et al.*, 2007). This implies that the cue's function is being transformed such that, for instance, positive cues elicit negative memories (e.g. the cue "party" could trigger a specific memory of being assaulted at a party). The potential for these idiosyncratic associations has been proposed to lead to the development of a habitual overgeneral retrieval style, due to early truncation of the memory search, in order to avoid distressing memories (Kaney *et al.*, 1999; Williams *et al.*, 2007). This is supported by findings in depressed patients that overgeneral memory to negative cues is linked with overgeneral memory to positive cues (van Vreeswijk & de Wilde, 2004), and may be characteristic of psychosis populations too.

Most studies that have compared lifetime period cues report some variations in the specificity of retrieval from different time periods. These differences have been interpreted in terms of their coincidence with psychotic symptoms. Feinstein *et al.* (1998) observed that retrieval for lifetime periods produced a U-shaped curve, with the most impoverished recall coinciding with time periods when illness onset typically occurs. Retrieval of memories before and after this was less impaired. They propose that defective encoding and consolidation of to-be-remembered information occurs as a consequence of symptom onset. Consistent with this, Wood *et al.* (2006) and Riutort *et al.* (2003) note impairments to be most apparent to cues that prompt retrieval of memories from the around the time of illness onset. Experiences of psychotic symptoms, and resulting hospital admission, can be unpleasant, and even traumatic (see Morrison *et al.*, 2003, for review). Therefore, the

retrieval patterns could also represent patients' attempts to minimize the emotional impact of these particular experiences. This more selective avoidance of memories (consistent with Conway & Pleydell-Pearce, 2000) appears to be occurring within the context of a wider overgeneral retrieval style (Williams et al., 2007).

Clinically, these results suggest patients may struggle to remember times when illness recurs or worsens. They may lack a coherent narrative of these times, making it difficult for them to make sense of the events that occurred or their sequelae. Indeed episodes of psychosis can lead to post-traumatic stress disorder (PTSD; see Morrison et al., 2003, for review). PTSD is theorised to result from failure to adequately integrate traumatic experiences into AM (Brewin et al., 1996). Impoverished encoding and retrieval may therefore contribute to this process. More outcome data is required in relation, not just to different cue types (e.g. time periods), but to individual sub-cues too (e.g. childhood vs. adulthood vs. recent).

Recommendations for Future Research

This review has contributed towards our understanding of how AM cueing methodologies, particularly the retrieval cues used, impact retrieval. The available findings support a range of existing models of AM that can be applied to psychosis. However, further research is needed to separate out their individual contributions. Within therapy, understanding how AM operates under different conditions is vital given the expectations we place upon patients to not only provide detailed accounts of their experiences, but also to reflect upon these. Knowledge of the source of AM impairments may additionally allow us to develop strategies to limit such deficits.

The studies included in this review reflect the early, yet developing, stage of this area of research. To date, studies have primarily applied the AMT or the AML, and have mainly used emotional cues and cues prompting recall from different time periods, although other new cue types are being introduced. The AM retrieval of four hundred and forty seven individuals with psychosis has been compared to non-clinical controls thus far. The samples used have generally been small, although more recently some larger scale studies have been completed. Research in this area is generally improving methodologically, with more recent studies obtaining higher quality ratings. However, if future research is to conclusively answer the questions posed by this review, further improvements in the execution of studies using AM cueing procedures are required.

Whilst we have already made some suggestions for future research, there is additionally a need to assess retrieval in response to a greater variety of cues, to evaluate how other cue aspects impact retrieval. For example, cue imageability (Williams et al., 1999) and the

sensory modality of presentation (Goddard et al. 2010) have been shown to impact on AM retrieval patterns in non-clinical populations. Cues of low imageability contain limited perceptual information, and thus necessitate greater effort and executive functioning capacity for specific retrieval (Williams et al., 1999). It is therefore hypothesised that vivid cues will be required to compensate for executive functioning deficits in psychosis, more so than in non-clinical groups. Furthermore, in healthy populations, visual images and word cues facilitate AM retrieval compared to odour cues, possibly due to cross-modal linking between visual and verbal information (Goddard et al., 2010). In the current review, Neumann et al. (2007) used picture cues and noted overgeneral memory in schizophrenia, similar to that found for word cues. This is consistent with previous findings, but further research in psychosis using alternative modes of presentation (such as odour) and cues of varying imageability is required.

Additionally, inconsistencies in the conceptualisation of retrieval specificity exist within the reviewed studies. Firstly, some coding strategies described AM specificity in terms of the duration of the event and temporal and spatial information (e.g. Williams & Broadbent, 1986), whilst others additionally evaluated the level of detail reported regarding cognitions or emotions (e.g. Piolino et al., 2003). Secondly, whilst some studies reported the specific memories recalled (e.g. the total number of memories that were specific), others used a measure of general memories (e.g. total number of general memories). Due to the availability of data, this review used measures of specific memories when synthesising research outcomes. However, at times a mismatch was observed within studies, with overgeneral memory indicated by one measure but not the other (e.g. Iqbal, 2004). These variations limit the integration of study outcomes and a more consistent approach to characterising and reporting specificity is required.

Furthermore, the quality of the studies included within this review varied widely. The control of potentially confounding variables is an important methodological task. There are well-documented links between depression and overgeneral retrieval (see van Vreeswijk & de Wilde, 2004; Williams et al., 2007 for reviews), and it has also been suggested that general cognitive functioning is associated with retrieval specificity (e.g. Park et al., 2002; Raes *et al*, 2006). Most of the reviewed studies have made attempts to measure and control for depression and cognitive functioning. However, there was a general failure to acknowledge and consider the potential impact of trauma on AM, despite the extensively documented relationship between these variables (Williams et al., 2007). Future research needs to make more explicit attempts to assess and take into account the effects of trauma, especially given the complex relationship between psychotic symptoms and trauma history (see Morrison et al., 2003, for review).

Finally, few studies presented information regarding those who declined participation or dropped out. This data is vital in determining the generalizability of the results and should be routinely reported. Most research also failed to report calculations relating to the determination of required sample sizes, the statistical power achieved, effect sizes obtained or the data required to calculate Cohen's *d*. These omissions limit the interpretation of results, particularly for those studies where no difference was found between groups. If future reviews are to successfully interpret and collate such data, reporting of this information will be vital.

Limitations

In interpreting the results of this review, some limitations in its implementation must be considered. Firstly, the quality rating scale developed for this review was useful in providing a general measure of quality and enabling like-for-like comparison between studies. However, the summary score may have hidden the true significance of certain methodological approaches, either because they were idiosyncratic and unanticipated or because achievements in other areas brought the score back up (such as in Cuervo-Lombard et al., 2012, where biased recruitment excluded participants with anticipated AM deficits whilst research quality was otherwise good). The score may thus overestimate research quality. Best efforts have been taken to highlight instances where this is the case within the narrative synthesis, to enable accurate interpretation.

Secondly, some information required to answer the review questions was not reported in published studies. This was partly because the review's aims were not always consistent with those of the included studies. For example, studies concerned with gaining a general measure of AM specificity for comparison with other variables did not report or investigate outcome data for different sub-cue types (e.g. D'Argembeau et al. 2008). This somewhat limits the conclusions that can be drawn from this review. However, areas of incomplete data have been highlighted to facilitate the reader's interpretation of the review findings.

Conclusions

In summary, this review provides support for the presence of an overgeneral memory effect in individuals with psychosis in response to emotional cues and cues prompting recall from particular life time periods. Yet retrieval of self-defining memories may be as specific in psychosis as for non-clinical populations, under more naturalistic conditions. Manipulating the emotional valence of cues does not appear to directly alter the overall trend toward overgeneral retrieval. Psychosis populations also show greater overgeneral retrieval for events that coincided temporally with symptom onset. This research is still at the early stages but improving in quality. While it is not yet possible to be definitive about how AM impairments arise in this population, functional avoidance appears to play a role.

The instructions given to participants and the amount of time they have to think of a response may provide further malleable aspects of memory cueing procedures, in addition to cue type, for investigating the structures and processes involved. As the evidence-base continues to improve, further evaluation of the applicability of AM models to this population will be possible.

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Chapter 2: Major Research Project
A Novel Measure for the Evaluation of Autobiographical Memory and
Mentalization in Different Social Contexts

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Written according to guidelines for submission to the journal *Cognition and Emotion*
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Plain English Summary

Title: A New Measure for Assessing Autobiographical Memory and Mentalization in Different Social Contexts

Background: Few research studies have investigated the relationship between an individual's ability to remember personal events from the past (i.e. autobiographical memory) and the ability to think about their own and other people's feelings and thoughts (i.e. mentalization). It is thought that these skills may vary in different social situations, and particularly may be compromised for threatening experiences compared to experiences that are compassionate or motivating. This is relevant to clinical practice because, as part of the therapy process, patients are often asked to recall and make sense of past experiences within the social context of therapy.

Questions to be addressed by the study: This study developed and tested a new method for evaluating how autobiographical memory and mentalization operate in different social circumstances. It aimed to develop a method that could identify differential patterns of autobiographical memory and mentalization responding in these social contexts.

Methods: This new method was used with adult participants with either schizophrenia or a history of multiple traumatic experiences, who were recruited from community mental health services in Glasgow. Participants with other conditions that might impact performance on memory functioning (e.g. brain injury) were not included. We showed participants words associated with different social contexts, and asked participants to recall specific memories of past experiences that these reminded them of. Participants were asked to think about the mental process they went through in recalling these events. We recorded the time taken to remember an event, and whether the memory was about a specific incident or was more general.

Main Findings: Contrary to our expectations, when participants were asked to recall times they felt motivated, they took longer and gave more general answers. This may be because participants found this harder, either because the words used to cue memories were more abstract or because participants had not had many experiences of motivation. Their responses were quicker and more specific when remembering times of safety or threat. The new method did not detect any differences in how participants' understood thoughts and feelings relating to the three types of experience. However, participants who were good at this, were also good at remembering past personal events.

Conclusions: The new method developed in this study successfully identified differences in how memories for threatening, safe and motivating experiences were remembered, but further task development is needed. We recommended that more concrete, familiar cue words should be used and that more support and instruction should be given for parts of the task that assess mentalization.

Abstract

Background: The theories used to explain autobiographical memory and mentalization cite complementary mechanisms, and positive associations have been demonstrated between these functions. These cognitive operations may vary in different social contexts, dependent upon the prevailing social mentality (Gilbert, 1989, 2005).

Aim: This study evaluated a new method for assessing autobiographical memory retrieval, and reflective-functioning, in response to cues consistent with different social mentalities.

Methods: A sample consisting of participants with either schizophrenia-spectrum disorders or complex trauma was recruited. These populations were selected as both exhibit impairments in autobiographical memory and mentalization, and because trauma and psychosis are reciprocally and causally linked. The participants were asked to recall specific memories in response to cues reflecting compassion, threat and drive-focussed social contexts, and to reflect upon the retrieval process. The specificity and latency of retrieval were measured, and the narrative coded for level of reflective functioning.

Results: Retrieval was less specific in response to drive cues compared to threat cues. Drive cues were associated with longer retrieval latencies compared to threat and compassion cues. Reflective functioning was consistently poor, and did not differ following the different cues. However, consistent with previous research, reflective functioning was positively associated with retrieval specificity.

Conclusions: This new method detected differential retrieval patterns in response to the three cue types. Poor retrieval of drive-cued events may reflect a paucity of competitive and motivation-based experiences to draw from, or the abstract nature of the cues. Spontaneous self-reflectivity appears to be poor in these patients, who may require greater support with this process. Specific task developments are recommended to disentangle these hypotheses, including controlling cue familiarity and imageability, and providing more instruction and encouragement for the elaboration of metacognitive responses.

Introduction

Different modes of cognitive, emotional and behavioural responding are elicited by differing social circumstances, in a dynamic manifestation of evolution-shaped processing proclivities (Gilbert, 1989, 2005). Autobiographical memory (AM) and mentalization are examples of such processes. Yet little is known about the impact of social context on the expression of mentalization abilities, or the specificity and latency of AM retrieval. Methods for systematically evaluating these relationships do not exist.

Social Mentality Theory

Gilbert's (1989, 2005) Social Mentality Theory portrays the interplay of three evolutionary systems in the regulation of behavioural and emotional responding in social contexts relating to threat, drive and soothing. These develop through the exchange of social signals within reciprocal relationships, which activate specialized neurophysiological systems that sub-serve these capacities (Depue & Morrone-Strupinsky, 2005), and can be referred to as social mentalities. Each social mentality describes "how specific motivations (to form certain types of social relationship) direct attention appropriately, recruit relevant cognitive processing and guide emotions and behavioural outputs" (Liotti & Gilbert, 2011, pp.14). They enable navigation of the social world and pursuit of biosocial goals. From an evolutionary perspective, the adaptive expression of social mentalities in social contexts enables survival and reproduction (Gilbert, 2005).

Different systems operate in different social contexts (Gilbert, 2009). The first of these, the threat-based system, is activated when the individual perceives themselves at risk of danger. This negative affect system is mediated by primitive areas of the brain, and is involved in rapid detection of threat and subsequent emotional (e.g. fear, anger), behavioural (e.g. fight, flight, freeze) and cognitive responses. Which stimuli are interpreted as threatening is both genetically determined and dependent upon learned experiences, such as those of abuse. Secondly, the drive system is activated in social contexts where the individual is seeking to fulfil goals, such as gaining relationships. It motivates and guides individuals to seek the resources required for survival, and is linked to social rank. When activated, this system leads to feelings of arousal, energy, positive emotions (e.g. anticipation, excitement) and goal-directed behaviours, including competitive behaviour, status-seeking and avoidance of rejection (Depue & Morrone-Strupinsky, 2005). Finally, the soothing system is activated in affiliative, compassion-focussed situations. It too is associated with positive emotions (e.g. relaxation, well-being) and behaviours which are explorative but non-seeking and non-defensive (Gilbert, 1993). It underpins attachment capacity (Bowlby, 1969) and enables alleviation of distress

through attunement to the feelings of others and subsequent compassionate responding (Gilbert, 1989, 2005).

These three systems are in constant reciprocal interaction, the patterns of which depend upon both genetic factors and past experience. Positive early care experiences promote the development and predominance of the soothing system, which in turn influences the development and expression of the other two systems. However, following abusive or neglectful early care experiences, the soothing system's development may be hindered whilst the threat system becomes more easily activated. Such tendencies to misinterpret cues as indicators of threat, drive or social-safeness have been associated with psychopathology. For example, a recent meta-analysis found higher levels of self-compassion to be associated with reduced psychiatric symptomatology (MacBeth & Gumley, 2012), whilst low feelings of warmth, acceptedness and connectedness within the social world have been linked to psychosocial maladjustment (Kelly et al., 2012). This recent research is therefore beginning to identify important links between social mentalities and psychopathology. However, investigation of how aspects of psychological functioning differ within these social contexts is required to explain these relationships.

Autobiographical Memory and Mentalization

Our experiences, and the way we remember and reflect upon these, influence who we are. This process relies upon AM and mentalization, both of which may operate variably across social mentalities. This will be investigated in the current study. The term mentalization refers “collectively to all the higher order competencies that enable humans to infer and think about the mental states of self and others” (Liotti & Gilbert, 2011, pp.10). These enable us to make sense of past experiences and to integrate these into a coherent life narrative (Fonagy & Bateman, 2007). Mentalization is conceptually close to the constructs of metacognition (i.e. thinking about thinking; Flavell, 1979), and theory of mind (i.e. the awareness that others have beliefs and desires, and that these can explain behaviour; Frith & Frith, 1999).

Until recently AM and mentalization have been researched separately, largely in terms of their dysfunction in psychopathology. AM retrieval biases and impaired mentalization are present in depression, trauma and psychosis populations (Achim et al., 2012; Allen & Fonagy, 2002; van Vreeswijk & de Wilde, 2004; Watson et al., 2012; Williams et al., 2007). The literature demonstrating links between these cognitive functions is beginning to grow (see Dimaggio et al., 2012, for review). For example, a positive correlation has been observed between AM retrieval and performance on theory of mind tasks in schizophrenia (Corcoran & Frith, 2003). Furthermore, neuroimaging studies suggest a cross-over of brain systems involved in AM and theory of mind abilities (Rabin & Rosenbaum, 2012).

Corcoran (2001) suggests that, in order to understand others' mental states, reference to one's own AM is required as a basis for inference and comparison with the current event. Disruption to AM retrieval limits the pool of experiences available for consideration, resulting in reduced mentalization. It is suggested that encouraging specific retrieval within therapy may enhance mentalization skills by providing rich experiences within which to contemplate mental states (Lysaker et al., 2011). This may contribute to recovery through the development of a coherent, dynamic and integrated narrative of one's life experiences, including of psychotic symptoms.

Theoretical conceptualisations of AM and mentalization suggest that both are modulated by social mentalities. Mentalization may be reduced during activation of the threat system, and enhanced within the soothing system, whilst the drive-based system may alter mentalization variably (Liotti & Gilbert, 2011). AM retrieval efficiency may follow similar patterns, with impaired retrieval occurring for threat-based social experiences. This will be further discussed below.

Autobiographical Memory Retrieval

AM retrieval occurs when a retrieval cue interacts with part of a stored representation of an event within episodic memory, and reactivates the network within which the memory is stored (Marr, 1971). In this way stored information, including sensory, perceptual, conceptual and affective components (Conway, 2009), enters awareness. Researchers have used word-cueing paradigms to explore patterns of AM retrieval and to develop hypotheses regarding the structure of AM and the processes involved in retrieval. Such investigations within clinical populations have highlighted consistent biases in AM retrieval latency and specificity. In particular, an overgeneral memory effect has been observed in schizophrenia, depression and trauma presentations (for reviews, see Watson et al., 2012 and Williams et al., 2007). This is the tendency for individuals to give descriptions of *general* categories of events (e.g. "attending college classes"), despite receiving instructions to describe *specific* autobiographical events (e.g. "my art class last Tuesday").

Conway and Pleydell-Pearce (2000) suggest that affective threat is an important modulator of memory functioning, such that overgeneral memory occurs during recall of events that the rememberer experiences as threatening. They describe a hierarchical organization of AM representation at different levels of specificity (see Figure 1), where life time periods form the most general level of knowledge (e.g. during primary school). General events are clustered within each lifetime period (e.g. maths lessons), and event-specific knowledge forms the greatest level of specificity, containing detailed sensory-perceptual information about single events. Activation of these representations occurs

through either generative retrieval (an intentional, top-down memory search) or direct retrieval (a rapid activation process when a memory 'pops into mind').

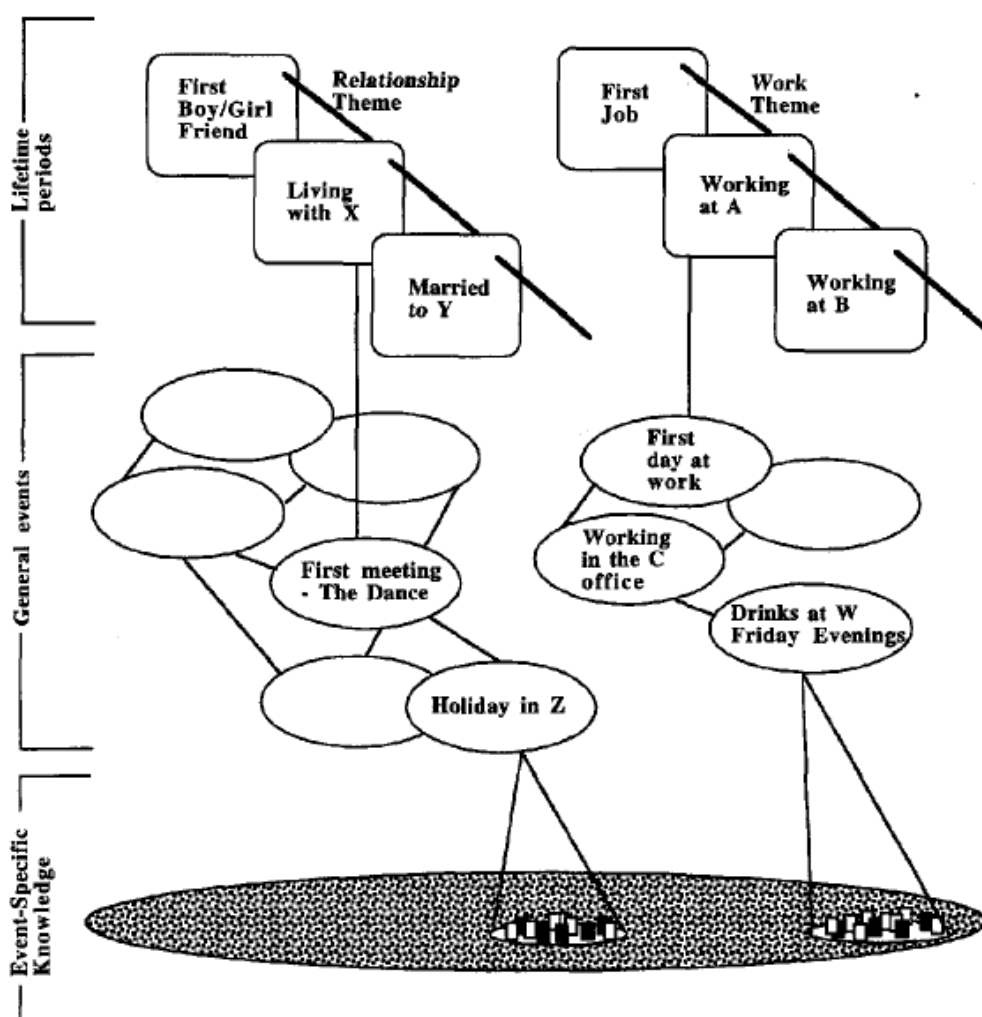


Figure 1. Note. The hierarchical organization of autobiographical memory. Reprinted from "Autobiographical Memories and Autobiographical Knowledge", by M.A. Conway, 1996, in D.C. Rubin (Ed.), *Remembering Our Past: Studies in Autobiographical Memory*, (p.68), Cambridge, England: Cambridge University Press. Copyright 1996 by Cambridge University Press. Cited in "The Construction of Autobiographical Memories in the Self-Memory System", by M.A. Conway and C.W. Pleydell-Pearce, 2000, *Psychological Review*, 107(2), p. 265.

Overgeneral memory can therefore result from premature termination of generative retrieval processes (Conway & Pleydell-Pearce, 2000). This is conceptualised as functional avoidance, which prevents activation of representations of unpleasant events, and the resultant negative affect. Over time, this may develop into a habitual retrieval style for individuals with complex trauma histories (Williams et al., 2007). As such, it seems likely that when retrieval of subjectively threatening social experiences is cued, this will activate the threat-based social mentality and its associated functions (e.g. attentional shifts, reduced mentalization), whilst specific retrieval is blocked to avoid arousal of

negative affect. However, overgeneral retrieval is less likely to occur for subjectively compassionate experiences, which activate the soothing system and positive emotions.

Mentalization

Mentalization abilities are promoted within safe social relationships, particularly attachment relationships. Within the attachment dyad, the attuned caregiver creates social-safeness, allowing her to be used as a secure base from which exploration of the environment can occur (Bowlby, 1969). Within this context, the infant perceives a representation of himself and his mental states within the caregiver's mind. Through this understanding of his own internal world, he develops awareness of others' mental states too (Fonagy, 2000). However, when attachment is disrupted, opportunities to develop mentalization abilities are reduced.

Liotti and Gilbert (2011) note that mentalization has different functions across social contexts. Switching between social mentalities involves switching between forms of mentalization. For example, in competitive contexts, mentalization is used to predict other's intentions or make self-other comparisons whilst, in affiliative contexts, it enables empathic attunement and development of social-safeness. The expression of mentalization is thus potentially variable across social contexts. It is likely to be impaired during activation of the threat system, when higher order mental processes are reduced to enable rapid responding. Yet feelings of safety associated with the soothing system may permit exploration of one's own and others' mental states. Difficulties switching between and accessing particular social mentalities, and therefore forms of mentalization, may result from over- and under-sensitivities in these systems due to prior learning experiences (Gilbert, 2009). Therefore, whilst the capacity for mentalization is related to attachment security, its expression may vary with social context. This is supported by research showing metacognitive deficits in insecurely-attached children, compared to securely-attached children, but only in high threat situations (Hill et al., 2008).

Linking the Literature on Autobiographical Memory, Mentalization and Social Mentalities

Both mentalization abilities and AM retrieval performance have therefore been theoretically linked to the prevailing social mentality. These functions are both proposed to be impaired in threatening social situations, due to activation of the threat system and functional avoidance of negative arousal. Experiences of social-safeness, and resultant activation of the soothing system, may alternatively provide conditions conducive to reflection, deliberation and efficient recall. Despite their robust associations with psychopathology, AM retrieval and mentalization have only recently been considered

together and empirically linked. Yet understanding their relationship and their functioning across social contexts is of clinical relevance because therapy itself is an interpersonal situation, in which clients must recall and reflect upon past experiences. Providing an environment that fosters these abilities may enable more efficient therapy provision. As no measure currently exists for the simultaneous assessment of these integrated theoretical postulates, we have developed a novel method for the systematic examination of these variables.

Study Aims and Hypotheses

The current study tested the application of a novel assessment method within two groups where AM and mentalization impairments are prevalent – schizophrenia and complex trauma. This methodology was developed to evaluate the relationship between AM retrieval and reflective functioning (a form of mentalization) within the context of Gilbert's (1989, 2005) Social Mentality Theory. It used sentence cues to prompt recall of experiences where soothing, threat or drive-focussed social mentalities were active, and asked participants to reflect upon the retrieval process.

The primary aim of the study was to systematically test the ability of this new methodology to detect differential patterns in AM retrieval, and reflective functioning, in response to cues that tap different social mentalities. Secondary aims were to explore the patterns of AM retrieval and mentalization provoked by these methods, within our sample. It was expected that fewer specific memories would be retrieved, and that retrieval latency would be shorter, in response to threat-related cues compared to compassion and drive cues. Additionally, it was anticipated that there would be less of a reflective stance towards self or others within the narrative accounts of AM recall following threat-related cues, compared to cues reflecting compassion and drive mentalities. Recall specificity was expected to be positively correlated with reflective functioning.

Methods

Participants

Twenty-five participants were recruited. Thirteen (10 men, 3 women) met ICD-10 criteria for schizophrenia-spectrum disorders and twelve participants (5 men, 7 women) had experienced complex trauma. All were recruited from NHS Greater Glasgow and Clyde community mental health services. The main diagnoses of those in the schizophrenia-spectrum disorder group were schizophrenia, schizoaffective disorder, delusional disorder and psychotic disorder. Complex trauma was defined as “exposure to severe stressors that (i) are repetitive or prolonged (ii) involve harm or abandonment by caregivers or other

ostensibly responsible adults, and (iii) occur at developmentally vulnerable times in the victim's life such as early childhood or adolescence" (Courtois et al., 2009).

Exclusion criteria included neurological conditions (e.g. dementia, head injury requiring hospital treatment), intellectual disability or autism-spectrum disorders. Those who were legally bound to attend for treatment, who had been discharged from inpatient and psychiatric care within the previous two weeks, who were deemed to be under the influence of alcohol or illegal drugs, or whose severity of symptoms impaired their ability to participate meaningfully in the study were also excluded. As the study used narrative data, people who were not proficient in English language were not included. Eligible participants were identified in collaboration with their clinicians. They were given a study information sheet (Appendix 2.2) and discussed participation with the researcher before providing written informed consent (Appendix 2.3).

This study aimed to assess the utility of a new methodology to detect differences in AM recall and mentalization across social contexts. It was therefore deemed scientifically and theoretically acceptable to treat these participants as a transdiagnostic sample, since a) both trauma and psychosis populations exhibit impaired AM function and mentalization, and b) trauma has been linked to psychosis, both as a distal factor that increases the risk of developing these symptoms, and a proximal factor that may precipitate a psychotic episode (see Morrison et al., 2003, for review).

The mean age of participants in this study was 46.8 years ($SD = 13.15$). Eight participants had left formal education at the end of primary school, four after secondary school, nine after college and one following university. Educational information was not known for three participants. Twenty-three participants were currently unemployed and two were students. Within the schizophrenia group, all were taking atypical antipsychotics, whilst one person was additionally taking a typical antipsychotic and another, lithium. Of this sample, 54% were prescribed antidepressants, and a further 23% were prescribed benzodiazepines. In the complex trauma group, 8% were taking antipsychotics, 50% antidepressants, and a further 8% benzodiazepines.

Measures

Interpersonal Autobiographical Memory Task (I-AMT)

The procedure for the I-AMT is based upon William and Broadbent's (1986) Autobiographical Memory Test (AMT), a well-recognised paradigm for the assessment of AM retrieval. Typically, the AMT uses positive and negative words to elicit emotionally-valenced memories. Recently these cues have been adapted to constrain the content and

processes of retrieval, enabling investigation of specific aspects of AM retrieval (e.g. Raffard et al., 2010; Riutort et al., 2003).

In the I-AMT, participants were asked to generate a specific memory that was interpersonal in nature, in response to sentence cues describing situations where compassion, threat or drive-focussed social mentalities may be activated (e.g. “a situation in which others were caring to you or you were caring towards others”; “a situation in which you felt threatened”). Cue words have been used effectively when embedded within sentences in previous research (Williams et al., 1996). The I-AMT cue words were selected by asking a non-clinical sample to rate a selection of eighty-five words, generated by the research team, according to how closely they fitted definitions of each social mentality. This sample, recruited via social media and word of mouth, consisted of 38 females and 12 males with a mean age of 29.4 years ($SD = 7.14$). Forty-six percent of this sample had experience of working within a mental health setting. The words that were rated highest for consistency with each social mentality definition were selected for the I-AMT (for further information, see Appendix 2.4).

Participants initially completed practice trials until they understood the task demands. They were then presented with four sentence cues from each category, in a randomised order, both verbally and on A4 cue cards. When it was unclear whether a response referred to a specific event, a standard prompt was used: “Can you think of a particular time, involving another person or other people?”. The entire procedure was audio-recorded for later coding. The memories recalled were coded as either “specific” (referring to a particular event that was located within time and place and lasted for a day or less), “categoric” (referring to a recurring class of events), “extended” (referring to an event, with discrete start and end points, that lasted longer than a day) or as semantic associations of the cues. These definitions are based on prior published research (e.g. Goddard, Dritschel & Burtern, 1996). Another researcher (HM) additionally coded 8% of responses. There was 88% agreement between raters. Instances of disagreement or uncertainty were resolved via discussion. Each response was additionally coded as “interpersonal” or “non-interpersonal”, depending upon whether it referred to an interaction with another person/people. The latency from presentation of the cue to the first word of the response was measured. Participants were given 30 seconds within which to respond. Non-responses within this time were coded as omissions (see Appendix 2.5 for a more detailed protocol of the I-AMT).

Each time a memory was produced, participants were asked a demand question that required them to reflect on the retrieval process (e.g. “What was the process of bringing that memory to your mind?”). They were also asked to rate the valence of the emotion

they felt when thinking of the memory on a visual-analogue scale from -4 to +4. Fonagy et al.'s (1998) RF coding framework, originally developed for the Adult Attachment Interview (George et al., 1985), was adapted for application to the narrative cued by these reflective demand questions (see Appendix 2.6 for details of these adaptations). This framework provided a score along an 11-point scale, ranging from -1 (negative RF, where understanding of mental states is resisted or grossly distorted) to 9 (exceptional RF, where there is evidence of sophisticated, complex or elaborate mentalization). The rater was trained in the application of this coding framework.

Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983)

This is a 14-item self-report measure of anxiety and depression. It has shown good reliability in a range of samples, with Cronbach's alpha ranging from 0.68 to 0.93 and from 0.67 to 0.90 for the anxiety and depression subscales respectively. A cut-off score of 8 for both subscales gives sensitivities and specificities of around 0.80 (see Bjelland et al., 2002, for review).

Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998)

This is a 28-item self-report questionnaire measuring 5 types of maltreatment - emotional, physical, and sexual abuse, and emotional and physical neglect. It has shown good internal consistency within a range of samples, with median coefficients ranging from 0.66 for the physical neglect subscale to 0.92 for the sexual abuse subscale. Correlations between the CTQ scales and therapists' ratings of maltreatment range from 0.48 to 0.75, indicating good specificity (Bernstein & Fink, 1998).

Wechsler Test of Adult Reading (WTAR; Wechsler, 2001)

This is a word pronunciation test which provides an estimate of pre-morbid intellectual functioning. It is normed with the Weschler Adult Intelligence Scale, 3rd Edition (Weschler, 1997) and has UK norms and good reliability and validity (Wechsler, 2001). WAIS III full-scale IQ scores were estimated based upon the WTAR raw scores and demographic information.

Ethics

Ethical approval was provided by NHS West of Scotland Research Ethics Committee (see Appendix 2.7). Approval was also gained from the Greater Glasgow & Clyde Research and Development Department (see Appendix 2.8).

Design

A within-subjects correlational design was used. Comparisons of the latency and specificity of AM recall, and the level of reflective functioning, were made across compassion, threat and drive conditions. Exploratory analyses of between-group differences were conducted to assess the utility of the I-AMT in evaluating these comparisons, and explored the impact of potential covariates (depression, trauma, cognitive functioning). However, it was beyond the scope of this study to draw firm conclusions about the operation of AM and mentalization in the schizophrenia and complex trauma groups.

No previous comparable studies exist from which an estimate of expected effect size could be obtained for this analysis. Based on anticipated recruitment leading to a sample of approximately 30 participants, the study was expected to have power (>0.8) to detect large and medium, but not small, effect sizes (Cohen, 1988). Actual recruitment of 25 participants still provided adequate power for detection of medium and large effect sizes. Prior to formal data analysis, parametric assumptions were checked and, where possible, parametric analyses were applied. Where the necessary assumptions were not met, non-parametric methods were adopted.

Results

Clinical and Neuropsychological Characteristics of the Transdiagnostic Sample

On the HADS, participants obtained a mean depression score within the “mild” range ($M = 8.76$; $SD = 4.24$) and a mean anxiety score within the “moderate” range ($M = 13.60$; $SD = 3.62$). The mean total score on the CTQ was 66.20 ($SD = 21.35$), with 88% of participants meeting the cut-off score for “moderate to severe” abuse on at least one sub-scale. The mean estimate for premorbid IQ, based upon the WTAR, was within the “average” range ($M = 93.20$; $SD = 9.42$).

I-AMT Manipulation Check

To evaluate the validity of the I-AMT in cueing retrieval of experiences that are consistent with the three social mentalities, a number of checks were implemented. Only 3% of responses were coded as non-interpersonal, suggesting the I-AMT was effective in cueing retrieval of experiences that occurred within a social context. Furthermore, the mean emotion ratings associated with AM retrieval were consistent with the affect predicted by the social mentality cue. A one-way repeated-measures ANOVA revealed a significant

effect of cue type on mean emotion ratings, $F(1.46, 35.04) = 25.77$, $p < 0.001$. Post hoc comparisons showed that memories provoked by threat cues were rated as significantly more negative ($M = -2.68$, $SD = 1.37$) than for compassion cues ($M = 0.62$, $SD = 2.16$), $p < 0.001$, $d = 0.49$, and for drive cues ($M = 1.07$, $SD = 2.21$), $p < 0.001$, $d = 0.73$. Memories for compassion and drive cues led to primarily positive ratings, whilst negative ratings were given following threat cues.

Primary Outcomes

Specificity of Retrieval in Response to Social Mentality Cues

The scores for retrieval specificity are presented in Table 1, alongside descriptive data. The percentage of specific memories recalled was the primary outcome variable of interest. Overall, participants provided specific responses to just over half of the trials.

Table 1. Descriptive data for the percentage of specific, categoric, extended, association, and omission responses on the I-AMT.

Response Type	Descriptive Statistics (Method of reporting was dependent upon normality of data)
Specific	$M = 54.33\%$ ($SD = 28.07$)
Categoric	$Mdn = 8.33\%$ ($IQR = 16.67$)
Extended	$Mdn = 8.33\%$ ($IQR = 16.67$)
Association	$Mdn = 0.00\%$ ($IQR = 8.33$)
Omission	$Mdn = 8.33\%$ ($IQR = 25.00$)

A Friedman's ANOVA revealed a significant difference in the proportion of specific memories retrieved in response to compassion, threat and drive cues, $\chi^2(2) = 6.03$, $p = 0.047$ (see Table 2). Post hoc analysis using Wilcoxon signed-rank tests were conducted with a Bonferroni correction applied that resulted in a significance level set at $p < 0.017$. These showed no differences in retrieval specificity in response to threat and compassion cues, $z = -1.316$, $p = 0.199$, and in response to compassion and drive cues, $z = -1.495$, $p = 0.155$. However, memory responses were significantly less specific for drive cues compared to threat cues, $z = -2.688$, $p = 0.007$, with a large effect size ($r = 0.54$).

Latency of Retrieval in Response to Social Mentality Cues

A one-way repeated measures ANOVA was conducted to assess for any differences in mean retrieval latency across the cue types (see Table 2). This showed a significant main effect of cue type on the mean retrieval latency, $F(2, 48) = 10.72$, $p < 0.001$. Post hoc tests using a Bonferroni adjustment of alpha revealed that the mean latency in response to drive cues was significantly longer than to compassion cues, $p = 0.005$, $d = 0.68$ and to

threat cues, $p < 0.001$, $d = 0.68$. However, there was no difference in latency for compassion and threat cues ($p = 1.000$).

Table 2. Descriptive Data for the Proportion of Specific Memories, the Mean Retrieval Latency and the Mean RF Score given in Response to Compassion, Threat and Drive Cues.

	Compassion Cues	Threat Cues	Drive Cues
Percentage of Specific Memories	<i>Mdn</i> = 50.00% (<i>IQR</i> = 62.50)	<i>Mdn</i> = 75.00%** (<i>IQR</i> = 62.50)	<i>Mdn</i> = 50.00%** (<i>IQR</i> = 50.00)
Mean Retrieval Latency (seconds)	<i>M</i> = 11.52** [■] (<i>SD</i> = 7.51)	<i>M</i> = 11.74 [■] (<i>SD</i> = 6.69)	<i>M</i> = 16.44* (<i>SD</i> = 7.03)
Mean RF Score	<i>Mdn</i> = 1.25 (<i>IQR</i> = 0.63)	<i>Mdn</i> = 1.33 (<i>IQR</i> = 1.00)	<i>Mdn</i> = 1.50 (<i>IQR</i> = 1.13)

** indicates $p < 0.01$; * and [■] indicate $p < 0.001$, for variables with matching symbols

Reflective Functioning Across the Social Mentalities

The mean RF score was calculated for each social mentality cue type and used as the primary outcome measure for the purpose of analysis (see Table 2). A Friedman's ANOVA indicated that there was no significant difference in the mean RF scores obtained for narratives cued by compassion, threat and drive cues, $\chi^2(2) = 0.17$, $p = 0.939$.

Exploratory Analyses

The Relationship Between AM Specificity and RF

A Pearson's correlation coefficient was calculated to determine the relationship between AM retrieval specificity and RF. A significant positive correlation was found between the overall proportion of specific responses and RF scores obtained across all trials, $r = 0.41$, $df = 23$, $p = 0.039$.

Comparing AM Retrieval Between Diagnostic Groups

To contextualise the between-group comparisons, the clinical and neuropsychological characteristics of each diagnostic group are presented in Table 3. An independent t-test revealed significantly higher total scores on the CTQ for participants with complex trauma, $p < 0.05$, compared to those with schizophrenia. The level of trauma in the schizophrenia group was still high, with 85% of participants scoring in the "moderate to severe" range for at least one form of abuse. The groups were matched in terms of depression, anxiety and premorbid IQ, but not age. A Mann-Whitney test revealed the schizophrenia group to be significantly older (*Mdn* = 55.00, *IQR* = 19) than the complex trauma group (*Mdn* = 46.50, *IQR* = 25), $U = 36.50$, $z = -2.26$, $p = 0.02$.

Independent t-tests were applied to the overall mean proportion of specific memory responses and the mean latency of AM retrieval for the diagnostic groups. These revealed that those with schizophrenia ($M = 39.10\%$, $SD = 26.22$) retrieved significantly fewer specific memories compared to those with complex trauma ($M = 70.83\%$, $SD = 19.94$), $t(23) = -3.38$, $p = 0.003$, $d = 1.38$. However, there was no difference in retrieval latencies between the schizophrenia ($M = 12.86$, $SD = 5.81$) and complex trauma ($M = 13.56$, $SD = 6.82$) groups, $t(23) = -0.28$, $p = 0.783$.

Table 3. Summary of scores obtained for the HADS, WTAR, and CTQ by the schizophrenia and complex trauma samples, and the results of independent t-tests to check for between group differences.

Variable	Schizophrenia		Complex Trauma		Between Group Comparisons
	Mean	SD	Mean	SD	
CTQ total score	56.38	20.907	76.83	16.770	$t(23)=-2.68$ $p=0.013$
HADS Depression Score	8.38	4.407	9.17	4.196	$t(23)=-0.45$ $p=0.654$
HADS Anxiety Score	12.46	3.620	14.83	3.326	$t(23)=-1.70$ $p=0.102$
WTAR-Predicted FSIQ	95.31	7.804	90.92	10.783	$t(23)=1.17$ $p=0.253$

Exploratory Analyses: Trauma, Cognitive Function and Emotional Distress

The relationships between AM retrieval specificity and trauma, cognitive function and depression were evaluated to ascertain the impact of these factors. Following dichotomization of the CTQ total score according to the median, there was no difference in the proportion of specific responses between those in the low ($M = 0.49$, $SD = 0.25$) and high trauma groups ($M = 0.60$, $SD = 0.30$), $t(23) = -0.98$, $p = 0.338$. The proportion of specific responses did not differ between participants who met the cut-off score of 8 on the HADS depression scale ($M = 0.53$, $SD = 0.30$) and those who did not ($M = 0.56$, $SD = 0.27$), $t(23) = -0.32$, $p = 0.750$. Furthermore, a Pearson's correlation revealed no relationship between HADS anxiety scores and retrieval specificity ($r = 0.202$, $df = 23$, $p = 0.332$). As an indicator of the relationship between emotional distress and mentalization, a Spearman's correlation was applied to the overall mean RF scores and the total HADS score. It showed no association between these variables, $r = 0.176$, $df = 23$, $p = 0.399$. Finally, a Pearson's correlation found no relationship between the WTAR-predicted FSIQ score and the overall mean proportion of specific responses ($r = 0.027$, $df = 23$, $p = 0.899$).

Discussion

This study aimed to evaluate the application of a novel measure for the assessment of AM retrieval and mentalization in relation to Gilbert's (1989, 2005) Social Mentality Theory.. The results suggest that the I-AMT was effective in this respect, in particular enabling the measurement of different patterns of AM retrieval in response to cues that tap different social mentalities. The I-AMT also revealed a consistently poor capacity to make sense of one's own mental state during the process of memory retrieval, across all social contexts. However, these results may have been influenced by certain methodological factors in the implementation of the I-AMT, and further protocol development is required.

The Utility of the I-AMT as a New Memory Cueing Paradigm

This study shows that the I-AMT is feasible to implement and appears sensitive to differential patterns of responding across the three social mentality cue conditions, and between diagnostic groups, even in this relatively small sample. Nearly all the memories retrieved (97%) were coded as interpersonal, indicating that the instructions successfully cued experiences where social mentalities were hypothesised to be active. Furthermore, the emotion experienced when recalling memories was generally consistent with the affect expected for the cued social mentality. Threat cues led to recall of subjectively negative events, whilst compassion and drive cues were associated with positively experienced events.

Patterns of Latency and Specificity in Response to the I-AMT

The I-AMT provoked differential patterns of AM retrieval across the social mentality conditions. Contrary to expectations, these revealed reduced retrieval specificity and longer retrieval latencies for recall of events when the drive system was active, in comparison to experiences of threat or compassion. Retrieval specificity and latency were however similar for compassion and threat-based events. It is unclear whether these patterns of AM retrieval reflect the operation of variable social mentalities, or other methodological sources of variance.

It still remains possible that, as predicted, functional avoidance of threat-based experiences is occurring (Conway & Pleydell-Pearce, 2000). Without a control group, it is unclear whether our sample exhibited reduced specificity of threat-cued retrieval relative to healthy individuals. However, this seems likely given previous evidence of overgeneral memory in these populations. Nonetheless, other factors may additionally be influencing retrieval to the different social mentality cues, which could account for the pattern of results observed.

There are a number of possible reasons why AM retrieval impairments were more prominent in response to drive cues. Firstly, the drive system is an energising system that motivates us to seek goals, follow desires and achieve status. One hypothesis is that patients have difficulty accessing the drive system when presented with drive-related cues, resulting in resignation in challenging situations or adoption of a subordinate rank position. Consistent with this, negative symptoms of avolition and apathy are prevalent in schizophrenia, and strongly linked to functional outcomes (see Foussias & Remington, 2010, for review). Furthermore, half the complex trauma sample met caseness for depression, for which apathy is also a common feature (American Psychiatric Association, 1994). Retrieval to drive cues may therefore have been more difficult for our sample due to a paucity of experiences of feeling driven or competitive, and a resultant lack of stored memory representations that match these cues. This is likely to have increased the effort required to produce a specific response, and increased the likelihood of failing to meet task demands, either because a matching memory representation could not be found, or the patient lacked the necessary drive or competitiveness to persist and achieve this more difficult task.

Poor executive functioning capacity may also contribute towards the occurrence of overgeneral memory to drive cues (Williams et al., 2007). Multiple executive functions have been implicated in AM retrieval, for example in generating descriptions of the event to be retrieved or inhibiting irrelevant material (Burgess & Shallice, 1996). The cognitive effort required for successful retrieval varies according to features of the eliciting cue, such as how well it maps to target items stored in memory.

Aspects of the I-AMT drive cues could therefore account for the poor retrieval observed. Anecdotally, participants reported poor comprehension of the drive cue words (e.g. “driven”, “motivated”). Retrieval to these cues may have required greater cognitive resources, due to infrequency of the words used or because the words were more abstract than in the other conditions. Abstract words do not contain the additional perceptual information that concrete words do, making them less imageable (de Groot, 1989). For example, the abstract word ‘justice’ conveys a semantic meaning, whilst the concrete word ‘fire’ additionally insinuates visual, auditory and tactile information. Cues of low imageability have been shown to prompt overgeneral retrieval with longer latencies compared to highly imageable cues in non-clinical populations (Williams et al., 1999). This is hypothesised to occur because concrete words provide an analogue representation of the item to be retrieved, in addition to the semantic label, reducing the executive functioning capacity required for successful retrieval. As executive functioning is impaired in schizophrenia (Reichenberg & Harvey, 2007), and trauma populations (e.g. Stein et al.,

2002), our sample may have been particularly susceptible to differences in task difficulty between experimental conditions. The original AMT cue words were shown to elicit appropriately valent responses (Williams & Broadbent, 1986), and subsequent adaptations have selected words based upon their frequency in the spoken language and imageability (e.g. Cuervo-Lombard et al., 2012). The I-AMT cue words were selected based upon ratings from a non-clinical sample, roughly half of whom had worked within mental health settings and thus may have had different levels of education and psychological understanding compared to our clinical sample. Future research may wish to re-select the I-AMT cue words based upon ratings from a sample that is more representative of the individuals to be assessed and, if possible, should aim to employ more commonly used, imageable words to minimise this experimental bias.

Interestingly, post hoc exploratory analyses suggest that those with schizophrenia had a more overgeneral retrieval style compared to the complex trauma sample, whilst retrieval latencies for the groups were similar. No previous studies have compared retrieval in these populations. The presence of overgeneral memory in schizophrenia is consistent with the AM literature (Watson et al., 2012), but the absence of a non-clinical control group prevents definitive interpretation of the trauma group's performance. It is likely that this represents an impairment, given previous evidence of overgeneral AM in trauma populations. It is proposed that these individuals develop a habitual overgeneral retrieval style to prevent recall of distressing traumatic events (Williams et al., 2007).

The Assessment of Reflective Functioning

Liotti & Gilbert (2011) suggest that expression of mentalization is reduced during activation of the threat system, and enhanced during activation of the soothing system. Contrary to these expectations, RF was not found to differ across the social mentalities. However, the I-AMT assessed a very specific aspect of mentalization – the ability to be self-reflective about the process of memory recall. There was limited variability in the RF scores obtained, and participants generally exhibited “absent” or “low” RF.

This may represent a floor effect, if reflecting upon the process of recall was beyond the metacognitive capacity of the patients. This reflective task may have been difficult because, unlike the Adult Attachment Interview (George et al., 1985) from which our RF coding framework was derived, the I-AMT did not employ follow-up questions to prompt elaboration of metacognitive responses. Studies using similar methods, where encouragement of mentalization was absent, also report indicators of poor metacognition in schizophrenia populations (e.g. Berna et al., 2011; Raffard et al., 2009; 2010). However, this ability may be improved by coaching and scaffolding the mentalization process, as occurs during therapy sessions. For example, it has been shown that the

ability to make meaning from self-defining memories (a process which relies upon metacognition functions) is improved in both schizophrenia and healthy populations when questions that prompt mentalization are asked (Berna et al., 2011). Thus, increased instruction and prompting to encourage response elaboration may provide improved opportunity to assess RF capacity.

It is also important to note that the RF questions mainly tapped self-focussed metacognition, and gave limited opportunity to consider others' mental states. To gain a more thorough assessment of mentalization abilities, RF demand questions could be embedded within participants' memory narratives, and used in a more targeted manner to explore participants' abilities to understand their own *and* other's mental states during the remembered event.

Also contrary to Liotti and Gilbert's (2011) proposals, lower RF was not linked with emotional distress. However, as noted above, there may not have been sufficient variance in RF scores for this effect to be observed. Furthermore, the HADS total score was a limited indicator of emotional distress. It failed to account for symptoms such as dissociation, emotional numbing, or mania, which may be better portrayed by more disorder-specific measures.

Nonetheless, individuals who scored lower for RF also exhibited more overgeneral retrieval. Previous literature, evidencing an association between AM retrieval and theory of mind (Corcoran & Frith, 2003), suggests that retrieval of past experiences is required as the basis for inference of other's mental states during current events (Corcoran, 2001). However, as the I-AMT primarily assessed reflection upon one's own cognitions and feelings, this study therefore extends these findings to include an association between AM retrieval and the distinct process of understanding of one's own mental state during memory retrieval. The development of our belief system, including beliefs about the self, is shaped by our autobiographical memories (Conway, 2005). Poor access to these memories may impair the formation of a coherent self-concept. Consequently, the ability to understand one's own mental state during AM recall may be impaired due to a lack of coherent information about the self with which to make sense of one's cognitive and affective responses within the recall situation. The results of the I-AMT therefore add to the evidence linking mentalization and AM. With further development, this task could enable investigation of a wider range of metacognitive functions within different social contexts.

Implications

Application of the I-AMT has revealed differential patterns of AM retrieval specificity and latency, but not RF, in response to different social mentality cues, as well as demonstrating an association between retrieval specificity and RF. It is currently unclear whether these results fully reflect the variable activation and operation of social mentalities, or whether extraneous sources of variance contribute to the patterns observed. Given the breadth of information provided within this relatively small exploratory study, the I-AMT has shown itself to be a valuable new paradigm that has the potential to contribute to different areas of the literature and to address a wide range of hypotheses. However, prior to this, some adaptations are required to improve the validity and utility of the I-AMT. A more systematic approach to selecting the cues is needed, that ensures equality across conditions in terms of the imageability and familiarity of the words used. Furthermore, improved instruction and scaffolding is required during the RF task to ensure participants have adequate chance to express their RF capabilities. The demand questions could be embedded within the retrieval narrative to provide greater opportunity for expression of mentalization both with regard to one's own and others' mental states.

Whilst tentative results using the I-AMT have been presented, it would be premature to draw firm conclusions based on these at this early stage of its development. However, if future research continues to demonstrate that reflective functioning remains relatively constant across social contexts, this may have implications for Gilbert's Social Mentality Theory (1989, 2005). In particular, Gilbert (2009) proposes that different affect regulation systems operate within each social mentality. It is stated that, in threatening social situations, the threat and protection system acts to reduce exploratory processing, to enable rapid detection and response to threat. However, in compassionate social situations, the contentment system enhances feelings of safeness and openness to explore, including through mentalization. The current study may challenge Gilbert's hypotheses as it did not find evidence of enhanced reflective functioning in relation to the retrieval of compassion-focussed social experiences, compared to threatening social experiences. However it is not possible to be certain of this interpretation as the I-AMT measured reflective functioning at the time of AM retrieval, rather than during the social experience itself. Thus, the social mentality that was active during administration of the I-AMT may have differed from that which was active when the actual event occurred.

Moreover, if these clinical populations are found to consistently struggle to recall times when the drive system is active, and this is not a feature of normal functioning, then this may have implications for the development of this aspect of their self-identity. Conway (2005) has cited evidence for a self-memory system that functions to establish consistency between self-beliefs and autobiographical memories, to produce a coherent

whole. Poor access to memories of drive-based experiences may promote self-beliefs of helplessness or submission. Consistent with this, those with schizophrenia have been shown to have passive self-images (Bennouna-Greene et al., 2012). Research investigating this aspect of self-image in trauma populations is lacking, although it is hypothesised that self-efficacy will be low (see Simmen-Janevska et al., 2012, for review). Interestingly, most of our sample were not working, which may partly contribute to this self-perception, as may experiences of trauma, psychiatric symptoms and hospitalization. A passive self-view may limit future goal-seeking attempts, resulting in a vicious cycle within which the drive-based system lacks opportunity to be active or develop. Therapeutically, these results suggest patients may benefit from encouragement to pursue goals (as used in motivational interviewing approaches; Miller & Rollnick, 2002) or competitive activities, as well as support to incorporate drive-based experiences into their view of self.

Limitations

In interpreting the results of this study, a number of limitations must be taken into consideration. Firstly, the sample size was small. The study was estimated to have power to detect medium and large, but not small, effect sizes. It found a current trend toward greater specificity in response threat cues compared to compassion cues, which exhibited a small-medium ($r = 0.26$) effect size. However, this comparison may have reached significance had the study had a larger sample, and therefore increased power. Whilst this would contradict our original prediction of impaired AM retrieval following threat cues, it could represent high emotional arousal during threatening situations and subsequent enhanced perceptual encoding of these experiences (Phelps, 2004). This would be consistent with the more salient ratings of emotion given to these memories. To further investigate these potential relationships, there is a need to apply the I-AMT to larger samples.

Secondly, as this study primarily aimed to assess the feasibility of the I-AMT within clinical populations, there was no healthy control group included. This limits interpretation of the transdiagnostic sample's performance, as there was no baseline from which to define impairments in AM retrieval and RF. For example, it is unclear whether the complex trauma group exhibited overgeneral memory compared to healthy populations. Additionally, the largely unemployed status of our sample may represent a selection bias during recruitment, bringing into question the generalizability to wider schizophrenia and complex trauma populations of the finding that AM retrieval is impaired following drive cues. Thus further investigation using the I-AMT is needed to both establish normative data for comparison, and to assess larger, more representative samples.

It should be noted that, based upon the available data, it is unclear whether the I-AMT is reliably cueing experiences of the appropriate social mentality. Participants' emotional ratings given in relation to retrieval imply that the overall affect produced is consistent with the expected social mentality. However, as both the drive and soothing systems are associated with positive affect, this is not in itself sufficient. Anecdotally, it was observed that the compassionate experiences recalled were often the sequelae to threatening events and therefore may have additionally activated the threat social mentality (for example, thinking about family members' caring responses during admittance to psychiatric hospital was linked to feelings of fear resulting from illness onset). This entangling of the threat and soothing systems may have prevented discrepancies in functioning between these conditions from being detected. An improved system for examining and coding emotional concordance with the cued social mentality is required to ensure the I-AMT is eliciting appropriate responses. This could be achieved by measuring biomarkers associated with feelings of social-safeness and threat, such as heart rate variability (Porges, 2007), as in Rockcliff et al. (2008).

The pattern of results obtained may have been influenced by characteristics of the particular word cues used. This is particularly relevant for the drive cue words, which may have been less accessible to participants due to reduced familiarity and the abstract nature of the words. As already noted, the sample who provided ratings during the cue word selection process were likely to have differed from the clinical participants on a range of characteristics, including educational history and psychological knowledge. The comprehensibility and sensitivity of the I-AMT cues may thus be improved by using a sample with similar levels of educational attainment to the clinical sample to generate potential cue words and rate how closely they match each social mentality. A further option may be to additionally show participants pictorial cues that provide a visual representation of the type of social interaction being cued.

This uncertainty regarding the impact of the cue words used on the results raises the point that, within this methodological development study, it may have been beneficial to pilot the novel assessment measure within a clinical sample, prior to administering it more widely. Although this was not done, the I-AMT has now been administered to twenty-five participants with either complex trauma or a schizophrenia-spectrum disorder. This has provided information regarding the feasibility of implementing the task and the acceptability of the methods used within these clinical populations, including participants' understanding of the cues, and their willingness to engage effortfully with these. Having completed this procedure, it is noted that participants did struggle to understand some cue words, particularly those prompting drive-based experiences. This information will inform further development of the I-AMT methodology.

Conclusions and Future Directions

The I-AMT has been demonstrated to have the potential to be an effective task in the evaluation of AM retrieval for experiences from different social contexts, and has produced interesting results that warrant further investigation. This study has contributed to the already abundant literature demonstrating consistent overgeneral AM retrieval in psychosis in response to a variety of cues, and biases in AM retrieval latencies. Contrary to expectations, preliminary findings suggest patients are most poor at retrieving drive-related experiences, which may have implications for the development of self-efficacy beliefs and goal-directed behaviour. However, this result must be interpreted with caution, given the potential role of cue word characteristics in the efficacy of AM retrieval. Patients additionally exhibited poor self-reflectivity in relation to the process of memory recall, suggesting they lack sufficient mentalization capacity for this task and may require scaffolding to promote this ability. This study has also extended the research linking the capacities for AM retrieval and different aspects of mentalization. Prior to its further implementation, the I-AMT requires further development and testing to enhance its validity and utility. In particular, the cues used need to be adapted to ensure additional sources of variance, such as cue familiarity, are controlled for. Following these, the I-AMT will provide a valuable assessment procedure for the evaluation of AM and RF capacity within different social contexts.

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Chapter 3: Advanced Clinical Practice I Reflective Critical Account

Two's Company, Three's a Crowd? Personal reflections on the development of skills in using interpreters when working within a mental health setting.

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*Submitted in partial fulfilment of the requirement for the degree of Doctorate in Clinical
Psychology (DClinPsy)*

Abstract

The HCPC Standards of Proficiency for Practitioner Psychologists (2012) identify the importance of effective communication skills within our role. As a requirement of working within a service where most of the clients do not speak English, I have had to conduct therapeutic interventions through interpreters in order to aid understanding. However, the addition of another person within the therapy session can be challenging and can introduce further barriers to communication. Within this account I use Stoltenberg's (1998) Integrated Developmental Model to consider the development of my ability to work with interpreters and to overcome these barriers. I also use a variety of reflective models within this to reflect upon key experiences that have contributed to this progression. Finally, I comment upon the process of writing this account and identify skills that require further development.

Chapter 4: Advanced Clinical Practice II Reflective Critical Account

Personal Reflections on the Development of Competencies in Teaching and Training Others

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*Submitted in partial fulfilment of the requirement for the degree of Doctorate in Clinical
Psychology (DClinPsy)*

Abstract

The ability to provide training of an appropriate standard and to support the learning of other professionals is a key aspect of the Clinical Psychologist's role (HCPC, 2012). I have had opportunities to provide training to a range of professionals with the aim of improving their skills in working with individuals with psychological difficulties. Fulfilling this part of our role requires competence in identifying when training is appropriate, matching training to the needs of the audience and managing the dynamic processes occurring within this wider system. Within this account, I use Stoltenberg's (1998) Integrated Developmental Model to reflect on the progression in my ability to provide training. I also use Gibbs' (1988) and Boud et al.'s (1985) models to aid reflection upon some of the experiences that have contributed to this change. Finally, I reflect upon the process of writing this account and consider future areas where skill development is still required.

Appendices: Systematic Review

Appendix 1.1: Instructions to Authors for Submission to *Memory*

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- Tables should be kept to the minimum. Each table should be typed double spaced on a separate page, giving the heading, e.g., "Table 2", in Arabic numerals, followed by the legend, followed by the table. Make sure that appropriate units are given. Instructions for placing the table should be given in parentheses in the text, e.g., "(Table 2 about here)".
- Results of statistical tests should be given in the following form: "... results showed an effect of group, $F(2, 21) = 13.74$, $MSE = 451.98$, $p < .001$, but there was no effect of repeated trials, $F(5, 105) = 1.44$, $MSE = 17.70$, and no interaction, $F(10, 105) = 1.34$, $MSE = 17.70$."

Other tests should be reported in a similar manner to the above example of an F -ratio. For a fuller explanation of statistical presentation, see the *APA Publication Manual* (6th ed.).

- Abbreviations that are specific to a particular manuscript or to a very specific area of research should be avoided, and authors will be asked to spell out in full any such abbreviations throughout the text. Standard abbreviations such as RT for reaction time, SOA for stimulus onset asynchrony or other standard abbreviations that will be readily understood by readers of the journal are acceptable. Experimental conditions should be named in full, except in tables and figures.

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- [Description of the Journal's reference style](#)
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Appendix 1.2: Data Extraction Sheet

Author:	
Year of Publication:	
Title:	
Journal:	
Name of Reviewer:	

What are the study aims/hypotheses?	
What are the eligibility criteria?	
Inclusion:	Exclusion:
Recruitment	
How were participants recruited? (Circle, and briefly describe) <i>Convenience sample Geographic cohort Highly selective sample</i>	
Brief description:	
Was a control/comparison group(s) recruited?	
Number of participants recruited: Psychosis group = Comparison group(s) =	
Statistical Power?	
What data was reported on non-participation?	
Participant Characteristics	
Psychosis Group: Mean age: Gender ratio: Diagnostic/Symptom ratio: Duration of illness: Medication: Other:	Comparison Group(s): Mean age: Gender ratio: Diagnostic/Symptom ratio: Other:
Where groups matched for key characteristics? List characteristics.	
Were groups treated equivalently? If no, describe.	

Measuring Autobiographical Memory		
Description of Task:		
Cues used:		
Assessor: Blinded? Y N DK		
Specificity Outcome Measure:	Latency Outcome Measure:	Other Outcome Measure:
Validity data?	Reliability data?	Validity data?
Reliability data?		Reliability data?
Rater blinded? Y N DK	Rater blinded? Y N DK	Rater blinded? Y N DK
Key Variables and Covariates		
	Method of Assessment	Accounted for in Analyses?
Depression		
Trauma		
Cognitive functioning		
Current medication		
Symptom severity		
Duration of illness		
Data Analysis		
Methods for Specificity:		
Between group comparisons? Y N	Appropriate? Y N	
Methods for Latency:		
Between group comparisons? Y N	Appropriate? Y N	
Methods for Other:		
Between group comparisons? Y N	Appropriate? Y N	
Drop Outs		
What proportion?		
How was this managed statistically?		
Results		
Specificity:		
Effect Size?		
Latency:		
Effect Size?		
Other:		
Effect Size?		

Conclusions Drawn
Additional Information
If further information was needed from sources other than the journal article, briefly describe what information and any attempts to source it.

Key

Y = Yes

N = No

DK = Don't Know/Unclear

****If any information is not available, use either NR ('Not Reported') or NA ('Not Assessed') as appropriate.**

Appendix 1.3: Quality Criteria Rating Sheet

Author:	
Year of Publication:	
Title:	
Journal:	
Assessor:	

Topic	Item	Description	Rating Options	Score
SAMPLING	1.1	What was the method of recruitment used?	Geographic cohort = 5 Convenience sample = 2 Highly selective sample / Not stated = 0	
	1.2	Were inclusion criteria stated?	Yes = 1 No = 0	
	1.3	Were exclusion criteria stated?	Yes = 1 No / Did not have exclusion criteria = 0	
	1.4	Was data reported on non-participation?	Yes = 1 No = 0	
	1.5	Were diagnoses of participants reported, alongside relevant diagnostic criteria (e.g. ICD-10, DSM-IV)	Yes = 1 Participants stated to have psychosis alongside descriptive data of psychotic symptoms present = 1 No = 0	
	1.6	Was duration of participant illness reported?	Yes = 1 No = 0	
	1.7	Were the medications that participants were currently taking reported?	Yes = 1 No = 0	
	1.8	Was a measure of current symptom severity reported?	Yes = 1 No = 0	
	1.9	Was age of participants recorded?	Mean age and age range reported = 2 Mean age reported = 1 No = 0	
ASSESSMENT OF AUTOBIOGRAPHICAL MEMORY	2.1	Was validity data for the measurement of specificity reported?	Yes = 3 No / Not adequately described / Specificity not measured = 0	
	2.2	Was reliability data for the ratings of specificity / latency reported?	Yes = 1 No / Not reported = 0	
	2.3	Were assessors blind to participant group allocation?	Yes = 1 No / Not reported = 0	
	2.4	Were raters blind to participant group allocation?	Yes = 1 No / Not reported = 0	

	2.5	Were the task, and the cues used, adequately described?	Yes = 5 Only task adequately described = 3 Only cues adequately described = 3 No = 0	
METHODOLOGY & DESIGN	3.1	Were aims/hypotheses explicitly stated?	Yes = 1 No = 0	
	3.2	What comparison group was used?	Non-clinical comparison group = 2 Clinical comparison group = 1 No comparison group = 0	
	3.3	Was statistical power sufficient?	Yes = 5 No / Not reported = 0	
	3.4	Were between group comparisons made between those with psychosis and those without?	Yes = 1 No = 0	
	3.5	Were attempts made to match those with psychosis and those without for between group comparisons (e.g. age, gender)	Yes = 1 No = 0	
	3.6	Was there equivalent treatment of those with psychosis and those without?	Yes = 1 No / Unclear = 0	
	3.6	Were attempts made to control for the effects of depression?	Yes = 1 No = 0	
	3.7	Were attempts made to control for the effects of trauma?	Yes = 1 No = 0	
	3.8	Were attempts made to control for the effects of cognitive functioning?	Yes = 1 No = 0	
ANALYSIS	4.1	Was the analysis appropriate to the design and type of outcome measures?	Yes = 3 No = 0	
	4.2	Was data for drop-outs appropriately managed?	Yes = 1 No / Not reported = 0	
TOTAL SCORE			/ 43	

Definitions

Convenience Sample

Geographic Cohort

Highly Selective Sample

E.g. clinic attenders, referred patients

All participants that are eligible to participate in a particular area.

E.g. volunteers

Appendices: Major Research Project

Appendix 2.1: Instructions for Authors for Submission to *Cognition &*

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Updated July 2013



Appendix 2.2: Participant Information Sheet



Compassion, memory and coping: A study identifying change processes underpinning recovery

PARTICIPANT INFORMATION SHEET

(Version 4.0, 8th February 2013)

Chief Investigator:

Professor Andrew Gumley

Professor of Psychological Therapy & Honorary Consultant Clinical Psychologist, Mental Health and Wellbeing, Institute of Health and Wellbeing, University of Glasgow, Gartnavel Royal Hospital, Glasgow, G12 0XH.

Email: andrew.gumley@glasgow.ac.uk

Tel: 0141 211 3927

Invitation to Participate in a Research Project

What is the research about?

This study is designed to investigate compassion, memory, and coping in people who have experienced complex mental health problems. This kind of research will help mental health services to understand the needs of people who have experienced complex mental health problems, and to develop new psychological therapies that aim to help people recover. The study is being undertaken as part of the fulfillment for an academic qualification (Doctorate in Clinical Psychology).

Who is being asked to take part?

We are asking people who have difficulties with their mental health to take part in the study.

Why have I been asked to take part?

A member of the mental health team responsible for your care (e.g. Consultant Psychiatrist, Clinical Psychologist or CPN) has suggested that you might be interested in participating in this study.

What do you mean by the term ‘compassion’?

By compassion we mean expression of kindness, warmth, care, understanding and empathy for ourselves and others. It means having an understanding and feeling moved to help and support ourselves and others.

What are you asking me to consent to?

Consenting to participate in this study means that you will meet with a researcher in a suitable venue and complete an interview and some questionnaires. Your case notes will also be examined to obtain information about your age, diagnosis, number of hospitalisations, and duration of illness.

What will I be asked to do if I agree to take part?

The first meeting is an opportunity for you to ask questions about the study and discuss taking part. This will be arranged at a time and place, which is convenient to you and the researcher.

If you decide to participate, you will complete an assessment interview that asks about your memory for positive and negative experiences. A second interview will ask about your experiences of compassion. These interviews will be audio recorded and then transcribed so that they can be analysed by the researchers. Finally we will ask you to complete 8 questionnaires.

The interviews may prompt you to remember positive experiences as well as upsetting experiences from the past but we will not deliberately ask you embarrassing or upsetting questions. Also, you do not have to talk about the experiences that come to mind if you do not want to.

The measures required for this study will take up to 2 ½ hours to complete. We can arrange to meet with you over two or three occasions, depending on your preferences, to complete measures. You will be able to discuss this with the researcher and choose how you would

like to divide up the assessment process. You will be able to take as many breaks as you like and refreshments will be available at these times. You will also receive one-off £10 payment to compensate you for your time and inconvenience. Following your participation, you will receive a courtesy phone call to thank you for your contribution, confirm that you have not experienced any undue distress following participation, and to answer any further questions you may have about the research.

Will my information be confidential?

All the information you provide will be treated confidentially and the research questionnaires will only be identified by a code, [not your name](#). All recordings, transcripts and other data will be stored in a password-protected computer. The interview will be fully anonymised when it is transcribed by the researcher who interviews you. This means that it will not include your name, the names of people, schools or jobs you may mention or any other information which could identify you. Only the researcher who interviews you will hear the original recording. Once the interview is transcribed, the recorded audio copy will be destroyed. The transcribed and anonymised interview and questionnaires will then be analysed by the research team. If you agree, we may use quotations from conversations in reports about this research. The consent forms and study data will be stored on University of Glasgow premises and will be accessible to researchers who are directly involved with the research.

With your permission we will inform your GP and mental health team that you are taking part in the study.

If you share information that makes the researcher concerned for your safety or the safety of other people, we may be required to tell others involved in your care (e.g. your key-worker or psychiatrist). We will always make a reasonable attempt to discuss this with you beforehand and explain why we are concerned.

What happens to the consent form?

To ensure anonymity and confidentiality, the consent form will be kept separately from the transcribed interview in a locked filing cabinet within University of Glasgow premises in the department of Mental Health and Wellbeing.

What are the benefits of taking part?

In general, research improves our knowledge of what people's difficulties are and what we can do to help people overcome these and improve people's lives. Your participation will help increase our knowledge of areas and potentially improve treatment for others in the future.

Is there a downside to taking part?

As stated above, in the interview you will be asked to talk about previous experiences you have had, including your experiences of compassion. We do not expect you to be worried or distressed by your participation in the study. A lot of previous research studies have examined people's experiences of compassion and their memory for past events and it is exceedingly rare for bad outcomes or difficulties to occur in people who participate in such research. However, if you have any concerns about what we discuss, you can contact the researcher for more information or address this with your key-worker or another member of your clinical treatment team. Although we do not anticipate that participating in this study will cause you any distress, if this did happen we will help you to access appropriate support if needed.

What happens if I decide not to take part?

Nothing. Taking part is entirely up to you. If you do not wish to take part it will not affect any treatment that you currently receive. Also, if you do decide to take part, you are able to change your mind and withdraw from the study at any time without it affecting your care either now or in the future. The research team will give you at least 24 hours to decide whether you want to take part in the study. If you still want to participate, then we will make arrangements to meet.

Can I change my mind?

Yes. You can change your mind at any time and do not need to give a reason. Your care will not be affected in any way.

What will happen to the results of the study?

The results will be published in a medical journal and through other routes to ensure that the general public are also aware of the findings. You will not be identified in any report/publication arising from this study.

Who is organising and funding the research?

The University of Glasgow.

Who has reviewed the study?

The study has been reviewed by the University of Glasgow to ensure that it meets standards of scientific conduct. It has also been reviewed by the West of Scotland Research Ethics Committee to ensure that it meets standards of ethical conduct.

Can I speak to someone who is independent of the study?

Yes you can. Professor Tom McMillan who is not involved in the study can answer questions or give advice. His telephone number is 0141 211 3920.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions. The contact number is 0141 211 3927.

If you remain unhappy and wish to complain formally, you can do this through NHS Greater Glasgow and Clyde NHS Complaints. Details can be obtained from 0141 201 4500.

Thank you for taking time to read this

Appendix 2.3: Consent Form



Compassion, memory and coping: A study identifying change processes underpinning recovery

CONSENT FORM (Version 4.0, 8th February 2013)

Researchers: Ms Erin Toal, Ms Gillian Fraser, Ms Emma Rhodes

Supervisors: Professor Andrew Gumley, Dr Hamish McLeod

Local Lead Investigators: Dr Lisa Reynolds, Dr Jaqueline Smith, Dr Rachel Bonney, and Dr Jamie
Kirk

Please write your initials in the appropriate box

1. I have read the information sheet (Version 4, 8th February) ☐
2. I have had the opportunity to ask questions and to discuss the project ☐
3. I have received satisfactory answers to the questions ☐
4. I have received enough information about the study ☐
5. I understand that I am free to withdraw my participation, at any time,
without having to give a reason, and without affecting my future care? ☐
6. I understand that the interview will be recorded and transcribed and that following
transcription the original recording will be destroyed and all personal data removed
from the transcription. ☐
7. I understand that if I become upset during the research interview the researcher will help
me to access appropriate professional support if this is required ☐
8. I understand that a member of the research team will examine my case notes to
obtain data about my age, diagnosis, number of hospital admissions, and length of
illness. ☐

9. I understand that if I say anything that makes the researchers concerned about my safety or the safety of another person this information may be communicated to a third party. I also understand that the research will take reasonable steps to discuss this with me beforehand. ☐

10. I understand that remarks I make may be included in an anonymous form in reports about this research (if you do not consent to this, please leave this box blank) ☐

11. I agree that my GP and the Mental Health Team can be informed that I am participating in the above study. ☐

12. I consent to take part in this research project. ☐

Participant signature:

Date:

Researcher signature:

Date:

Appendix 2.4: The Process of Cue Selection

An online survey was developed to determine how strongly certain words were associated with each of Gilbert's (1989, 2005) social mentalities. Participants were recruited via social media sites and word of mouth. They were provided with definitions of compassionate, threat and drive social mentalities and then asked to rate how strongly they felt each of 85 words fitted with the three definitions, on a five point Likert scale ranging from "not at all" to "very". The four words with the highest ratings for the compassionate and drive social mentalities were then used in the I-AMT. It was felt that retrieval to some of the words most highly associated with threat social mentalities may be too distressing for participants with a history of trauma (e.g. "attacked"). As such, the next highest rated words were applied. Table 4 summarises the words that were selected for the I-AMT, and the ratings they achieved.

Table 4. The I-AMT cue words for compassion, threat, and drive-focussed social mentalities, along with the mean rating gained on a five-point Likert scale for the strength of association with the social mentality (where 0 = not at all; 5 = very).

Words Associated with Compassion- Focussed Social Mentality	Mean Rating	Words Associated with Drive-Focussed Social Mentality	Mean Rating	Words Associated with Threat-Focussed Social Mentality	Mean Rating
Caring	5.0	Driven	4.9	Threat	5.0
Nurturing	4.9	Motivated	4.8	Intimidated	4.7
Compassionate	4.9	Determined	4.8	Scared	4.5
Kindness	4.9	Ambitious	4.8	Criticised	4.2

Appendix 2.5: Interpersonal Autobiographical Memory Task (I-AMT) Protocol

Introduction

The procedure for the I-AMT is based on that developed by Williams & Broadbent (1986). It aims to evaluate the relationships between autobiographical memory recall and reflective functioning across the social mentalities set out in Gilbert's (1989, 2005) Social Mentality Theory. Participants are presented with sentence cues describing interpersonal situations which the participant could associate with a number of specific events (e.g. "a situation in which you felt cared for"). The sentence cues will constrain recall to autobiographical memories of social contexts which fall into three categories – caring, threat-focussed, and drive-focussed. The I-AMT allows evaluation of the latency and specificity of autobiographical memories recalled from these social contexts, in addition to participants' capacity to take a reflective stance regarding the process of recalling these memories across different social contexts.

Guidelines

General guidelines for administration of the I-AMT are as follows:

- Although specific administration instructions are presented for each part of the task in order to ensure the validity of the measure, it remains important engage in rapport building from the outset. The researcher should take a warm and empathic stance and show genuine interest in the participant's accounts. As much as possible, the researcher should allow the task to flow like a conversation, avoiding falling into patterns of repetitive or mechanical responding.
- During the practice trials, it is important to encourage the participant and provide feedback regarding their performance, particularly praise for responses that are correct. However, attempts should be made not to provide feedback regarding performance during the actual trials. In the interests of maintaining rapport, encouragement can still be given by commenting upon other aspects of the participant's performance, such as the amount of effort they are putting in.
- In the interests of maintaining rapport, the researcher should acknowledge strong emotions that may be associated with a memory. If possible, the researcher should let the participant know that they can discuss those feelings at the end of the task. If the participant is very distressed, the researcher should offer the opportunity for a break or to abandon the task, and ensure the participant is able to access appropriate supports.
- The researcher should make efforts to alleviate any worries participants may have about their performance, such as reassuring them that there is no right or wrong answer, or that it is ok if they find the task difficult or are unable to recall a memory.
- If participants query whether they may use the same memory in response to multiple cues, the researcher should refrain from providing guidance either way and allow the participant to make this decision themselves. If participants do recall the same memory in response to a number of cues, this should be permitted without comment.
- Following completion of the task, there should be a debriefing period when the participant is invited to discuss anything they found upsetting or to ask any

questions. At this time, the researcher may wish to acknowledge difficult emotions and to explore anything the participant has said which raises concerns.

Administration Instructions

"In the next task, I am going to ask you to recall social situations and events that you have experienced. You will be presented with 12 sentences. Following each sentence, I would like you to tell me about the first event that it reminds you of. The event can be important or trivial and it can be recent or from a long time ago. However, it must be specific. In other words, it must be something that happened at a particular place and time, and lasted for a day or less. For example, for the sentence "a situation in which you felt happy", it would not be alright to say "I always feel happy when I go to parties" because it does not mention a particular time, but it would be alright to say "my sister's party last Saturday". In addition to this, the event must also be social. In other words, it must be something that involved both you and another person or other people."

Check that the participant understands the task and answer any questions that they have.

Let the participant know that you will be using a stopwatch during the task to ensure that you keep to time and so that you know when to move to the next item if the participant is finding it hard to remember a situation. Let them know that you will be taking notes during the procedure.

Practice Trials

Allow the participant a practice trial. *"Let's practise one now. Can you tell me about a specific social event that happened to you when [insert Practice Trial Cue 1]?"* [Show participant cue card]. Allow the participant to tell you the memory and give the appropriate response from the Practice Trial Responses. Allow the participant to respond, if appropriate, and provide feedback regarding whether the event recalled is interpersonal and specific. During the practice trials, it is important to offer praise for the parts of the response that are correct.

Irrespective of whether the participant is correct at the second attempt, ask *"Can you tell me how you found the process of bringing the memory to mind?"*. If the participant requires further clarification, re-word the question or use an alternative Demand Question from the list provided.

"Could you rate the feeling you have when recalling that memory using this scale?" [Show rating scale card]. Provide explanation regarding the scale if necessary. *"And what word would you use to describe that feeling?"*

Repeat this procedure with Practice Trial Cue 2. If the participant fails to give a specific, interpersonal response by the second attempt on this trial, repeat the procedure again with Practice Trial Cue 3.

Do not continue to the actual trials until you feel confident that the participant fully understands the task. Ensure that the participant does not have any further questions before moving on.

Practice Trial Cues:

1. *"...you went on a trip."*
2. *"...you were surprised by someone else's behaviour"*
3. *"...you tried something new"*

Practice Trial Responses:

- If the memory recalled is both specific and interpersonal, state *"That's correct because [insert summary of memory] is a specific event that happened at a particular time and place, and it also involved another person/other people"*
- If the memory recalled is specific but not interpersonal, state *"You're correct, that event is a specific event that happened at a particular time and place, but it is not interpersonal because it did not involve another person or other people. Can you tell me about a time, that involved another person or people, when [insert Practice Trial Cue]"*
- If the memory recalled is interpersonal but overgeneral, state *"You're correct, that event does involve another person/other people, but it is a general event. Can you tell me about a more specific event that happened at a particular time and place when [insert Practice Trial Cue]"*.
- If the memory recalled is not interpersonal and overgeneral, state *"That event is a general event and does not involve another person or other people. Can you tell me about a specific event that happened at a particular time and place and involved another person or people. I had asked you to tell me about a time when [insert reminder of cue]"*.

The I-AMT Task

"Now we will begin the task."

Items will be administered in a randomised order. Administer each item using the following procedure:

"Can you tell me about a specific social event that happened to you when [insert sentence cue here]?" [Show participant cue card]. Allow the participant to tell you the memory. If it is unclear whether the participant is referring to a specific or interpersonal event, use the prompt *"Can you tell me about one specific event with another person or other people"*. It may be necessary to clarify with the participant whether and how other people were involved in the situation, if this remains unclear. If the participant fails to provide a memory response after 30 seconds, move on to the next item.

Following the participant's memory response, ask *"How did you find the process of bringing that memory to mind?"* or another appropriate demand question from the list provided. It may be necessary to ask a second demand question if the participant does not elaborate upon this process.

Following this response, ask *"Could you rate the feeling you have when recalling that memory using this scale?"*[Show rating scale card].*"And what word would you use to describe that feeling?"*

The sentence cues include:

"Can you tell me about a specific social event that happened to you when..."
"...others were caring towards you or you were caring towards others"

“...others were nurturing towards you or you were nurturing towards others”
“...others were compassionate towards you or you were compassionate towards others”
“...others showed kindness to you or you showed kindness to others”
“...you felt driven for someone or because of someone”
“...you felt motivated for someone or because of someone”
“...you felt determined for someone or because of someone”
“...you felt ambitious for someone or because of someone”
“...you felt threatened”
“...you felt intimidated”
“...you felt scared”
“...you felt criticised”

Demand questions include:

“How did you find that process of bringing the memory to mind?”

“How did you think of that memory?”

“What made you think of that memory?”

“Can you tell me about how you brought that memory to mind?”

Coding the Data

During administration, time the latency using the stop watch. The I-AMT should be recorded and transcribed. It is also a good idea to keep a written record of brief details of the participants' responses, latency and judgements of the type of memory recalled on the response sheet.

Coding Autobiographical Memory

- Code the first memory that the participant recalls, even if the participant changes his/her response part way through.
- Specific vs. Overgeneral
 - A specific memory refers to “a particular recollection that takes place during a period of no longer than one day”.
 - Overgeneral memories are either:
 - Categorical - “a recollection of a summary of a recurring event”)
 - Extended - a recollection of “an event that takes place over a period of more than one day”).
 - If the participant starts with a general memory which becomes specific in the same stream of narrative, this should be coded as specific. However, if the participant initially recalls a general memory and then realises this is incorrect and adjusts their response, the initial general memory should be coded.
- Interpersonal vs. Non-interpersonal
 - An interpersonal memory refers to a recollection of an interaction with another person
 - A non-interpersonal memory refers to a recollection that does not involve interaction with another person
 - If a participant with psychosis experiences an interaction with voices, this should be coded as interpersonal.
 - Interactions with pets and other animals should be coded as non-interpersonal.
- Latency

- This is the time from the presentation of the cue to the first word of a specific memory recalled.
- Do not take into account generic responses that the participant may give whilst forming a response (e.g. “Um...”; “That’s a hard one”; “Let me think”).
- An omission occurs when the participant fails to provide an autobiographical memory within 30 seconds following presentation of the sentence cue.
- Reflective Functioning
 - An adaptation of the reflecting functioning coding framework (Fonagy et al., 1998) will be applied to the narrative cued by the I-AMT demand questions.

Appendix 2.6: The Adaptation of Fonagy's (1998) Reflective Functioning Coding Framework

Fonagy (1998, pp. 4) defines reflective function as “the psychological processes underlying the capacity to mentalize”. The RF coding framework (Fonagy, 1998) was developed to provide an appraisal of mentalization within attachment-related narratives. In order for instances of mentalization to be explicitly identified with a narrative, three criteria are stated to be necessary – a) they must arise within attachment-based narratives, which include when interactions occur with others and when one’s own mental state affects one’s own or others’ behaviour, b) they must be specific to the situation being described rather than more general categories of events, and c) they must be specific to mental states. When adapting this coding framework for use within the I-AMT, the conditions for identifying instances of mentalization were modified to increase their suitability for application to narratives concerning the memory retrieval process. For mentalization to have occurred, narratives needed to be a) in response to demand questions where a specific, categoric or extended memory was given (semantic associations and omissions were excluded), b) relevant to the memory being discussed, and c) specific to mental states. If a response met all three criteria, then a score of 5 or above was given, as per the guidelines set out in Fonagy (1998). A score of 3 or below was applied when these criteria were not met.

Appendix 2.7: Letter of Ethical Approval

WoSRES
West of Scotland Research Ethics Service

NHS
**Greater Glasgow
and Clyde**

West of Scotland REC 3
Ground Floor – The Tennent Institute
Western Infirmary
38 Church Street
Glasgow G11 6NT
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Professor Andrew I Gumley
Chair of Psychological Therapy
University of Glasgow
Mental Health and Wellbeing
Gartnavel Royal Hospital
Glasgow
G12 0XH

Date 22nd February 2013
Your Ref
Our Ref
Direct line 0141 211 2123
Fax 0141 211 1847
E-mail Liz.Jamieson@ggc.scot.nhs.uk

Dear Professor Gumley

Study title:	Compassion, memory and coping: A study identifying change processes underpinning recovery
REC reference:	13/WS/0014
IRAS project ID:	114280

Thank you for your letter of 12 February 2013, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information was considered in correspondence by a sub-committee of the REC. A list of the sub-committee members is attached. The Sub Committee commented as follows:

- The Sub Committee noted your response regarding self harm and after discussion agreed as a compromise and in order not to put the research at risk that patients should only be considered for recruitment to the study six months post self harm. The Co-ordinator contacted you and you agreed to this compromise. You then submitted an amended Protocol Version 4.1 dated 22nd February 2013 showing those who were less than six months post self harm would not be recruited to the study.

We plan to publish your research summary wording for the above study on the NRES website, together with your contact details, unless you expressly withhold permission to do so. Publication will be no earlier than three months from the date of this favourable opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to withhold permission to publish, please contact the Co-ordinator Mrs Liz Jamieson, Liz.Jamieson@ggc.scot.nhs.uk.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
GP/Consultant Information Sheets	4	08 February 2013
Investigator CV		
Other: Unfavourable Opinion Letter		15 November 2012
Other: Provisional Opinion Letter		15 November 2012
Other: Letter addressing issues from Unfavourable Opinion Letter		11 January 2013
Other: Approval Letter - Erin Toal		14 August 2012
Other: Approval Letter - Emma Rhodes		14 August 2012
Other: CV - Supervisor - Dr H J McLeod		
Other: CV Student - Erin Toal		
Other: CV Student - Emma Rhodes		
Other: CV Student - Gillian Fraser		
Participant Consent Form	4.0	08 February 2013
Participant Information Sheet	4.0	08 February 2013

Participant Information Sheet: Clinical Teams	1	12 February 2013
Protocol	4.1	22 February 2013
Questionnaire: Narrative Interview for Compassion-Revised		
Questionnaire: Coping Inventory for Stressful Situations - Shortened Version		
Questionnaire: Psychosis Attachment Measure		
Questionnaire: How I Typically Act Towards Myself in Difficult Times		
Questionnaire: Fears of Compassion Scales		
Questionnaire: Altman Self Rating Mania Scale		
Questionnaire: HADS		
Questionnaire: Interpersonal Autobiographical Memory Task (I-AMT) Protocol		
Questionnaire: CTQ		
Questionnaire: WTAR Word List		
REC application		09 January 2013
Response to Request for Further Information		12 February 2013

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "*After ethical review – guidance for researchers*" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

13/WS/0014	Please quote this number on all correspondence
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We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at <http://www.hra.nhs.uk/hra-training/>

West of Scotland REC 3

Sub-Committee of the REC meeting on 28 February 2013

Committee Members:

<i>Name</i>	<i>Profession</i>	<i>Present</i>	<i>Notes</i>
Liz Ross	Lay Member	Yes	
Dr Adam Burnel	Consultant Psychiatrist - Chair	Yes	
Mrs Mary Keenaghan	Clinical Auditor	Yes	
Mr Eoin MacGillivray	Retired Dentist	Yes	
Dr Stuart Milligan	Lecturer in Palliative and Cancer Care	Yes	
Dr Stephen Noble	Consultant Anaesthetist	Yes	
Mrs Gillian Notman	Joint Occupational Therapy Lead Advisor	Yes	
Mrs Rosie Rutherford	Lay Member	Yes	

Appendix 2.8: Letter of R&D Approval



**Greater Glasgow
and Clyde**

R&D Management Office
Western Infirmary
Tennent Institute
1st Floor 38 Church Street
Glasgow, G11 6NT,

Coordinator/Administrator: Dr Erica Packard/Mrs Elaine O'Neill
Telephone Number: 0141 211 6208
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Website: www.nhsggc.org.uk/r&d

15 March 2013

Dr Jackie Smith
Arran Centre
121 Orr Street
Glasgow G40 2BJ

NHS GG&C Board Approval

Dear Dr Smith

Study Title:	Compassion, memory and coping: A study identifying change processes underpinning recovery
Principal Investigator:	Dr Jackie Smith
GG&C HB site	North and East Dumbartonshire Mental Health Services
Sponsor	NHS Greater Glasgow and Clyde
R&D reference:	GN13CP055
REC reference:	13/WS/0014
Protocol no:	V4.1; 22/02/13
(including version and date)	

I am pleased to confirm that Greater Glasgow & Clyde Health Board is now able to grant **Approval** for the above study.

Conditions of Approval

1. **For Clinical Trials** as defined by the Medicines for Human Use Clinical Trial Regulations, 2004
 - a. During the life span of the study GGHB requires the following information relating to this site
 - i. Notification of any potential serious breaches.
 - ii. Notification of any regulatory inspections.

It is your responsibility to ensure that all staff involved in the study at this site have the appropriate GCP training according to the GGHB GCP policy (www.nhsggc.org.uk/content/default.asp?page=s1411), evidence of such training to be filed in the site file.

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BoardApproval_GN13CP055_Smith

2. **For all studies** the following information is required during their lifespan.
 - a. Recruitment Numbers on a monthly basis
 - b. Any change of staff named on the original SSI form
 - c. Any amendments – Substantial or Non Substantial
 - d. Notification of Trial/study end including final recruitment figures
 - e. Final Report & Copies of Publications/Abstracts

Please add this approval to your study file as this letter may be subject to audit and monitoring.

Your personal information will be held on a secure national web-based NHS database.

I wish you every success with this research study

Yours sincerely,



Dr Erica Packard
Research Co-ordinator

Cc: Prof Andrew Gumley

Major Research Project Proposal

An evaluation of autobiographical memory and mentalization in different social contexts.

Matriculation Number: 1004578

Date of Submission: 04.05.12

Version Number: 1

Abstract

Limited research exists regarding the relationship between autobiographical memory and mentalization capacity, despite both being relevant to psychological functioning and the process of psychotherapy. However, theories posed for both implicate similar mechanisms by which these functions may be enhanced or impaired. Both processes are influenced by the emotion regulation systems in operation at the time, which Social Mentality Theory (Gilbert, 1989, 2005) associates with the current social context. This study aims to develop and test new methodologies to examine the relationship between autobiographical memory and reflective-functioning evoked by a variety of salient social context cues. Understanding this relationship has important implications for clients' ability to recall and reflect on experience within therapeutic sessions.

Participants with schizophrenia-spectrum disorders, bipolar disorder and complex trauma will complete a refined version of a classic autobiographical memory cueing task. They will be asked to recall specific memories in response to cues reflecting three social contexts - affiliative, threat and drive – and to reflect upon the process of recalling these memories. Measures of recall latency and memory specificity will be recorded, and the narrative coded to ascertain reflective-functioning across the social contexts. These data will enable recommendations to be made regarding effective delivery of therapy.

Introduction

Within the current literature, autobiographical memory and mentalization are constructs which, although widely studied, have been considered separately. It is the intention of this study to develop new methodologies that will enable these bodies of research to be brought together and evaluated across a range of social contexts.

Autobiographical Memory

Early research using the Galton cue-word paradigm (Galton, 1883) highlighted a mood-congruent memory bias in the retrieval of AMs (e.g. Lloyd & Lishman, 1975). Subsequent research has adapted Galton's method into the widely used Autobiographical Memory Task (AMT; Williams & Broadbent, 1986). This originally utilized positive and negative words to elicit emotionally-valenced memories. Biases have been demonstrated in both latency and specificity of AM retrieval, and these are reliably associated with psychopathology.

This research has identified an overgenerality effect, the tendency for individuals to give descriptions of *general* categories of events, despite receiving instructions to describe *specific* autobiographical events. This has been observed in depression, post-traumatic stress disorder (for review, see Williams et al., 2007), and schizophrenia (Cuervo-Lombard et al., 2007). Overgeneral AM has been associated with impairments in problem-solving, ability to imagine the future, and recovery following emotional disorders, and is a risk factor for future depression (Williams et al., 2007).

Conway & Pleydell-Pearce (2000)'s model of AM accounts for the overgenerality effect. It describes the hierarchical organization of AM representation at different levels of specificity. Activation of these representations occurs through either generative retrieval (an intentional, top-down memory search) or direct retrieval (a rapid activation process from event-specific knowledge to more general memories, such as when a memory 'pops into mind').

The overgenerality effect is stated to result from premature termination of the generative retrieval process at the point when only general information has been accessed. For individuals who have experienced traumatic/negative events, activating representations of these events trigger negative affect. Early truncation of the memory search therefore occurs as a form of functional avoidance, to inhibit the arousal of negative affect, resulting in overgeneral AM retrieval.

Additionally, a multi-component model of AM (Williams et al., 2007) proposes that functional avoidance, attention capture, rumination, and impaired executive functioning all contribute to overgeneral memory. Within in this model, certain cue types are more likely to capture attention and effect memory production. This will be explored in the present study by using cues relating to Social Mentality Theory (Gilbert, 1989, 2005).

Whilst there are many methodologies for evaluating AM (see Wenzel, 2005), the AMT is easily adaptable and therefore applicable to a range of research questions. Amongst other modifications, researchers have manipulated the cues used to elicit memories in order to place constraints upon the types of experience recalled (e.g. D'Argembeau et al., 2008). The AMT's versatility is well-suited to the proposed study.

Social Mentalities

Gilbert's (1989, 2005) Social Mentality Theory (SMT) presents a tripartite model of affect regulation. It proposes the evolution of three systems that regulate behavioural and emotional responses in contexts relating to threat, non-social resource competition, and

affiliation. Specialized brain systems that sub-serve these capacities have been identified in neurophysiological studies (Depue & Morrone-Strupinsky, 2005).

SMT states that humans exhibit a variety of reciprocal role relationships. These develop through the exchange of social signals, which trigger patterns of neurophysiological activation that can be referred to as social mentalities. A social mentality is “a loose description of how specific motivations (to form certain types of social relationship) direct attention appropriately, recruit relevant cognitive processing and guide emotions and behavioural outputs” (Liotti & Gilbert, 2011, pp.14). These enable humans to navigate the social world and pursue biosocial goals (Gilbert, 2005). From an evolutionary perspective, the adaptive expression of social mentalities in social contexts enables survival and reproduction (Gilbert, 2005).

In threatening social contexts, the threat-focussed social mentality is activated (Gilbert, 2009). This negative affect system is mediated by phylogenetically primitive areas of the brain. It is involved in rapid detection of threat and subsequent emotional (fear, anger), behavioural (fight, flight, freeze) and cognitive responses. Which stimuli are interpreted as threatening is both genetically determined and dependent upon learned experience (e.g. experiences of danger or neglect).

The drive-focussed system is activated in social contexts where the individual is seeking to fulfil goals, such as gaining relationships (Gilbert, 2009). This positive affect system functions to motivate and guide individuals to seek resources required for survival and evolution. It focusses on social rank, dominance and status. When activated, this system leads to feelings of arousal, energy, positive emotions (anticipation, excitement) and goal-directed behaviours, including competitive behaviour, status-seeking and working to avoid rejection (Depue, 2005).

Alternatively, in affiliative situations where the individual is not managing threat or searching for resources, the social-safeness system (Gilbert, 2009) is activated. This is associated with positive emotions (relaxation, well-being) and behaviours which are explorative but non-seeking and non-defensive (Gilbert, 1993). It is connected with attachment behaviour (whereby the parent’s caring behaviour activates the child’s social-safeness system and alleviates distress), and alliance formation (Gilbert, 1989, 2005). The opiate and oxytocin system have been associated with this system (Depue, 2005), physiologically separating it from the drive-focussed system.

SMT states that these three systems are in constant reciprocal interaction, the patterns of which depend upon both genetic factors and past experience. Early experiences of being

cared for will promote the development and predominance of the social-safeness system, which in turn influences and regulates the development and expression of the other two systems. Alternatively, following early experiences of poor care/danger, the threat-focussed system may become more easily activated whilst the social-safeness system remains unexpressed. Many psychopathologies can be attributed to over- or under-sensitivities within these systems to cues indicating threat, drive or social-safeness. Low experiences of social-safeness has been associated with psychosocial maladjustment (Kelly et al., 2012).

Mentalization

Our capacity for mentalization may have been necessary for and evolved through social mentalities. Mentalization is the “process by which an individual implicitly or explicitly interprets his own actions and those of others as meaningful on the basis of intentional mental states (e.g. desires, needs, feelings, beliefs and reasons)” (Bateman & Fonagy, 2004;pp.302).

Liotti & Gilbert (2011) highlight that different functions of mentalization may have evolved across the social contexts, and that switching between social mentalities may also involve switching between forms of mentalization. In competitive contexts, mentalization may be utilized to predict other’s intentions, or make self-other comparisons whilst, in affiliative contexts, mentalization may enable empathic attunement and development of social-safeness.

Liotti & Gilbert (2011) hypothesize that mentalizing may be better in one social mentality compared to another, dependent upon life experiences, particularly attachment. They suggest positive caregiving fosters safeness within the child, and is a pre-requisite for the development of mentalization. They also suggest that, in threatening social contexts, the attachment system is likely to be activated. In insecurely-attached individuals, this is likely to impair mentalization. Theories proposed based upon neuroscientific observations are consistent with this (Bateman & Fonagy, 2004).

Linking Autobiographical Memory, Social Mentalities, and Mentalization

There is limited research evaluating a link between AM and mentalization. It has been proposed that, when attempting to understand others’ mental states, individuals must refer to their own AMs as a basis for inference and comparison with the current event (Corcoran, 2001). In support of this, Corcoran & Frith (2003) found a positive correlation between capacity for AM retrieval and performance on theory of mind tests in people with

schizophrenia. They suggest impaired AM disrupts retrieval of past social experiences from which inferences of others' current behaviour could be drawn. Further evidence cited includes the projection of self-relevant traits onto the affect or behaviour of others, as well as associations found in children between the quantity of early AMs and ability to infer others' mental states (see Dimaggio et al., 2008).

In conclusion, AM and mentalization are hypothesised to be modulated by social context and the related social mentality. Whilst threat may impair these functions through rapid activation of the threat-based attachment system and functional avoidance, social-safeness may provide conditions conducive to reflection, deliberation and efficient recall. The development of methods for systematically examining these integrated theoretical postulates is required.

Aims

The study aims to develop a methodology to test the relationships between AM recall and mentalization across Gilbert's social mentalities. The ability of this methodology to detect differential responses in AM recall and mentalization across social contexts will be systematically tested.

Hypotheses

The following hypotheses are proposed.

- 1. The AM recall latency will be shorter for threat social mentality cues compared to cues reflecting affiliative and drive mentalities.*
- 2. There will be a smaller proportion of specific memories recalled for threat social mentality cues compared to cues reflecting affiliative and drive mentalities.*
- 3. There will be less indication of a reflective stance towards self or others within the narrative accounts of AM recall following threat social mentality cues compared to cues reflecting affiliative and drive mentalities.*
- 4. Specificity of recall will be positively correlated with reflective functioning.*

Plan of Investigation

Participants

Recruitment Procedures

Participants will be recruited from NHS Greater Glasgow and Clyde mental health services. Eligible participants will be identified in collaboration with keyworkers and Responsible Medical Officers. They will be provided with full information regarding the study and procedures involved, and the voluntary nature of participation. Written informed consent will be gained. Ethical approval will be sought from the NHS West of Scotland Research Ethics Committee.

Inclusion and Exclusion Criteria

Participants, aged over 16 years, will be recruited from mental health services in Glasgow. They will either have experienced complex trauma, or will meet ICD-10 criteria for schizophrenia-spectrum disorders (schizophrenia, schizoaffective disorder, other nonaffective psychotic disorders, schizotypal personality disorder, paranoid personality disorder), or bipolar disorder.

Participants will be excluded if their symptom severity impairs their ability to participate in the study, as will participants deemed by the clinical team to lack capacity to consent. Further exclusion criteria include diagnosis of a neurological condition that would affect cognitive functioning (e.g. dementia, head injury requiring hospital treatment).

Measures

Demographic information (age, occupation, education) will be collected from participants. Additionally, information regarding diagnosis, duration of illness and current medications will be requested from mental health staff involved in participants' care.

Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983)

This is a 14-item self-report measure of anxiety and depression. It has shown good reliability and validity in a variety of populations (e.g. Herrman, 1997).

Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998)

This is a 28-item self-report questionnaire measuring 5 types of maltreatment - emotional, physical, and sexual abuse, and emotional and physical neglect. It has shown good reliability and validity within clinical samples (Bernstein et al, 1998).

Fears of Compassion Scale (FCS; Gilbert et al., 2011)

This consists of three self-report rating-scales measuring compassion for others, compassion from others, and compassion for self. This measure is currently being developed and requires research regarding its psychometric properties.

Wechsler Test of Adult Reading (WTAR; Wechsler, 2001)

This is a word pronunciation test which provides an estimate of pre-morbid intellectual functioning. It has UK norms and good reliability and validity.

Interpersonal Autobiographical Memory Task (I-AMT)

The procedure for the I-AMT will be based on that developed by Williams & Broadbent (1986). Participants will be presented with sentence cues describing interpersonal situations which the participant could associate with a number of specific events (e.g. “a situation in which you felt cared for”). The sentence cues will constrain recall to AMs of social contexts which fall into three categories – affiliative, threat-focussed, and drive-focussed. The cues will be selected by asking a non-clinical sample to rate how closely certain words fit with Gilbert’s (1989, 2005) social mentality definitions. Participants will be presented with four cues from each category, in a random order. They will be written on cards and presented one-by-one.

Oral instructions will be given (see Appendix B). Participants will be given practice trials to confirm understanding, and will have 30 seconds for each response. Failure to respond within this time will be scored as an omission. Following each trial, participants will be asked to rate the emotion associated with the memory on a visual-analogue scale from negative to positive emotion. They will be asked a demand question which requires them to reflect on the process of bringing that memory to mind (e.g. “*How did you remember that?*”).

The latency from the presentation of the cue to the first word of a specific memory recalled will be measured. Responses will be coded using existing conventions (Wenzel, 2005). Additionally, memories will be categorized as either interpersonal (a recollection of an interaction with another person) or non-interpersonal (a recollection that does not involve interaction with another person).

Reflective Functioning (RF) Coding Framework

The RF coding framework (Fonagy et al., 1998) will be applied to the narrative cued by the I-AMT demand questions. This framework was originally developed for the Adult Attachment Interview (George et al., 1985). It provides a score along an 11-point scale,

ranging from -1 (negative RF, where understanding of mental states is resisted or grossly distorted) to 9 (exceptional RF, where there is evidence of sophisticated, complex or elaborate mentalization).

Procedure

All participants will initially complete the demographic questionnaire, CTQ, and HADS. The I-AMT will then be administered. After a 15 minute break, a narrative interview for exploring compassion will be administered as part of another study. Participants will complete the WTAR and FCS in addition questionnaires for another study. This procedure will last around 2 hours.

Statistical Analysis

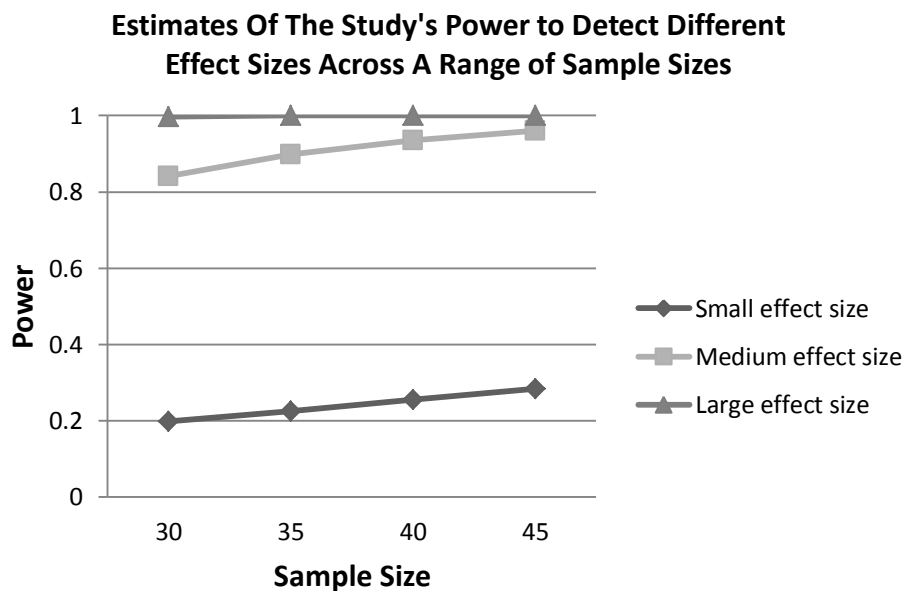
Prior to formal data analysis, parametric assumptions will be checked. Data will be checked for significant differences between diagnostic groups in terms of age, gender, pre-morbid intellectual functioning, childhood trauma, and current anxiety and depression symptom scores. Any covariates found may impact upon AM and RF. Therefore, in addition to the following unadjusted analyses to determine whether the aforementioned hypotheses have been met, adjusted analyses will be conducted upfront to partial out these effects.

Specificity and latency of AM recall will be compared across social mentalities using one-way repeated-measures ANOVAs, followed by Tukey's tests if appropriate. Friedman's ANOVA will be used to compare RF scores across social mentalities, followed by Wilcoxon signed-rank tests (with Bonferroni correction applied) if appropriate. Spearman's rho calculations will be used to measure the association between AM specificity and RF for each social mentality.

A post-hoc sensitivity analysis will exclude non-interpersonal memories to determine whether this impacts upon effect size. If the hypotheses are not confirmed, further post-hoc analyses will be conducted to explore correlations of AM latency and specificity with other key clinical variables (fear of compassion, trauma, depression, anxiety) which may provide additional explanation and basis for further study.

Sample Size

No previous comparable studies exist from which an estimate of expected effect size (ES) could be obtained. It is hoped this exploratory study will generate and define future areas of research, using the proposed methodologies. Within the resources available, it is estimated that 30-45 participants can be recruited. For this study, the key within-subjects comparisons are in AM recall and RF across the social mentality conditions. Power calculations provide estimates of this study's power to detect small, medium and large ESs across a range of participant numbers, given an estimated correlation amongst repeated-measures of 0.5, significance level of alpha of 0.05 and the assumption that sphericity is not violated (see Graph.1). The magnitudes of ESs were defined as in Cohen (1988).



Graph.1. Estimates of this study's power to detect small, medium and large effect sizes for samples sizes ranging between 30 and 45 participants.

Within the resources available, the study is expected to have reasonable power (>0.8) to detect large and medium ESs (based on Cohen, 1988). It lacks adequate power to detect small ESs.

Settings and Equipment

Research will be conducted within NHS Healthcentres. Recording equipment, the WTAR and CTQ are required.

Health & Safety Issues

Local and NHS health and safety procedures will be followed. There will be no greater risk to participants or researchers than during usual clinical practice.

Ethical Issues

This study will contribute to the literature and assessment methodologies regarding mentalization and AM, which in turn may improve future delivery of psychological interventions.

Should participants experience distress (e.g. recall of trauma), this will be appropriately responded to within the research session. Contact details will be provided for NHS and voluntary organisations where support is available. NHS procedures will be followed if any criminal, or other, disclosure occurs during the study.

Financial issues

Photocopying, WTAR and CTQ record forms and £10 travel expenses per participant are required.

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