

Commentary

Some Reflections on Social-cognitive Research in Schizophrenia

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In the preceding article, Hooker and colleagues investigated counterfactual thinking in outpatients with schizophrenia. As hypothesized, the findings revealed that relative to a nonclinical control sample, persons with schizophrenia were impaired in multiple measures of counterfactual thinking. These performance deficits could not be explained by a general performance deficit (as measured by WAIS-R subtests and a verbal fluency task), and they showed an association with a measure of general social competence. What is especially interesting about this article, beside its findings, is that it addresses a number of issues critical to social cognition research in schizophrenia. Before discussing these issues, however, a brief overview of social cognition in schizophrenia will be presented, with an eye toward placing the Hooker et al. study within its broader scientific context.

APPROACHES TO SOCIAL COGNITION IN SCHIZOPHRENIA

As with many constructs in psychology and psychiatry, the definition of "social cognition" varies depending on the author or context. Our working model is based on Brothers' (1990) definition of social cognition. Brothers states that it refers to the "mental operations underlying social interactions, which include the human ability and capacity to perceive the

intentions and dispositions of others" (p. 28). This definition is intentionally broad, as there appear to be numerous social-cognitive abilities and the underlying structure of social cognition remains unexamined, especially in schizophrenia. What is also appealing about this definition is the explicit linking of social cognition to behavior. This link is especially important in schizophrenia research, where impairments in social functioning are a hallmark characteristic of the disorder (DSM-IV; APA, 1994). Therefore, exploring social cognition in schizophrenia may provide insight into the processes that underlie and maintain social dysfunction (Green and Nuechterlein 1999; Penn, Combs, and Mohamed in press; Silverstein 1997).

In the broad stroke, there have been two major approaches to studying social cognition in schizophrenia. The first, often associated with researchers in the United Kingdom, places greater emphasis on the "biases" that occur during social information processing. As noted in our previous work (Penn, Corrigan, Bentall, Racenstein, and Newman 1997), biases refer to a response style that is not necessarily indicative of poor performance. Rather, a performance bias reflects a response pattern as a function of condition and context. An example of a performance bias in schizophrenia is the "self-serving" attributional style associated with persecutory delusions; taking credit for successful outcomes and denying responsibility for negative outcomes (reviewed in Bentall, in press). Another example would be the tendency for persons with schizophrenia to see unrelated events as connected and meaningful; what is defined

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clinically as “ideas of reference” but is measured experimentally as an “illusory correlation” (Brennan and Helmsley 1984).

The second approach to social cognition involves an emphasis more on performance *deficits* rather than biases. Perhaps the best example of this approach is the voluminous work on facial affect perception. Studies in this area typically compare the performance of a group with schizophrenia to one or more control groups on various emotion and general perception tests (i.e., a differential deficit design) (for reviews, see Edwards, Jackson, and Pattison 1999; Hellewell and Whittaker 1998; Mandal, Pandey, and Prasad 1998; Morrison, Bellack, and Mueser 1988; Penn et al. 1997). Impairments in one or more tasks, relative to controls, are thought to reflect a deficit in the construct in question. Thus, the deficit approach to social cognition implies a polarization between “normal” and “abnormal,” while the bias approach suggests that social cognitive abilities lie more on a continuum.

These two approaches to social cognition differ in additional ways. The “bias” approach tends to be more content-oriented and symptom-focused, for example, investigating memory bias for threatening information in persons with persecutory delusions (Bentall, in press). Therefore, a critical question for the researcher who uses this perspective might be “How does the content of one’s symptoms influence social information processing?” In addition, explanations of etiology are not limited to biological factors, but may include psychological mechanisms. This has been especially characteristic of the work on attributional style, which has investigated the role that self-serving attributions have in protecting the self-esteem of persons with persecutory delusions (reviewed in Garety and Freeman 1999).

Conversely, the deficit approach tends to be dominated more by biologically oriented, reductionistic models, in which the goal is to identify the neural mechanisms underlying the disorder. Thus, the deficit research may start with the question of “What is the impact of neuropathology on social cogni-

tion?” rather than “What psychological and/or behavioral function do these social-cognitive processes serve?”

Interestingly, these two approaches to social cognition are fairly compatible with two popular, current approaches to psychosocial treatment in schizophrenia: Cognitive-Behavioral Therapy (CBT) and cognitive remediation. The emphasis of CBT on symptoms remission, normalizing rationales, coping strategies, and self-evaluation appears to be consistent with the bias approach to social cognition (Garety, Fowler, and Kuipers 2000). Alternatively, cognitive remediation approaches assume that a performance deficit exists, and that content-free strategies such as repeated practice, errorless learning, modified instructions, and reinforcement will strengthen or repair the skill in question (Kern, Green, and Goldstein 1995; Kern, Wallace, Hellman, Womack, and Green 1996; Medalia, Aluma, Tryon, and Merriam 1998; Penn and Combs in press). These approaches need not be incompatible, as the ultimate goal is to repair those cognitive and social-cognitive processes that support social behavior and adaptive functioning (Spaulding and Poland in press). However, as these approaches make different assumptions about the underpinnings of social cognitive difficulties in schizophrenia, the targets of intervention and the measurement of outcome may differ.

THE SOCIAL-COGNITIVE CONTEXT OF THE PRESENT STUDY

The foregoing was intended to provide a context in which to evaluate the Hooker et al. study. Thus, it appears safe to conclude that, by linking counterfactual thinking to cognitive impairments (i.e., Wisconsin Card Sorting Task) and neural functioning (i.e., prefrontal cortex damage), the Hooker et al. study is most compatible with the deficit model of social cognition. Of course, this makes sense, given the oft-cited difficulties that persons with schizophrenia have with

frontal tasks (Crider 1997) and the relationship between measures of cognition and social cognition (Addington and Addington 1998; Kee, Kern, and Green 1998; Penn, Spaulding, Reed, and Sullivan 1996). It is possible, however, that impairments in counterfactual thinking result from motivational and/or personal concerns. For example, recalling negative events, and speculating how they could have turned out differently, may have been too painful for persons whose lives have not turned out the way they had hoped. This is not an unreasonable assumption, as personal perspectives on the experience of schizophrenia often report a sense of loss (Davidson, Stayner, and Haglund 1998). Furthermore, psychological mechanisms may underlie insight (Carroll, Fattah, Clyde, Coffey, Owens, and Johnstone 1999) and negative symptoms (Strauss, Rakfeldt, Harding, and Lieberman 1989)—other schizophrenia-related constructs that often assume a neuropathological basis. Finally, evidence that performance on cognitive and social-cognitive tasks can be improved with monetary reinforcement (e.g., Kern et al. 1995; Penn and Combs in press), suggest that performance deficits are not immutable, and that motivational factors are also important.

Hooker et al. appropriately assessed whether the group with schizophrenia's deficit in counterfactual thinking can be accounted for by generalized poor performance, which is a critical issue in social-cognitive research, since establishing the independence of social cognition from non-social cognition may have important implications for schizophrenia assessment and treatment (Green, Kern, Braff, and Mintz 2000). One could argue, however, that future work that controls for cognitive factors should better match the cognitive and social-cognitive constructs in question. By better matching, I don't mean psychometrically, as the authors' note in their article, but a better conceptual match. For example, the participants could be asked two types of counterfactual questions that vary in social cognitive content. One question could pertain to an "interpersonal" event that they wished had gone differently (e.g., not speaking up for

themselves after someone had insulted or slighted them), while the other could relate to a personal, "non-interpersonal" event (e.g., just missing a plane by five minutes). Such tasks require the same skill (i.e., recalling alternative courses of action) and involve personally relevant events—the only exception being that task content, in terms of social cognition, is manipulated. Furthermore, subtyping participants into those with particular symptom clusters (e.g., persecutory delusions, negative symptoms, etc.) may allow for an analysis of symptom X content interactions, which is again more consistent with bias-type approaches.

This issue of conceptually matching tasks also applies to the relationship between social cognition and social behavior. While the authors should be commended for including a measure of social functioning in their study, it is, as they admit, a very global measure of social competence. It is, arguably, reaching to expect measures of counterfactual thinking to have a *meaningful* relationship with important social accomplishments such as education, marital status, occupation, and employment history without wondering whether both sets of variables are not actually related to a third, unmeasured, domain. Thus, a statistical relationship should not be confused with one that applies in the real world. For example, performance on a leather stitching task has been shown to associated with social competence among acutely ill inpatients (Penny, Mueser, and North 1995). It is likely, however, that training persons with schizophrenia to better "leather-stitch" would not generalize to better social skill. What it does suggest is that similar processes may be involved in both activities, although what these processes are remains unanswered. It should be noted, however, that Hooker et al. are not unusual in assessing general relationships between social cognitive processes and broad indices of social functioning. This is clearly an issue that plagues research examining the functional significance of both cognitive and social-cognitive processes in schizophrenia, including our *own* work (reviewed in Green et al. 2000; Penn et al. in press).

An alternative approach is one that attempts to translate the social-cognitive processes into specific behaviors. The authors appear to acknowledge this issue in the limitations section of the Discussion. For example, Theory of Mind (ToM), the ability to infer the mental states of other people has been of great recent interest to schizophrenia researchers (reviewed in Corcoran in press). In the autism literature, efforts have been made to behaviorally assess ToM-type impairments by evaluating the reaction of children with autism to staged interpersonal scenarios (Sigman and Ruskin 1999). For example, one scenario involved an experimenter approaching a table (where a child was seated) with a tray of refreshments and snacks. However, the table was completely covered with objects, so the primary dependent variable was whether, and how quickly, the child spontaneously removed the objects from the table (Sigman and Ruskin 1999). Similar scenarios were constructed that involved responses to distress (e.g., the experimenter pretends to bump her/his knee and the child's reactions are videotaped). These types of tasks seem to be better behavioral tests of social-cognitive processes than general, broadly defined indices of social functioning. Furthermore, they appear to have, at least superficially, more "face-validity" than standard paper and pencil tests, which are often used to assess social cognition in schizophrenia (e.g., attributional style; ToM).

One final point regarding the measurement of social cognition. A real strength of this study was the utilization of multiple measures of the same construct, especially the convergence between a paper-and-pencil test and one based on the participant's own personal experience. This latter approach to understanding social cognition appears to be especially promising. A level of analysis based on the individual's perspective has proven fruitful in the areas of psychosis and violence (Juninger 1996; Juninger, Parks-Levy, & McQuire 1998), subjective experience and schizophrenia (Davidson et al. 1998), and self-perception and social skill (Ihnen, Penn, Corrigan, and Martin 1998). It is also one that is current-

ly being applied to the understanding self-esteem (Barrowclough, personal communication, July 2000) and attributions (Bentall, personal communication, July 2000) in schizophrenia. Hopefully, this trend will help to integrate laboratory-based social cognitive research with that obtained from the personal perspective of the person with schizophrenia. Unless this occurs, we are always left with the question of whether the social cognitive deficits and biases elicited from laboratory tasks actually map onto the real-world social information processing difficulties of persons with schizophrenia. If they do not, then such impairments or biases may actually reflect the influence of alternative variables (e.g., motivation, attention, lack of personal relevance, etc.). Therefore, a true science of social cognition in schizophrenia will be one that balances the laboratory with the real world, internal consistency with external consistency, and the identification of biases and deficits with their impact on actual social behavior. In this regard, Hooker et al. have taken a step in that direction.

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