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Referential delusions of communication and interpretations of gestures

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Abstract

Gestures are an important aspect of non-verbal communication, but people with schizophrenia have poor comprehension of them. However, the tests of gesture comprehension that have been used present only scenes in which interpersonal meaning is communicated, though there is evidence that people with psychotic disorders tend to perceive communications where none were intended. Such mistakes about non-verbal behaviour are the hallmark of a subtype of delusions of reference identified as delusions of communication. Thus we hypothesised that patients with delusions of communication would tend to misinterpret incidental movements as gestures and, since delusions are often derogatory to the self, they would also tend to misinterpret gestures as insulting. Patients with acute psychotic symptoms ($n=64$) were recruited according to a 2×2 design (presence *vs*. absence of delusions of communication by presence *vs*. absence of auditory hallucinations). They, and 57 healthy controls, were presented with 20 brief video clips in which an actor either made a well-known gesture or an incidental movement. After each clip, they selected one of four interpretations: a correct interpretation if a gesture had been presented; the interpretation of a different gesture; an insulting interpretation; no gesture intended (correct for incidental movements). The patients made significantly more errors of all kinds than the controls, perceived significantly more of the incidental movements as gestures, and selected significantly more insulting interpretations of the clips. These differences between patients and controls were almost wholly due to patients with delusions of communication. These results suggest that the difficulties that people with delusions of communication experience in understanding gestures can be explained, at least in part, by the misattribution of self-generated internal events to external sources.

Keywords: Delusions of reference; Psychosis; Non-verbal communication; Social cognition; Self-monitoring

1. Introduction

Social competence is often very poor among people with psychotic disorders (Couture et al., 2006). Accumulating evidence suggests that difficulties in social interaction are at least partly due to inaccurate social perceptions (e.g. Addington et al., 2006; Couture et al., 2006). An important part of social perception is the ability to interpret non-verbal communications correctly. People with schizophrenia have been found to have difficulties in interpreting affect from facial expressions (Edwards et al., 2002), from eyes (Bora et al., 2006), and from prosody (Edwards et al., 2002; Kuscharska-Pietura et al., 2005), and tend to misinterpret averted gazes as directed at the self (Hooker and Park, 2005).

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Gestures and postures are important components of non-verbal communication, but their comprehension has rarely been studied among people with schizophrenia. Most of the research that has been conducted has employed the Profile of Non-verbal Sensitivity test (PONS; Rosenthal and Benowitz, 1986). The test yields separate scores for facial expressions, gestures, and voice intonation, and their combinations. People with schizophrenia have been found to perform poorly on this test not only in comparison with healthy controls (Toomey et al., 2002) but also with psychiatric patients without schizophrenia (Rosenthal and Benowitz, 1986), and these differences are also found for scenes in which gestures are the only cues (Monti and Fingeret, 1987).

One of the drawbacks of the PONS is that it presents only scenes in which interpersonal meaning is being communicated. Thus it does not assess any tendencies to perceive intentions to communicate where none were actually present. This is a drawback because there is evidence that people with psychotic disorders tend to attribute knowledge and intentions to others to an excessive extent, an impairment that has been described as 'hyper-theory of mind' (Abu-Akel, 1999), or 'over-mentalizing' (Frith, 2004). This would lead one to expect that people with psychotic disorders would tend to interpret actions as communications even if there were no intention to communicate. For example, Russell et al. (2006) presented participants with animated sequences showing simple triangles moving around a screen, and found that participants with schizophrenia who had symptoms of paranoia used mentalising terms to describe animations even when the triangles moved randomly relative to each other. Clearly, social competence is likely to be compromised if one mistakenly interprets incidental movements or self-stimulatory motor behaviour, such as smoothing one's hair or adjusting a shirt collar, as meaningful gestures.

People with symptoms of paranoia not only make excessive attributions of knowledge and intentions to others, but what is mistakenly attributed tends to be about the self (Abu-Akel, 1999). Misattributions of intentions to communicate non-verbally are the hallmark of delusions of reference, especially the subtype of delusions of reference that Startup and Startup (2005) have identified as delusions of communication. These concern the mistaken sense that others are communicating with the self by subtle and oblique verbal (e.g. hints, innuendos) or non-verbal means (e.g. gestures, stances, arrangements of objects). These have been found, in two factor analyses (Bucci, 2006), to be statistically independent of other delusions of reference, such as false beliefs that others are surreptitiously observing (e.g. using surveillance equipment), following, or gossiping about the self ('delusions of observation'). Startup and Startup (2005) also found that delusions of communication were not associated with either auditory hallucinations or persecutory delusions.

Startup and Startup (2005) noted that referential delusions of communication are similar to auditory hallucinations in that what seems to the patient to be communicated concerns the self and originates from the self, though this origin is not recognised but attributed externally. In other words, they suggested that these delusions might derive from impairments of what Frith (1992) described as self-monitoring, though the impairment would be centred on non-verbal channels in delusions of communication as opposed to verbal channels in auditory hallucinations. In order to test this theory, Bucci (2006) recruited patients with acute psychotic symptoms according to a 2×2 design: presence *vs*. absence of delusions of communication crossed with presence *vs*. absence of auditory hallucinations. The patients were then presented with 100 brief video clips in which an actor either made a well-known gesture or an incidental movement, with the clips being obscured by visual noise. For each clip, the patients indicated how confident they were that a gesture was portrayed. When the data were analysed by the methods of signal detection theory, all groups showed adequate sensitivity and the groups did not differ in sensitivity, but patients with delusions of communication showed a bias to report gestures which was not shown by patients with hallucinations alone. A control group of healthy volunteers showed significantly greater sensitivity than the patients and a more conservative bias than patients with delusions of communication. Bucci (2006) concluded that these results taken together provided evidence that people with delusions of communication have difficulty in monitoring their own thoughts about non-verbal communications and tend to attribute them externally.

The foregoing considerations lead us to the following hypotheses. When presented with video clips in which an actor either makes a well-known gesture or an incidental movement, and participants are required to select an interpretation of the clips, patients with psychotic disorders will tend to select the wrong interpretation more often than healthy controls even when the clips are not obscured with noise. This prediction follows from the difficulties that psychotic patients have been found to have in interpreting gestures (Monti and Fingeret, 1987). In addition, patients with delusions of communication, compared with those without such delusions, will tend to misinterpret incidental movements as gestures as a result of their tendency to