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Self-images and related autobiographical memories in schizophrenia

Mehdi Bennouna-Greene [a,b,c,1], Fabrice Berna [a,b,c,1], Martin A. Conway [d], Clare J. Rathbone [d], Pierre Vidailhet [a,b,c], Jean-Marie Danion [a,b,c,*]

[a] Hôpitaux Universitaires de Strasbourg, Clinique Psychiatrique, Pôle Psychiatrie et Santé Mentale, Hôpital Civil 1 Place de l'Hôpital, 67091 Strasbourg Cedex, France
[b] Université de Strasbourg, Faculté de Médecine, 4 rue Kirchleger, 67000 Strasbourg, France
[c] INSERM U666, Physiologie et Psychopathologie Cognitive de la Schizophrénie, Hôpitaux Universitaires de Strasbourg, 1 place de l'Hôpital, BP 426, 67091 Strasbourg Cedex, France
[d] The Leeds Memory Group, Institute of Psychological Sciences, University of Leeds, Leeds LS2 9JT, England, United Kingdom

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ABSTRACT

Schizophrenia is a severe mental illness, which affects sense of identity. While the ability to have a coherent vision of the self (i.e., self-images) relies partly on its reciprocal relationships with autobiographical memories, little is known about how memories ground "self-images" in schizophrenia. Twenty-five patients with schizophrenia and 25 controls were asked to give six autobiographical memories related to four self-statements they considered essential for defining their identity. Results showed that patients' self-images were more passive than those of controls. Autobiographical memories underlying self-images were less thematically linked to these self-images in patients. We also found evidence of a weakened sense of self and a deficient organization of autobiographical memories grounding the self in schizophrenia. These abnormalities may account for the poor cohesiveness of the self in schizophrenia.

1. Introduction

Alterations of the self have long been described in patients with schizophrenia (Freedman, 1974; Hemsley, 1998). However, the concept of self is complex (Klein & Gangi, 2010), the processes underlying its construction and maintenance are still poorly understood (see Dimaggio, Vanheule, Lysaker, Carcione, & Nicolò, 2009) and confusion reigns as to the aspects of the self that might be affected by schizophrenia. William James in his Principles of psychology (1890) was the first to make a distinction between two interconnected aspects of the self: a subjective "I" and an objective, explicit "me" self. The I-self refers to the immediate experience of the self or "sense of self". It is involved in particular when individuals remember a past event and can re-experience their past self at the time of the remembered event. This experience, also known as "conscious recollection" (Tulving, 1985), provides a sense of self-continuity across time by linking current and past selves. The Me-self refers to a more abstract and conceptual form of self, comprising self-images and self-beliefs, and corresponds to enduring knowledge about the self stemming from the encoding of past experiences built up over time.

Conway and Pleydell-Pearce (2000) proposed the "Self-Memory-System", an influential model which integrates autobiographical memories and the different aspects of the self to form a coherent whole. It offers a theoretical framework that can be used to investigate the self together with its relationships with autobiographical memories. The self is regarded as having

* Corresponding author. Tel.: +33 (0)3 88 11 64 45; fax: +33 (0)3 88 11 64 46.
E-mail address: jean-marie.danion@chru-strasbourg.fr (J.-M. Danion).
[1] These authors contributed equally to the study.

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two distinct components: the conceptual self and the working self (Conway, 2005). The former is made up of self-images and self-beliefs that carry enduring self-concerns and refers to the Me-self. The role of the working self is to maintain the coherence between the conceptual self and the autobiographical memories. Regarding autobiographical memories, Conway (2005) posits a hierarchical organization of autobiographical knowledge depending on the specificity of autobiographical information. Memories of single events are nested within larger conceptual structures, corresponding to temporal structures as "lifetime periods" (e.g., when I was living in France between the ages of 10 and 20) and thematic structures (e.g., work or holiday themes). A more elementary organization of autobiographical memories has also been described, reliant on memory characteristics such as related emotions, contextual details, temporal contiguity and theme (Brown & Schopflocher, 1998; Conway, 2009; Wright & Nunn, 2000). It is worth noting that a thematic and temporal organization is found at both the conceptual and elementary levels and that organizations at both levels complement each other.

Several research studies have shown that autobiographical memory is impaired in schizophrenia. Patients' ability to recall personal past events and facts is reduced (Feinstein, Goldberg, Nowlin, & Weinberger, 1998). Their memories are less specific (Riutort, Cuervo, Danion, Peretti, & Salamé, 2003) and characterized by an impairment of conscious recollection (Cuervo-Lombard et al., 2007; Danion et al., 2005), which suggests that the sense of self (or I-self) is altered in schizophrenia. However, to date no study has ever addressed the issue of self-images within the conceptual self (Me-self) in schizophrenia, particularly as regards their relationship with autobiographical memory.

Evaluation of self-images remains a challenging issue. Kuhn and McPartland (1954) developed the Twenty Statements Test, which consists in asking individuals to answer the question "Who am I?" The replies are then analyzed with regard to the number of items given reflecting the strength of the self (Addis & Tippett, 2004), the proportion of abstract (e.g. "I am courageous") or specific states (e.g. "I am a mother") reflecting the quality of the self (Rhee, Uleman, Lee, & Roman, 1995), and the diversity of self-categories (e.g., social identity, physical descriptions) reflecting the complexity of the self. The Twenty Statements Test has been used for example with patients with Asperger syndrome (Tanweer, Rathbone, & Souchay, 2010) or Alzheimer's disease (Addis & Tippett, 2004), both of which are characterized by impairment of the self. Besides this direct evaluation of self-images, Rathbone, Moulin, and Conway (2008) developed the "I AM" Task as an indirect evaluation by focusing on the relationships between self-images and autobiographical memories. Authors asked their participants to complete the Twenty Statements Test and used the self-statements given by the participants as cues for the retrieval of autobiographical memories.

The main aim of our study was to investigate the self-images constituting the conceptual self and the autobiographical memories grounding these self-images in patients with schizophrenia. It also set out to explore the hierarchical organization of autobiographical memory at both the conceptual (i.e., thematic and temporal) and elementary (i.e., thematic, temporal, distinctiveness, emotional) levels in schizophrenia and controls. To that end, we adapted the protocol designed by Rathbone et al. (2008). Characteristics of autobiographical memories cued by self-statements were analyzed together with their link to their related self-statement. The nature of this link was assessed by the participants and by the experimenter. Thus, it was possible to assess the thematic organization of memories related to the conceptual self. Temporal organization was explored at an integrated level by studying the temporal distribution of the memories with regard to the age at which participants felt the related self-image emerged (see, Rathbone et al., 2008). As for elementary organization, it was assessed by measuring the degree of similarity of the memory characteristics (including theme, time, emotions and distinctiveness) related to the same self-statement (Wright & Nunn, 2000). To do this a multi-level statistical analysis was required in order to calculate the proportion of the overall variance of a memory feature explained by the level of self-statement. When the level of self-statement accounts for a significant proportion of this variance, it means that memories related to the same self-statement are very homogeneous with regards to this feature, which reflects the strength of memories organization at the elementary level.

Based on previous literature showing autobiographical memory impairment in schizophrenia, we predicted that in patients the conceptual self would be grounded by less specific and less consciously remembered memories. We also predicted that the elementary organization of these self-related memories would be weakened as recently shown by Morise, Berna, and Danion (2011). Because self-reflective processes are altered in schizophrenia (e.g., Berna et al., 2011), we predicted that the thematic organization would be defective. Finally the temporal organization of these memories was not expected to be altered according with recent findings by Morise et al. (2011).

2. Methods

2.1. Participants

Twenty-five outpatients (12 women) took part in the study. They all met the DSM-IV-TR (American Psychiatric Association, 2000) criteria for schizophrenia (paranoid, $N = 21$; residual, $N = 2$; undifferentiated $N = 1$) as determined by consensus of the current treating psychiatrist and two senior psychiatrists in the research team. The patients were all clinically stabilized. Patients with a history of traumatic brain injury, epilepsy, alcohol and substance abuse, or other neurological conditions were excluded. Patients with a current diagnostic of major depressive disorder, as defined by a score higher than four according to the Calgary Depression Scale for Schizophrenia (Addington, Addington, & Maticka-Tyndale, 1993), and patients with an IQ of less than 70, assessed using a short form of the Wechsler Adult Intelligence Scale Revised (Crawford, Mychalkiw, Johnson, & Moore, 1996; Wechsler, 1981), were also excluded. All but three patients were receiving long-term neuroleptic