

Cognitive correlates of schizophrenia signs and symptoms: III. Hallucinations and delusions

Howard Berenbaum^{*}, John G. Kerns¹, Laura L. Vernon², Jose J. Gomez

Department of Psychology, University of Illinois at Urbana-Champaign, USA

Received 14 April 2005; received in revised form 10 April 2006; accepted 16 August 2007

Abstract

We examined the cognitive correlates of hallucinations and delusions in 47 schizophrenia spectrum individuals. Hallucinations were significantly negatively correlated with performance on episodic memory tasks, and were not significantly associated with performance on tasks measuring fluency or concentration/attention. Although hallucinations were more strongly associated with performance on verbal than non-verbal memory tasks, the difference was not statistically significant. There was also a trend for hallucinations to be associated with poorer performance on working memory tasks, though this association was eliminated when episodic memory performance was taken into account. Delusions were not significantly associated with any of the cognitive measures.

© 2007 Elsevier Ireland Ltd. All rights reserved.

Keywords: Hallucinations; Delusions; Episodic memory; Working memory

1. Introduction

Two important and very common symptoms of schizophrenia are delusions and hallucinations. Although both delusions and hallucinations are considered positive symptoms of schizophrenia, psychopathology researchers have often proposed very different mechanisms to explain them. For example, whereas hallucinations are often posited to be the result of disturbances in language processes and semantic memory (e.g., Hoff-

man and McGlashan, 1997; Hoffman et al., 1999), delusions are often posited to be the result of cognitive biases and misattributions (e.g., Garety and Freeman, 1999; Bentall et al., 2001).

Auditory hallucinations have often been hypothesized to be associated with disturbances in language processes and semantic memory (e.g., David, 1994; Hoffman et al., 1999; Kerns et al., 1999). To explore further the relation between hallucinations and memory, in the present study we examined the relation between hallucinations and episodic memory, working memory, and attention/concentration (in the form of immediate auditory memory). To explore whether hallucinations are associated specifically with semantic memory, we administered measures of both verbal and non-verbal memory. A growing body of theorizing and empirical research has begun to implicate several cognitive processes in the development of delusions. For example, there is evidence linking delusions to a “jumping to

^{*} Corresponding author. Department of Psychology, University of Illinois, 603 E. Daniel St., Champaign IL 61820, USA. Tel.: +1 217 333 9624; fax: +1 217 244 5876.

E-mail address: hberenba@uiuc.edu (H. Berenbaum).

¹ Now at the Department of Psychological Sciences, University of Missouri-Columbia, USA.

² Now at the Department of Psychology, Wilkes Honors College, Florida Atlantic University USA.

conclusions” reasoning bias and to a self-serving attributional bias (e.g., Garety and Freeman, 1999; Bentall et al., 2001). Although the present study was not designed to test hypotheses concerning the relations between delusions and cognitive biases and misattributions, we believe it can advance our understanding of delusions in at least two ways. First, to the degree that delusions turn out to have different cognitive correlates than do hallucinations, it provides support for the utility of developing separate models to explain delusions and hallucinations rather than merely searching for the cause of positive symptoms. Second, because cognitive disturbances, such as executive functioning and working memory deficits, are regularly found to be associated with schizophrenia (e.g., Park and Lee, 2003) as well as with some specific symptoms, such as formal thought disorder (e.g., Kerns and Berenbaum, 2002), it is important to explore whether such deficits also play a role in the development of delusions.

2. Method

2.1. Participants

The participants were the same 47 individuals with schizophrenia spectrum disorders (39 schizophrenia patients and 8 schizoaffective disorder patients) described in the accompanying reports (see Berenbaum et al., 2008, for additional information). All participants were receiving outpatient services at the time of their participation in the study. Psychiatric diagnoses were made using DSM-IV criteria following the administration of the psychotic and mood disorders sections of the Structured Clinical Interview for the DSM-IV (First et al., 1998) and a review of clinical records.

2.2. Measurements/instruments

Additional information concerning all of the cognitive measures described below can be found in Berenbaum et al. (2008). Hallucinations and delusions were rated using the hallucinations and unusual thought content scales, respectively, of the Brief Psychiatric Rating Scale (BPRS; Lukoff et al., 1986). Ratings were made by the experimenter conducting the diagnostic interviews.

A total fluency score was computed by averaging across scores on verbal and design fluency tasks, which were first standardized (i.e., converted into *z*-scores). A total memory score was computed by averaging across scores on verbal and face memory tasks, which were first standardized. A total working memory score was

computed by averaging across scores on reading span and A-X CPT tasks, which were first standardized. The Digits Forward subtest of the WAIS-R (Wechsler, 1981) was administered as a measure of attention/concentration.

2.3. Procedure

All participants were tested on the same day by the same two experimenters. One experimenter always administered the SCID, the arrangement tasks, and rated hallucinations and delusions using the BPRS, whereas the other experimenter always administered the remaining cognitive measures.

3. Results

Delusion ratings ranged from one to six ($M=2.2$; $S.D.=1.7$). Hallucination ratings ranged from one to seven ($M=2.1$; $S.D.=1.9$). Hallucinations and delusions were significantly correlated, $r=0.62$, $P<0.001$. Information concerning other symptoms can be found in the accompanying reports.

Associations were measured using Spearman rank order correlations since many of the score distributions were skewed. The associations between the symptom and cognitive measures are presented in Table 1. Hallucinations were significantly negatively correlated with performance on the episodic memory task, and there was a trend for hallucinations to also be negatively correlated with performance on the working memory task. Hallucinations were significantly more strongly correlated with episodic memory task performance than were delusions, $z=2.52$, $P<0.01$, and there was a trend for hallucinations to be more strongly correlated with working memory performance than were delusions, $z=1.38$, $P<0.09$. There were trends for hallucinations to be more strongly correlated with episodic memory performance than with fluency performance and digit span performance, $z=1.61$, $P<0.06$ and $z=1.33$, $P<0.10$, respectively.

Because hallucinations have been hypothesized to be associated with semantic memory, we explored whether

Table 1
Associations between hallucinations and delusions scores and cognitive variables

Cognitive variable	Hallucinations	Delusions
Fluency	−0.04	−0.03
Episodic memory	−0.34*	−0.01
Working memory	−0.27†	−0.09
Digit span	−0.10	−0.02

† $P<0.09$; * $P<0.05$ (2-tailed).

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات