Seeing life through rose-colored spectacles: Autobiographical memory as experienced in Korsakoff’s syndrome

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ABSTRACT

We investigated whether patients with Korsakoff’s Sydrome (KS) would demonstrate a discrepancy between (low) autobiographical specificity and (high) sense of reliving. We invited 20 KS patients and 24 controls to retrieve personal memories. After memory retrieval, they were invited to rate subjective characteristics of their recall (e.g., reliving, travel in time, remembering, realness). Besides this rating, we analyzed memories objectively with regard to specificity. Analysis demonstrated poorer sense of reliving and memory specificity in KS patients than in controls. Critically, a discrepancy (i.e., higher level of sense of reliving than of specificity) was observed in KS participants but not in controls. We propose a hypothesis of “genuine consciousness experience” in which the discrepancy between sense of reliving and specificity mirrors how KS patients can benefit from an authentic experience of the past despite compromise in their autobiographical recall.

1. Introduction

Korsakoff’s syndrome (KS) is a chronic neurologic syndrome with an acute onset. It is caused by a thiamine deficiency, which is often caused by prolonged heavy ingestion of alcohol (Kessels & Kopelman, 2012). At the cognitive level, the hallmark of KS is amnesia, with both a profound anterograde amnesia (i.e., impaired ability to remember events that occurred after the onset of the syndrome) and retrograde amnesia (i.e., impaired ability to remember events that occurred before the onset of the syndrome) (Fama, Pitel, & Sullivan, 2012). According to Butters and Cermak (1986), the loss of remote autobiographical memories in KS is severe, extends over several decades, and is characterized by a temporal gradient in which memories for very remote events are very well preserved. These features of amnesia in KS have been observed consistently with a number of memory tests involving recall and recognition of public events (Cohen & Squire, 1981), identification of paragraphs of famous persons (Albert, Butters, & Levin, 1979), and recording of voices of famous persons (Meudell, Northen, Snowden, & Neary, 1980). Another feature of amnesia in KS is confabulations (Borsutzky, Fujiwara, Brand, & Markowitsch, 2008). Confabulations can be defined as fictitious memories without intent to deceive (Baddeley & Wilson, 1986; Crovitz, 1986; El Haj, 2016; Kopelman, 2010). These memories can be entirely or substantially erroneous, or they can simply refer to real memories jumbled up and retrieved out of context (Kopelman, 2010). Confabulations in KS typically arise unintentionally, and the patient is usually unaware of their erroneous nature (Kopelman, 2010).

Amnesia in KS can be observed in both encoding and retrieval, with encoding being disproportionately more impaired than retrieval (Pitel et al., 2008). Amnesia in KS can also be associated with considerable difficulty in retrieving contextual information, i.e., difficulty in remembering where, when and how a memory was acquired (El Haj, Kessels et al., 2016; Kessels & Kopelman, 2012).
KS has also been found to compromise autobiographical memory. Autobiographical memory refers to memory for personal information that encompasses both specific episodic information and more conceptual self-related information (Conway, 2005; Rubin, 2005). Autobiographical memory has been intimately linked with mental time travel, i.e., the ability of humans to mentally project themselves in the past to relive it (Wheeler, Stuss, & Tulving, 1997). Considering the relationship between autobiographical memory and the subjective experience of the past, we investigated a hypothesis for which we have coined the term “the genuine consciousness experience”. We posit that KS patients may experience a high sense of reliving despite a compromise in their autobiographical recall.

The compromise in autobiographical memory in KS was observed in a study by Kopelman (1989) who asked KS patients to retrieve personal memories from their childhood, young adult and recent life. Patients were encouraged to retrieve specific events rather than to retrieve a general description of things they used to do, and were also encouraged to describe how, when and where the events happened. The study showed significant difficulties in retrieving recent memories in KS patients (i.e., anterograde amnesia). It also showed difficulty in retrieving childhood memories (i.e., retrograde amnesia), consistent with Korsakoff’s (1889) own observation that memory loss in KS syndrome may extend back many years or decades. This compromise in autobiographical memory, as reported in the study by Kopelman (1989), has been observed in subsequent research. For instance, Kopelman, Stanhope, and Kingsley (1999) found that KS patients showed severe deficits in retrieval of memories from childhood, early adult and more recent life. A study by El Haj and Nandrino (2017) analyzed the specificity of autobiographical memory. They attributed zero point if a memory described general information about a theme (e.g., “I was child”), one point if a memory described a repeated or an extended event (e.g., “I used to go to school with a friend”), two points if a memory described an event situated in time and/or space (e.g., “we used to take a shortcut through the lake to school”), three points if a memory described a specific event lasting less than 24 h and situated in time and space (e.g., “one day I tried to swing from the tree branches but I fell into the lake”), and four points if a memory described a specific event situated in time and space enriched with phenomenological details such as feelings, perceptions or emotions (e.g., “my friend laughed at me and didn’t want to help me”). Using this scoring system, they observed lower autobiographical specificity in KS patients than in controls.

Besides assessing autobiographical specificity in KS, the study by El Haj and Nandrino (2017) assessed the sense of reliving of memories. This assessment was based on typical scales of sense of reliving of autobiographical memories (D’Argembeau & Van der Linden, 2012; El Haj, Kapogiannis, & Antoine, 2016; Gandolphe & El Haj, 2016; Janssen, Rubin, & St Jacques, 2011; Maki, Janssen, Uemiya, & Naka, 2013; Rubin, Schrauf, & Greenberg, 2003). El Haj and Nandrino (2017) asked KS patients to rate the phenomenological characteristics of their memories (i.e., reliving, back in time, remembering, realness, visual imagery, auditory imagery, language, emotion, rehearsal, importance, and spatiotemporal specificity of memories). The study demonstrated lower mean sense of reliving of autobiographical memory in KS patients than in controls (i.e., lower mean score on the phenomenological scale). However, a piecemeal analysis of the phenomenological characteristics revealed that, whereas the KS patients demonstrated a low mean score on the phenomenological scale, they attributed greater emotional value and more importance to their memories than the controls did. In other words, although the study demonstrated low mean sense of reliving of autobiographical memory in KS patients, the latter strongly experienced affective characteristics such as emotion and importance.

The preservation of emotion and importance in KS, as observed in the study by El Haj and Nandrino (2017), motivated the present study. In particular, we investigated whether patients demonstrate high sense of reliving despite diminished specificity of their memories. This issue can be evaluated using a method developed in a study on Alzheimer’s disease, the latter serving as a comparison for KS as patients with Alzheimer’s disease typically suffer amnesia with no background of alcohol abuse. In the study on Alzheimer’s disease (El Haj & Antoine, 2017), patients with Alzheimer’s disease and controls rated the sense of reliving of their memories, then their recall was analyzed with regard to specificity. Results demonstrated poorer sense of reliving and specificity in Alzheimer’s disease patients than in controls. Interestingly, a discrepancy (i.e., high estimation of the sense of reliving of memories despite compromise of memory specificity) was observed in Alzheimer’s disease patients but not in controls. In other words, despite a compromise in specificity, Alzheimer’s disease patients attributed a high value to their sense of reliving. Using the procedures of the study by El Haj and Antoine (2017), we investigated whether KS patients would demonstrate such a discrepancy between sense of reliving and memory specificity.

Overall, there has been little empirical research on the subjective experience of memory in KS. The present study addressed this gap by examining the discrepancy between specificity (as rated by experimenters) and sense of reliving (i.e., scores as rated by KS patients on a phenomenological scale) in KS. At a clinical level, such a discrepancy may provide an insight into the degree to which KS patients estimate their consciousness experience of the past. This discrepancy may also provide a good estimation of the consciousness experience of autobiographical memories, and probably a genuine experience by which KS patients experience a sense of reliving. We expected to find a discrepancy between sense of reliving and specificity in KS patients but not in controls, i.e. a good estimation of the sense of reliving of memories in KS patients despite their compromise in memory specificity.

2. Method

2.1. Participants

Twenty patients with anterograde amnesia and diagnosed with KS were recruited from inpatient and day-care facilities at the Maison Vauban, Roubaix, France (nursing home), the Mitterie Clinic, Lomme, France (day-care facility), and the APEJ, Lille, France (nursing home) (11 women and 9 men; M age = 56.70 years, SD = 5.36; M years of formal education = 9.90, SD = 3.35). As a comparison group, 24 controls without previous or current substance addiction and without neurological or psychiatric history were recruited from the local community (13 women and 11 men; M age = 55.21 years, SD = 4.82; M years of formal education = 9.54,
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