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False memories and delusional ideation in normal healthy subjects

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Abstract

Studies have reported substantial mnestic deficits in patients with schizophrenia. Most of this research, however, has focussed on errors of omission (poor recall/recognition) rather than commission (such as false recall/recognition). Nevertheless, recent studies report that schizophrenics show increased false recognition and speculate that this may underpin delusional ideation (Moritz et al., 2004). No previous study has examined whether such memory problems exist in normal individuals who may be prone to delusional thinking. Using the Roediger and McDermott (1995) paradigm, we investigated memory functioning in 105 normal healthy subjects divided according to performance on a measure of delusional ideation (Peters et al. Delusional Inventory: PDI Peters et al., 1999). We found significantly poorer recall in the high than low PDI group. Moreover, high PDI scorers also made more false-alarm memory recalls than low PDI scorers. In a recognition test, high and low PDI subjects did not differ in the confidence they attached to recognition of studied items, but high PDI subjects gave greater confidence for falsely accepting unseen items. This suggests that healthy subjects scoring high on a measure of delusional thinking do show an increased tendency to make false positives, but not to make false negative memory judgements.

Keywords: Schizophrenia; Delusions; Recall; Recognition; False memory; Normal subjects

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1. Introduction

Little doubt remains that patients with schizophrenia have substantial memory deficits and that multiple aspects of memory are affected (see Aleman, Hijman, De Haan, & Kahn, 1999 for a meta-analysis); with deficits reported in short-term memory, working memory, semantic memory, episodic memory, recognition memory and recall. Most of this research has concentrated, however, on forgetting (i.e. false negative memories) and little attention has been directed to problems of false remembering (i.e. false positive memories); or the confidence with which individuals hold false memories.

As well as underlying confabulation in neurological patients, memory disorders have been linked to certain psychotic symptoms including delusional thinking (Johnson & Raye, 1998). Nevertheless, memory deficits per se are clearly insufficient to cause delusional thoughts because otherwise most amnesics would suffer with delusions. Additional factor(s) must therefore be important. One view of delusions is that the proneness to form false beliefs (delusions) may in part reflect overconfidence in incorrect or implausible judgments or a 'jump to conclusions' way of thinking (Garety & Hemsley, 1994). Evidence for this comes from research documenting that simple memory intrusions are common in patients with schizophrenia. Studies of source monitoring (Moritz & Woodward, 2002; Moritz, Woodward, & Ruff, 2003) reveal an enhanced confidence for false memories in schizophrenics compared to healthy controls. Indeed, Moritz and Woodward (2002) showed that 12% of high confidence responses made by schizophrenics were errors (compared to a figure of 5% in controls). Moritz et al. (2003) examined the semantic associations provided by schizophrenics to word lists and then asked them to identify each item as old/new and state the degree of confidence in the word and the attribution. Their results suggested that the core cognitive deficit underlying schizophrenia was the failure to distinguish false from true basic contents; with enhanced confidence for false memories and no differences for correct decisions.

Two recent studies have used the Roediger and McDermott (1995) paradigm to examine false positive memory in schizophrenic patients (Elvevåg, Fisher, Weickert, Weinberger, & Goldberg, 2004; Moritz, Woodward, Cuttler, Whitman, & Watson, 2004). In the Roediger and McDermott paradigm, participants are presented with a series of words (e.g. hill, climb, valley, summit, top, molehill, peak, plain, glacier, goat, bike, climber, range, steep) that are strong associates of a non-studied target item (e.g. 'mountain'). Roediger and McDermott (1995) and others (e.g. Deese, 1959) have found that healthy controls often falsely recall or recognise the unseen target word in subsequent testing and furthermore, such false memories are often given with high confidence. Although they found poorer memory in patients, neither Elvevåg et al. (2004) nor Moritz et al. (2004) found greater incidence of false memories in patients than controls. Nonetheless, these studies are confronted with the problem of poor overall memory in patients with schizophrenia and this may have protected the patients from making false positives. Finally, it is important to note that neither study explicitly examined deluded patients and this could well be a critical factor.

In the current study, we used the Roediger and McDermott (1995) paradigm (see also Deese, 1959) to investigate recall, recognition and memory confidence in healthy individuals with high and low delusional ideation as measured by the Peters et al. Delusions Inventory (PDI: Peters, Joseph, & Garety, 1999)—a measure of delusional ideation developed for use in the normal population. It has been documented, using formal diagnostic interview, that bizarre delusions were