What can the study of first impressions tell us about attitudinal ambivalence and paranoia in schizophrenia?

Fabien Trémeau [a,b,c,*], Daniel Antonius [c,d], Alexander Todorov [e], Yasmina Rebani [f], Kelsey Ferrari [f], Sang Han Lee [a], Daniel Calderone [a,c], Karen A. Nolan [a,c], Pamela Butler [a,c], Dolores Malaspina [c,f], Daniel C. Javitt [a,b]

[a] Nathan S. Kline Institute for Psychiatric Research, Orangeburg, NY, USA
[b] Department of Psychiatry, Columbia University, New York, NY, USA
[c] Department of Psychiatry, New York University School of Medicine, New York, NY, USA
[d] University at Buffalo, State University of New York, Buffalo, NY, USA
[e] Psychology Department, Princeton University, Princeton, NJ, USA
[f] Institute for Social and Psychiatric Initiatives (InSPIRES), New York University School of Medicine, New York, NY, USA

ARTICLE INFO

ABSTRACT

Although social cognition deficits have been associated with schizophrenia, social trait judgments – or first impressions – have rarely been studied. These first impressions, formed immediately after looking at a person's face, have significant social consequences. Eighty-one individuals with schizophrenia or schizoaffective disorder and 62 control subjects rated 30 neutral faces on 10 positive or negative traits: attractive, mean, trustworthy, intelligent, dominant, fun, sociable, aggressive, emotionally stable and weird. Compared to controls, patients gave higher ratings for positive traits as well as for negative traits. Patients also demonstrated more ambivalence in their ratings. Patients who were exhibiting paranoid symptoms assigned higher intensity ratings for positive social traits than non-paranoid patients. Social trait ratings were negatively correlated with everyday problem solving skills in patients. Although patients appeared to form impressions of others in a manner similar to controls, they tended to assign higher scores for both positive and negative traits. This may help explain the social deficits observed in schizophrenia: first impressions of higher degree are harder to correct, and ambivalent attitudes may impair the motivation to interact with others. Consistent with research on paranoia and self-esteem, actively-paranoid patients' positive social traits judgments were of higher intensity than non-paranoid patients'.

© 2016 Elsevier Ireland Ltd. All rights reserved.

1. Introduction

Social cognition is quite impaired in schizophrenia (Green et al., 2008). Although the study of social cognitive deficits has contributed to recent advances in our understanding of psychopathology and functional outcomes in schizophrenia (Green et al., 2008), one domain of social cognition that has rarely been investigated is social trait judgments.

We regularly form trait judgments of others even before we get to know them, to the point that we need to be reminded not to "judge a book by its cover". The social trait judgments that rely on short observation of others without any other form of knowledge are referred to as "first impressions" or "trait inferences" (Todorov and Uleman, 2002; Willis and Todorov, 2006). These judgments can be formed after brief glimpses of the target subject interacting with others or from static pictures of others. Indeed, studies in social perception have shown that when looking at people's faces, we rapidly evaluate them on multiple personality and social traits (Bar et al., 2006), and make judgments of their attractiveness and how sociable, trustworthy, dominant and aggressive they are. First impressions are fast and spontaneous, and we are often unaware of them (Willis and Todorov, 2006). Even though their accuracy is limited (Olivola and Todorov, 2010b; but see also Ambady et al. (2000)), the influence of first impressions on people's choices and behaviors is considerable (Zebrowitz and McDonald, 1991; Olivola and Todorov, 2010a). A high level of agreement in first impressions (Cronbach's coefficients > 0.80) has been demonstrated among observers and across races and cultures (Zebrowitz et al., 1993;

Albright et al., 1997), and researchers have identified several facial factors involved in our judgments of others (Montepare and Dobish, 2003; Said et al., 2009).

Little is known about first impressions in schizophrenia. Krae-pelin described patients with schizophrenia as indifferent to oth-ers and to their environment, which may imply that they do not form impressions of others. However, recent laboratory research has shown that people with schizophrenia do form impressions of others. When compared to healthy controls, individuals with schizophrenia give higher ratings for "attractiveness" (Haut and MacDonald III, 2010), similar ratings for "friendly" (Kline et al., 1992) and "likeable" (Haker and Rössler, 2009; Taylor et al., 2011), whereas results for "trustworthiness" have been inconsistent (Baas et al., 2008; Couture et al., 2008; Pinkham et al., 2008; Haut and MacDonald III, 2010; Hooker et al., 2011; Strauss et al., 2012). More recently, McIntosh and Park (2014) used static (pictures) and dy-namic (videos) stimuli, and participants rated each target on at-tractiveness, trustworthiness, approachability and intelligence. Although schizophrenia subjects gave higher ratings for social traits, there were no significant group differences.

Trustworthiness has been the social trait judgment most stu-died in schizophrenia, perhaps based on the assumption that paranoia may lead to Suspiciousness and poor attribution of trustworthiness in others. Studies that examined the relationship between trustworthiness judgments and paranoid ideas have yielded inconsistent results: one study reported that actively paranoid patients found faces trustworthy less frequently than non-paranoid patients (Pinkham et al., 2008). Two other studies found a positive correlation between trustworthiness ratings and positive symptoms (McIntosh and Park, 2014) or Suspiciousness (Hooker et al., 2011), whereas a fourth study found no correlation between trustworthiness ratings and persecutory delusions (Haut and MacDonald III, 2010). A major limitation has been the low sample size of these studies (fewer than 30 patients). Also, the use of other positive social traits besides trustworthiness may bring more clarity (Said et al., 2009).

Attitudinal ambivalence is the inclination to give an attitude object equivalently strong positive and negative evaluations (see Thompson et al. (1995)). Its measurement has been the subject of debate, and experts have recommended an indirect measure over a direct measure (Jonas et al., 2000). In indirect measures, positive and negative evaluations are measured separately. Investigators instruct participants to rate topics or objects on a series of distinct positive and negative attributes or beliefs, and a mathematical formula is used to measure ambivalence. Attitudinal ambivalence has been shown to impair decision making and motivation (Con-ner and Sparks, 2002). Consequently, people who have ambivalent impressions of others are less incline to approach and interact with others. Although affective ambivalence (the experience of pleasure and displeasure at the same time) is a core feature of schizophrenia (Trémeau et al., 2009; Cohen and Minor, 2010), little is known about attitudinal ambivalence in schizophrenia. Recently, we reported that attitudinal ambivalence is increased in schizo-phrenia (Antonius et al., 2013).

In the current study, we examined ten social trait judgments (attractive, trustworthy, intelligent, emotionally stable, fun-to-be-with, sociable, dominant, aggressive, mean and weird) in patients with schizophrenia or schizoaffective disorder. The primary aim of the study was to compare patients' first impressions of traits to healthy controls'. Although clinical observation of indifference would predict lower levels of trait ratings in schizophrenia, the few previous studies have reported similar or higher ratings, at least for positive traits. In order to resolve these conflicting hy-potheses, we enrolled more subjects than previous studies and we used multiple positive and negative trait judgments. A second aim was to examine the relationship between paranoid ideas and

social trait judgments using a correlational and categorical ap-proach. Based on previous reports (Hooker et al., 2011; McIntosh and Park, 2014), we hypothesized that paranoid ideas are asso-ciated with higher positive traits. Finally we explored attitudinal ambivalence towards faces. We hypothesized that ambivalence would be higher in patients.

2. Methods

2.1. Participants

Participants included 81 individuals with schizophrenia or schizoaffective disorder and 62 non-patient control subjects. Patients were inpatients in a research unit at the Nathan Kline Institute for Psychiatric Research (NKI) or outpatients at Bellevue Hospital, New York. All were English-speaking and between 18 and 65 years of age, and had capacity to give consent. Diagnosis of schizophrenia or schizoaffective disorder was assessed using the Structured Clinical Interview for DSM-IV (SCID) (First et al., 1998) or the Diagnostic Interview for Genetic Studies (DIGS) (Nurnberger et al., 1994). Participants had normal or corrected vision. Non-patient control participants, who were community subjects who responded to advertisement and volunteered to participate in re-search studies conducted at NKI or Bellevue Hospital, had no psychiatric history and diagnosis as assessed with the Non-patient version of the SCID or the DIGS. All participants provided written informed consent as approved by the local Institutional Review Boards before completing any study procedures.

2.2. Procedures

A computer task was developed with thirty neutral faces (15 females, 15 males) from the Karolinska Faces[1] (Lundqvist et al., 1998). From a previous study (Said et al., 2009), we selected nine traits that are quite easy to comprehend, and we added the posi-tive trait of "fun to be with". Participants were provided with a definition of each trait before they rated the faces on that trait (for example "dominant" was defined as "How controlling or powerful the person seems to be") Participants were asked to rate all of the faces on these ten trait judgments sequentially. "Attractive/good looking" was rated first as we wanted to measure attractiveness for completely novel faces, and the order for the other nine traits was randomized and kept constant across subjects, leading to the following order: mean, trustworthy, intelligent, dominant, fun to be with, sociable, aggressive, emotionally stable and weird. For example, for "intelligent", participants viewed the 30 Karolinska faces one by one, and were asked to rate "how intelligent the person seems to be" on a 1–5 point-Likert scale (from "not at all" to "extremely"). For each trait, the 30 faces were presented in a different randomized order. Exposure/response times were not limited.

2.3. Clinical ratings

Patients were assessed with the following scales: 1) the Posi-tive and Negative Syndrome Scale (PANSS) (Kay et al., 1987), using the original positive, negative and general psychopathology sub-scales; 2) the modified Scale for the Assessment of Negative Symptoms (SANS) (Andreasen, 1989); 3) the Calgary Depression Scale for Schizophrenia (CDSS) (Addington et al., 1992); 4) the Simpson and Angus scale (Simpson and Angus, 1970) for

---

[1] Female faces: 03, 04, 05, 09, 10, 16, 17, 18, 21, 23, 25, 26, 28, 31, 33. Male faces: 37, 40, 42, 43, 46, 52, 53, 56, 57, 63, 64, 66, 67, 68, 70.