



Field visual perspective during autobiographical memory recall is less frequent among patients with schizophrenia



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ARTICLE INFO

Article history:

Received 23 February 2013

Received in revised form 29 June 2013

Accepted 15 July 2013

Available online 8 August 2013

Keywords:

Schizophrenia

Autobiographical memory

Visual perspective

Field perspective

Observer perspective

Memory specificity

ABSTRACT

There is growing interest in clinical research regarding the visual perspective adopted during memory retrieval, because it reflects individuals' self-attitude towards their memories of past personal events. Several autobiographical memory deficits, including low specificity of personal memories, have been identified in schizophrenia, but visual perspective during autobiographical memory retrieval has not yet been investigated in patients. The aim of this study was therefore to investigate the visual perspective with which patients visualize themselves when recalling autobiographical memories and to assess the specificity of their memories which is a major determinant of visual perspective. Thirty patients with schizophrenia and 30 matched controls recalled personal events from 4 life periods. After each recall, they were asked to report their visual perspective (Field or Observer) associated with the event. The specificity of their memories was assessed by independent raters. Our results showed that patients reported significantly fewer Field perspectives than comparison participants. Patients' memories, whether recalled with Field or Observer perspectives, were less specific and less detailed. Our results indicate that patients with schizophrenia adopt Field perspectives less frequently than comparison participants, and that this may contribute to a weakened sense of the individual of being an actor of his past events, and hence to a reduced sense of self. They suggest that this may be related to low specificity of memories and that all the important aspects involved in re-experiencing autobiographical events are impaired in patients with schizophrenia.

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1. Introduction

Autobiographical memory is impaired in schizophrenia (Elvevåg et al., 2003; Lysaker et al., 2005; Cuervo-Lombard et al., 2007; Dimaggio et al., 2012). These impairments are characterized by deficient conscious recollection during recall of autobiographical memories (Danion et al., 2005; Pernot-Marino et al., 2010; Bennouna-Greene et al., 2012). Conscious recollection involves one's awareness of the self in time, through the ability to re-experience unique past personal events and to recollect many phenomenological details (Tulving, 1985; Conway, 2001). Memories of patients with schizophrenia are less specific and contain fewer phenomenological details than those of healthy participants (Feinstein et al., 1998; Riutort et al., 2003; Potheegadoo et al., 2012). These phenomenological features, such as colors, smells, sounds, emotions or arrangements of objects and people, give an event its vividness and

create a sense of re-experiencing the event (Johnson et al., 1988; Conway, 2001). Conscious recollection also provides a sense of continuity of the self through time by linking current and past selves (Tulving, 1985), with recent studies showing evidence of a weakened sense of self in time in patients with schizophrenia (D'Argembeau et al., 2008; de Oliveira et al., 2009).

Another phenomenological aspect of re-experiencing autobiographical events and providing a sense of self is related to the visual perspective of the rememberer during autobiographical recall. Interest in visual perspective is growing in clinical research, because it reflects individuals' self-attitude towards their memories of past personal events. During autobiographical retrieval, individuals are able to visualize themselves and the environment in which the original event occurred. There are two kinds of visual perspectives: Field or Observer (Nigro and Neisser, 1983). With Field perspectives, the rememberer sees the scene through his own eyes, like during the original event, whereas with Observer perspectives, the rememberer sees himself in his memories from the point of view of an external observer. Studies conducted on healthy participants identified the different characteristics that distinguish Field and Observer perspectives (Robinson and Swanson, 1993; Libby and Eibach, 2002; Sutin and Robins, 2008). Field

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perspective memories are associated mostly with a feeling of re-experiencing the phenomenological features of the original event, accompanied by a high degree of vividness with which the rememberer is consciously aware of having previously lived the event. Memories associated with Observer perspectives contain more descriptive and less sensory and emotional information (D'Argembeau et al., 2003; Berntsen and Rubin, 2006; Sutin and Robins, 2010). Specific and detailed memories are more likely to be recalled with Field perspectives, while generic and less detailed memories are recalled with Observer perspectives. Nigro and Neisser (1983) have shown that recent memories are more frequently recalled with Field perspectives, whereas remote memories are recalled with Observer perspectives. In addition, individuals' level of self-esteem can also be influenced by the visual perspective during autobiographical retrieval (Sutin and Robins, 2008). According to the model developed by Sutin and Robins (2008), visual perspective could be a mechanism that helps individuals maintain reliable self-views and enhance self-esteem.

To date, the visual perspective of patients with schizophrenia during autobiographical memory retrieval has not been studied. Studies carried out with depressed patients (Lemogne et al., 2006; Bergouignan et al., 2008) have shown that besides their low memory specificity, patients report fewer Field perspectives during autobiographical retrieval of positive events. Patients with post-traumatic stress disorder (PTSD) generally report more Field than Observer perspectives when visualizing themselves during the recall of traumatic events (McIsaac and Eich, 2004; Kenny et al., 2009). D'Argembeau et al. (2006) showed that individuals suffering from social phobia tend to recall social events from an Observer perspective unlike non-social events.

The aim of the study was to investigate the visual perspective (Field or Observer) from which patients with schizophrenia recalled specific autobiographical memories. It also set out to assess the specificity of memories, a major determinant of visual perspective. Based on studies showing that specific and detailed memories are more likely to be recalled with Field perspectives in healthy individuals (D'Argembeau et al., 2003; Sutin and Robins, 2010) and that memories of patients with schizophrenia lack specificity and phenomenological detail (Riutort et al., 2003; Potheegadoo et al., 2012), we predicted that patients would adopt fewer Field perspectives than comparison participants. Such a finding would be a further indication that all the important aspects of re-experiencing autobiographical events are impaired in schizophrenia.

2. Material and methods

2.1. Participants

Thirty-six outpatients with schizophrenia from the Psychiatry Departments of the University Hospitals in Strasbourg and Reims (France) were initially recruited for the study. They met the DSM-IV-TR (APA, 2004) criteria for schizophrenia as determined by consensus of their current psychiatrist and a psychiatrist with expertise in psychiatric research. Six patients were not enrolled in the protocol due to exclusion criteria (4 because of drug abuse, 1 because of a history of electroconvulsive therapy, and 1 because of recent suicide attempt). Therefore, a total of 30 clinically stabilized patients with schizophrenia (11 women and 19 men) took part in the study (paranoid, $n = 22$; undifferentiated, $n = 4$; residual, $n = 3$ and disorganized, $n = 1$). They experienced no change in their symptomatology and medication, and had not been hospitalized for the last 3 months. Positive, negative and general symptoms of schizophrenia were assessed by a psychiatrist using the Positive And Negative Syndrome Scale (Kay et al., 1987) prior to the autobiographical memory task. Twenty-nine patients were receiving long-term antipsychotic treatment (first generation antipsychotic drugs, $n = 7$; second generation antipsychotic drugs, $n = 20$; and both, $n = 2$). The mean dose of antipsychotic medication was

271.24 mg (SD = 179.19 mg) of equivalent of chlorpromazine (Woods, 2003). Only one patient was not receiving treatment.

Thirty comparison participants (11 women and 19 men) were matched to patients in terms of age, gender and level of schooling. None of them had a psychiatric illness or was under medication. No participants from either group had a history of neurological disorders or substance abuse. Those who scored higher than 8 in the Beck Depression Inventory (Beck et al., 1996) and higher than 56 in the State Anxiety Inventory (Spielberger, 1983) were excluded from the study. A high score in the Trait Anxiety Inventory (Spielberger, 1983) was not an exclusion criterion. We used the French adaptation of Part B of the Mill-Hill vocabulary test (Raven, 1993) to estimate the verbal IQ of all participants. Their level of self-esteem was also assessed (Rosenberg, 1965).

The study was approved by the Strasbourg Ethics Committee, and all participants gave their informed written consent once procedures had been fully explained to them.

2.2. Procedures

Participants were asked to retrieve specific autobiographical events during an autobiographical memory task. Immediately after each memory was recalled, they were asked to report their visual perspective associated with it (Field or Observer) (Nigro and Neisser, 1983).

2.2.1. Autobiographical memory task

The autobiographical memory inquiry was originally designed by Piolino et al. (2003) and adapted by Danion et al. (2005) for patients with schizophrenia. Participants were asked to recall and relate, freely, specific autobiographical events located in time and place which had lasted less than 24 h. The inquiry was divided into 4 life periods: childhood up to the age of 9 (P1), age 10 to 19 (P2), age 20 up to one year before the test (P3), and the current year (P4). For each period, participants were asked to recall 3 pleasant (positive valence) and 3 unpleasant (negative valence) autobiographical events (6 events per period = 24 events in all). They had to describe each event in as much detail as possible in terms of its content, where it took place, and any temporal information about it. Whenever their memories were too general, they were prompted with the help of questions (e.g., what did you do? How did you feel?). They were also asked to specify how old they were when the events took place.

2.2.2. Visual perspective

Participants were asked to report either Field or Observer, depending on how they visualized themselves during each memory recall. They were given instructions in written and illustrated form to make sure they understood the meaning of Field and Observer perspectives. The written instructions were as follows: "Field perspective = I can see the scene through my own eyes like when I experienced the original event. Observer perspective = I can see myself and the scene as an external observer as if I was watching myself in a film".

2.2.3. Memory specificity

Two independent raters assessed the level of specificity of each memory. Memories were scored individually on a 4-point scale (Baddeley and Wilson, 1986; Piolino et al., 2003). They were considered highly specific and given four points if they referred to an event that was located in time and place, rich in detail, and lasted less than 24 h. Three points were given for a specific event located in time and place, but not detailed, two for a repeated or generic event, and one for an event that was vague. No points were given if participants recalled a general autobiographical fact. Cohen's Kappa coefficient indicated a substantial inter-rater agreement ($\kappa = 0.92$).

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