Schizophrenia Research 158 (2014) 170–175

Contents lists available at ScienceDirect

Schizophrenia Research

journal homepage: www.elsevier.com/locate/schres

Social trait judgment and affect recognition from static faces and video vignettes in schizophrenia☆

Lindsey G. McIntosh [a], Sohee Park [a,b,*]

[a] Department of Psychology, Vanderbilt University, Nashville, TN, USA
[b] Department of Psychiatry, Vanderbilt University, Nashville, TN, USA

A R T I C L E I N F O

Article history:
Received 9 March 2014
Received in revised form 18 June 2014
Accepted 19 June 2014
Available online 16 July 2014

Keywords:
Affect recognition
Social judgment
Social cognition
Nonverbal behavior
Thin slices

A B S T R A C T

Social impairment is a core feature of schizophrenia, present from the pre-morbid stage and predictive of outcome, but the etiology of this deficit remains poorly understood. Successful and adaptive social interactions depend on one's ability to make rapid and accurate judgments about others in real time. Our surprising ability to form accurate first impressions from brief exposures, known as “thin slices” of behavior has been studied very extensively in healthy participants. We sought to examine affect and social trait judgment from thin slices of static or video stimuli in order to investigate the ability of schizophrenic individuals to form reliable social impressions of others. 21 individuals with schizophrenia (SZ) and 20 matched healthy participants (HC) were asked to identify emotions and social traits for actors in standardized face stimuli as well as brief video clips. Sound was removed from videos to remove all verbal cues. Clinical symptoms in SZ and delusional ideation in both groups were measured. Results showed a general impairment in affect recognition for both types of stimuli in SZ. However, the two groups did not differ in the judgments of trustworthiness, approachability, attractiveness, and intelligence. Interestingly, in SZ, the severity of positive symptoms was correlated with higher ratings of attractiveness, trustworthiness, and approachability. Finally, increased delusional ideation in SZ was associated with a tendency to rate others as more trustworthy, while the opposite was true for HC. These findings suggest that complex social judgments in SZ are affected by symptomatology.

1. Introduction

Social cognitive impairments are core features of schizophrenia and lead to poor functional outcome (Hooker and Park, 2002; Marwick and Hall, 2008; Penn et al., 2008; Bell et al., 2009; Fett et al., 2011). In particular, individuals with schizophrenia have difficulty decoding mental states and intentions of others (Crespi and Badcock, 2008; Pinkham et al., 2008) and such theory of mind impairments can hinder everyday social interactions. In addition to the well-established theory of mind deficits, another component of social cognitive impairment in schizophrenia is inaccurate or anomalous social trait judgments (e.g. trustworthiness). Studies of trait judgments in healthy subjects show that these judgments are made in a rapid, automatic, unreflective manner (Ambady and Rosenthal, 1992; Willis and Todorov, 2006; Todorov et al., 2009; Ambady, 2010), and are frequently used in social decision making (Todorov et al., 2005; Ballew and Todorov, 2007). However, social trait judgments have not been extensively examined in schizophrenia. Our current understanding of these judgments in schizophrenia is particularly hindered by a lack of investigations into other traits and a reliance on static face stimuli.

The existing literature on trait judgments in schizophrenia has focused disproportionately on trustworthiness. Baas et al. (2008b) found that individuals with schizophrenia rate faces as more trustworthy than healthy controls do, and Couture et al. (2008, 2010) found this for untrustworthy faces in particular. Other studies have found intact trustworthiness judgment in the schizophrenia-spectrum (Baas et al., 2008a; Haut and MacDonald, 2010). This inconsistency may be due to widely varying symptomatology both in the groups studied and the disease heterogeneity in general (Pinkham et al., 2008; Haut and MacDonald, 2010; Hooker et al., 2011). Beyond trustworthiness judgments, however, there have been few attempts to study social trait judgments in schizophrenia. Patients' ratings of likeability (Haker and Rössler, 2009; Taylor et al., 2011) and friendliness (Klien et al., 1992) are thought to be similar to controls' ratings. However, Haut and

☆ This paper is dedicated to the memory of Nalini Ambady, who could always see beyond the ‘thin slices’ to uncover the truth.

* Corresponding author at: Vanderbilt University, Department of Psychology, 111 21st Ave. South, 301 Wilson Hall, Nashville, TN 37240, USA. Tel.: +1 615 322 3435; fax: +1 615 343 8449.
E-mail address: sohee.park@vanderbilt.edu (S. Park).

http://dx.doi.org/10.1016/j.schres.2014.06.026
0920-9964/

MacDonald (2010) found that schizophrenia patients rated face stimuli to be more attractive than did controls. Hall et al. (2004) reported reduced accuracy of schizophrenic patients in judgments of approachability, intelligence, and distinctiveness, than controls but whether these errors arose from rating more or less favorably than controls was not discussed in this study. Most recently, Antonius et al. (2013) found preserved familiarity preference (change in attractiveness ratings after exposure) in schizophrenia patients. Therefore, evidence from the available literature on trait judgment in schizophrenia points to a possible calibration problem in this process, rather than a complete failure to consider and generate such judgments. More research is needed to determine whether anomalous trait judgments are more associated with certain symptoms (e.g. delusions), which may help to explain divergent findings across these studies.

The other limiting factor seen in the current literature is that studies have exclusively relied on static face stimuli. More recent efforts to study social cognition in schizophrenia have moved away from facial displays and have begun to employ other types of social stimuli, including bodily cues from posture and gait (Bigelow et al., 2006; Couture et al., 2010; Henry et al., 2010; Peterman et al., 2014). These cues are of particular importance for the study of how we first select and approach social partners, before cues from the face are available. Combined with facial cues, the use of more proximal bodily cues offers greater external validity as well as a more holistic understanding of social trait judgments in schizophrenia.

In real life, social trait judgments are made rapidly and from very little exposure (think 'first impressions'), and are therefore well suited for scientific study. These judgments have been elicited in the laboratory through the presentation of 'thin slices' of behavior, which are brief exposures to nonverbal behavioral cues (Ambady and Rosenthal, 1992). The 'thin slice' literature shows that healthy people are able to rapidly evaluate attractiveness, trustworthiness, honesty, intelligence, political affiliation and even sexual orientation of others within half a minute of exposure to nonverbal cues (Ambady and Rosenthal, 1993; Rule and Ambady, 2008; Rule et al., 2009; Rule and Ambady, 2010). 'Thin slice' judgments are also surprisingly accurate, when accuracy is defined as convergence with real-world criteria (Ambady and Rosenthal, 1992, 1993; Zebrowitz and Collins, 1997; Ambady et al., 2000), more so than judgments resulting from extended deliberation (Rule, Ambady and Hallett, 2009; Ambady, 2010). Finally, 'thin slice' judgments are predictive of events such as teacher evaluations (Ambady and Rosenthal, 1993), courtroom outcomes (Blanck et al., 1985), and election results (Friedman et al., 1980; Ballew and Todorov, 2007; Spezio et al., 2012). Because 'thin slice' stimuli are rich behavioral cues from the face and body, they generate social judgments that more closely resemble real life judgments. Therefore, 'thin slice' judgments offer excellent external validity compared with more traditional social cognition tasks involving limited nonverbal cues (e.g. static facial emotion displays). Furthermore, real life social interactions demand continuous tracking of peoples' speech, behavior, and subtle emotional cues. When available, this information is likely used to form and update trait inferences. It is possible that schizophrenia patients' working memory deficits (Lee and Park, 2005) and tendency to ignore social context when making social judgments (Green et al., 2008), would result in aberrant social inferences. For these reasons, we argue that using 'thin slices' of behavior methodology is particularly useful for the study of social trait judgment in schizophrenia.

The current study responds to these highlighted concerns in the literature by revising the standard methodological approach for social trait judgment in schizophrenia. This study adds to the literature in two important ways. First, we included a broader set of social traits, following Hall et al. (2004) and other recent efforts to explore beyond trustworthiness judgments. Second, we contrasted the traditional stimulus set of static emotional faces with dynamic 'thin slice' video vignettes, rich in nonverbal social and behavioral cues.

2. Method

2.1. Participants

Twenty-three schizophrenia outpatients (SZ) who met the DSM-IV diagnostic criteria for schizophrenia were recruited from a psychiatric facility in Nashville, TN. Two SZ were excluded due to poor performance on the control tasks (see Section 2.2.2), so final SZ group included 21 subjects. All patients were taking antipsychotic medication at the time of testing with a mean chlorpromazine (CPZ) equivalent dose of 375 mg/kg/day (SD = 277). Symptoms were assessed with the Brief Psychiatric Rating Scale (BPRS; Overall and Gorham, 1962), the Scale for the Assessment of Positive Symptoms (SAPS; Andreasen, 1984a), and the Scale for the Assessment of Negative Symptoms (SANS; Andreasen, 1984b). Twenty-one healthy control participants (HC) were recruited by advertisements in the community. One HC was excluded to due poor performance on the control task (see Section 2.2.2) so final HC group included 20 subjects. Other exclusion criteria were neurological disorders, current or history of substance abuse, history of severe head injury, or age over 60 years for both SZ and HC. HC were excluded for Axis I disorder or a family history of schizophrenia. SZ were excluded for comorbid Axis I disorder. Intelligence was estimated using the National Adult Reading Test (NART; Nelson, 1982). All subjects reported having normal or corrected-to-normal vision. After providing a description of the experiment to the participants, written informed consent, approved by the Vanderbilt University Institutional Review Board, was obtained. All participants were paid. SZ and HC were matched for age, sex, and race, though HC had higher IQ and more years of education than SZ. Demographic characteristics for the two groups are presented in Table 1.

2.2. Design and procedure

Computerized social judgment tasks designed to assess face recognition, affect recognition, and social trait judgment abilities were run using PsyScope on a Macintosh computer. There were two blocked stimulus conditions: face stimuli (pictures) and 'thin slices' (videos).

Table 1
Demographic and clinical characteristics of the study groups[a].

	SZ (N = 21)	HC (N = 20)	*t*(39)	*p*
Sex (male/female)	13 M/8 F	10 M/10 F	$\chi^2 = 0.59$	0.44
Age, years	40.62 (8.05)	38.00 (8.67)	1.00	0.32
Education, years	13.67 (2.56)	15.50 (2.31)	2.41	0.02
NART IQ	101.13 (10.42)	107.17 (7.52)	2.12	0.04
Race				
White	6	11	$\chi^2 = 2.95$	0.09
Non-White	15	9		
Clinical symptoms				
BPRS	13.10 (7.40)			
SAPS	15.71 (8.64)			
SANS	21.95 (15.46)			
Illness duration, years	17.86 (8.63)			
Total PDI	104.33 (77.59)	37.45 (30.96)	3.59	0.001
Total SPQ		8.75 (8.33)		
Social functioning scale				
Withdrawal	9.81 (2.52)	13.0 (1.60)	4.82	<0.001
Interpersonal	7.19 (1.60)	8.79 (0.42)	4.41	<0.001
Independence(P)[b]	29.52 (5.91)	31.58 (3.96)	1.30	0.20
Independence(C)[c]	35.95 (3.79)	38.05 (1.51)	2.34	0.03
Recreation	22.33 (4.40)	27.32 (4.66)	3.48	0.001
Prosocial	18.86 (8.94)	28.00 (7.61)	3.46	0.001
Employment	5.10 (3.75)	9.63 (1.01)	5.33	<0.001

[a] Data are given as mean (SD) except where noted.
[b] Independence–Performance subscale measures the performance of skills necessary for independent living.
[c] Independence–Competence subscale measures the ability to perform skills necessary for independent living.