Metacognition in psychosis

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This Special Issue of the *Journal of Experimental Psychopathology* is designed to provide an overview of metacognition in psychosis. While the term metacognition has been used extensively in the psychological literature since it was formally defined by Flavell in 1979, the application of the construct to psychotic disorders, specifically schizophrenia, has been much slower and has only recently gained significant interest (Figure 1). Reasons for the relatively slow shift of attention to metacognition are unclear; however, several developments likely support the increased, and now sustained, focus on this topic.

First, the definition of metacognition, and how it may conceptually relate to schizophrenia, has recently been clarified. Instead of presenting metacognition as “thinking about thinking,” which could be assumed to be a singular construct that is either intact or impaired in schizophrenia, it is now acknowledged as an overarching term that includes a spectrum of processes spanning discrete to more integrated activities. At the discrete end of the continuum are activities consistent with self-assessment such as immediate awareness of the accuracy of one’s judgments (i.e., introspective accuracy (IA)). Knowledge of cognitive processes, and the biases that may be present within them, is also included along this continuum as well as the ability to regulate or improve these processes. And, as Lysaker and colleagues argue (this issue), metacognition also includes more complex and integrated processes that allow individuals to combine multiple pieces of information into an idea or representation about the self. For example, multiple episodes of forgetting important information may lead to the idea that one has a poor memory.

Recent formulations of social processes, such as the Research Domain Criteria (RDoC) framework of the National Institute of Mental Health, have also helped to refine the conceptualization of metacognition and separate it from related constructs like mentalizing or Theory of Mind. Specifically, the RDoC matrix parses the perception and understanding of the self (e.g., self-knowledge) from perception and understanding of others (e.g., understanding mental states). Thus, metacognitive processes like IA or metacognitive regulation can be distinguished from related constructs in that they are primarily self-focused. Metacognition therefore represents a distinct domain, and as demonstrated by the articles included in this Special Issue, the spectrum view provides numerous avenues for metacognitive research to improve our understanding of psychosis and to help promote functional recovery.

Second, multiple strategies and measures are now available to assess metacognition. To address the more discrete activities, such as IA, participant reports of ability can be compared to objective task performance (e.g., Koren, Seidman, Goldsmith, & Harvey, 2006; Pinkham, Klein, Hardaway, Kemp, & Harvey, 2018) or to reports of knowledgeable informants (Gould et al., 2015). Sophisticated methods that utilize the signal detection framework to control for bias are also now available (e.g., Davies et al., 2018), and advanced statistical techniques offer improved methods for assessing both accuracy and bias (Pinkham et al., this issue). The integrated aspects
of metacognition can be assessed with either interview-based (e.g., the Metacognition Assessment Scale-Abbreviated; Lysaker et al., 2005) or self-report measures (e.g., the Metacognition Questionnaire 30; Wells & Cartwright-Hatton, 2004). This variety of assessment options has allowed a fuller characterization of metacognitive functioning in psychosis that spans the spectrum view and clarifies how important clinical variables, like symptom severity, relate to metacognition. These assessment strategies also provide a foundation for expanding to new areas and subdomains within metacognition, and as these measurement approaches gain more visibility and continue to improve, it is likely that research interest will grow in kind.

Third, there is now substantial support for the functional significance of metacognition. Numerous studies have demonstrated a significant relationship between global indices of metacognition and functional outcomes (Davies & Greenwood, 2018), and it appears that metacognition mediates the relation between functional capacity and social and occupational function (Davies, Fowler, & Greenwood, 2016). Strikingly, IA regarding cognitive and social cognitive ability has been found to predict functioning above and beyond actual performance on cognitive and social cognitive assessments (Gould et al., 2015; Silverstein, Pinkham, Penn, & Harvey, 2018). Thus, metacognition appears to be a distinct construct, separable from other domains of cognition, which is an important determinant of functional outcomes and one that therefore represents an important treatment target.

Indeed, the fourth factor likely contributing to the increased interest in metacognition is the availability of manualized interventions targeting this construct. Consistent with the spectrum view, the two most widely known interventions target different aspects of metacognition. Metacognitive Reflection and Insight Therapy (Lysaker & Klion, 2017), for example, focuses on the integrative aspects that are thought to be necessary for making sense of challenges and moving toward recovery. Metacognitive Training (Moritz et al., 2014), on the other hand, primarily highlights awareness of cognitive biases that may maintain or exacerbate symptoms. Despite these different approaches, both interventions lead to improved patient outcomes (Eichner & Berna, 2016; Lysaker et al., this issue). Other intervention approaches have incorporated metacognitive skill building into existing intervention frameworks in the hopes of increasing the desired effects on a primary outcome or improving the transfer of learned skills to real-world functioning. For example, Wykes and colleagues have developed the Computerized Interactive Remediation of Cognition—a Training for Schizophrenia program (CIRCuiTS; Reeder et al., 2016), which integrates a traditional cognitive remediation approach with metacognitive principles such as explicitly identifying cognitive strategies that can be used in completing cognitive training exercises and later evaluation of the usefulness of those strategies. These efforts highlight the importance of metacognition not only as an endpoint but also as a mediator of the effectiveness of other interventions.

**Figure 1.** Rates of metacognition publications. Number of publications addressing metacognition in psychosis over the last 15 years based on a search of PsycINFO using the linked search terms “metacognition” and “psychosis” or “metacognition” and “schizophrenia.” Search conducted in early March 2019.
The articles within this Special Issue touch on each of these four factors, beginning with Lysaker and colleagues who offer an overarching review presenting the spectrum view of metacognition and tackling the tricky issue of how the integrative skills at the end of the spectrum can be assessed and improved.

The studies by Pinkham et al. and Harvey et al. hone in on the discrete end of the spectrum by investigating IA. Defined as the ability to accurately assess one’s own skills and capabilities, IA for real-world functioning and social cognitive abilities are examined by Harvey and colleagues, and IA for personality perception is examined by Pinkham and colleagues. Both studies demonstrate that IA impairments are present in individuals with psychosis and that these deficits are bidirectional. This is, while some individuals are more likely to overestimate their skills and abilities, others are more likely to underestimate them. Pinkham et al. also supports the relative independence of IA from related constructs like mentalizing ability and clinical insight, further bolstering the idea that this discrete aspect of metacognition is a unique construct deserving of continued investigation.

Austin and colleagues also address the characteristics of metacognition by shedding light on the potential longer term effects of metacognitive impairment. Specifically, they demonstrate that poorer metacognition in first episode psychosis at baseline was significantly associated with the presence of increased expressive negative symptoms (i.e., flat affect, alogia, and poor rapport) at 3-year follow-up. The emphasis on early psychosis is unique to this contribution and highlights that the prospective relationship between metacognition and negative symptoms seen in more chronic samples extends to first-episode psychosis and persists across several years.

Addressing the relationship between metacognition and social functioning in psychosis, Gagen et al. used latent class analysis to derive four groups of patients that differed on predominant symptoms and levels of functioning. These groups were then compared on metacognition ability, and unsurprisingly, the groups of individuals with lower social functioning also showed poorer metacognition. These findings add to a growing body of literature that reinforces the high functional relevance of metacognition.

The contribution of Cella and colleagues addresses issues related to both measurement and treatment. First, they introduce a novel approach to measuring metacognition that focuses on an individual’s ability to identify and evaluate the strategies used to complete cognitive tasks. This emphasis on awareness of strategies is not captured by existing measures and thus represents an important step forward. Cella et al. then demonstrate that targeting metacognition within another intervention (i.e., cognitive remediation) is sufficient for improving metacognition. Such findings highlight a path forward for the widespread consideration of metacognition in behavioral interventions.

And finally, Mortiz and colleagues extend the foundational intervention work conducted in psychosis by examining the efficacy of a self-delivered version of Metacognitive Training for the symptoms of obsessive compulsive disorder and depression. Their work highlights the challenges of disseminating psychosocial interventions in Arabic communities but also demonstrates that, for those who are willing to try it, intervention does help to alleviate symptoms. And, perhaps more importantly, this work highlights the transdiagnostic relevance of metacognition, suggesting that its importance is not limited to psychosis alone.

While this Special Issue is broad in its scope, the articles included here can provide only a small window into all of the strong and beneficial work being conducted on metacognition in psychosis. I hope this sampling effectively demonstrates the importance of metacognition and that it provides a springboard for ongoing and future work. Happy reading!

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