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Review

Cognitive insight: A systematic review☆

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ABSTRACT

Cognitive insight is the ability to re-evaluate thoughts and beliefs in order to make thoughtful conclusions. It differs from clinical insight, as it focuses on more general metacognitive processes. Therefore, it could be relevant to diverse disorders and non-clinical subjects. There is a growing body of research on cognitive insight in individuals with and without psychosis. This review has summarised the current state of the art regarding this topic. We conclude that while cognitive insight in its current form seems valid for use in individuals with psychosis, it is less so for individuals without psychosis. Additionally, higher cognitive insight not always leads to better psychological functioning. For instance, higher levels of self-reflection are often associated with depressive mood. We therefore recommend the sub-components of cognitive insight to be studied separately. Also, it is unclear what position cognitive insight takes within the spectrum of metacognitive processes and how it relates to other self-related concepts that have been defined previously in literature. Combining future and past research on cognitive insight and its analogue concepts will help in the formation of a uniform definition that fits all subjects discussed here.

1. Introduction

Insight is a versatile concept that has been through several changes during the last century. Most prominently, it has been defined as an "aha-erlebnis", a feeling one could experience when he or she finally finds a solution to a problem (Schilling, 2005). In medicine however, and more specifically in psychiatry, it has a different connotation. To our knowledge, the first paper on the issue of insight in a medical context was published in 1914. In this year, Babinsky wrote a paper on "anosognosia", a term he used to denote the unawareness his patients with left hemiplegia had of their paralysis (Babinski, 1914). Not long thereafter, Lewis (1934) focussed on a lack of insight as a psychiatric problem. Regarding individuals with psychiatric problems he wrote that insight is "the amount of realization the patient has of his own condition". He noticed that, contrary to neurotics, people with psychosis don't have this realization. In this paper, Lewis defined good insight as "the correct attitude to morbid change in oneself and the realization that the illness is mental". Since then, insight into illness is seen as a multidimensional concept (Amador & Strauss, 1993; David, 1990). One of the most used definitions of insight has been coined by David (1990). He has broadened the definition of insight and described it as a composition of three segments: (a) the awareness of the illness, (b) treatment compliance, and (c) the attribution of symptoms to the disease.

Insight into illness originally focused mostly on psychotic disorders where it was crucial for diagnosis (Freedman & Sadock, 1975). However, a lack of insight into illness does not only occur in psychiatric disorders that feature psychotic episodes. In recent years, it has been investigated in numerous illnesses such as bipolar disorder (van der Werf-Eldering et al., 2011), anorexia nervosa (Arbel, Koren, Klein, & Latzer, 2013), dementia (Zanetti et al., 1999), and Alzheimer's disease (Harwood, Sultzer, & Wheatley, 2000). Furthermore, insight into illness has shown to be of clinical relevance, as better awareness of illness significantly correlates with quality of life (Dias, Brissos, Frey, & Kapczinski, 2008), psychosocial functioning (Yen et al., 2007), less severe symptomatology (Mintz, Dobson, & Romney, 2003), better therapeutic compliance (Kao & Liu, 2010), and less readmissions (Drake, 2008). Therefore, it has been suggested that the improvement of insight should be a main target during treatment (Lincoln, Lüllmann, & Rief, 2007).

However, even in the broadened definition of David (1990), the concept of insight into illness or **clinical insight** as we will refer to it here, can be seen as superficial as it is perfectly possible that individuals who are suffering from a psychiatric disorder admit that they are mentally ill and do take their medication, but at the same time, do not fully understand the illness and all its consequences (Beck, Baruch, Balter, Steer, & Warman, 2004). Following this line of reasoning, recent views have regarded the concept of clinical insight as being too narrow.

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For instance, Beck and Warman (2004) state that a more complete view on the term 'insight' should include general metacognitive skills that allow awareness of misinterpretations and the ability to correct them, regarding events from the past, events that are happening and are about to happen. Metacognition has been suggested to involve monitoring and controlling a wide range of lower level cognition that influence and are influenced by mental disorders (Koechlin & Hyafil, 2007) such as sensory perception (Hall, Johansson, Tärning, Sikström, & Deutgen, 2010), error monitoring (Rinne & Mazzocco, 2014), and confidence adjustments (Chua, Schacter, Rand-Giovannetti, & Sperling, 2006). In other words, in addition to simply knowing you are ill and recognizing symptoms, any concept of insight should entail the full complexity of the effects the illness has on your mood, actions, thoughts, interpretations and beliefs. Beck et al. (2004) have therefore proposed a more general and metacognitive conceptualisation of insight, which they have called **cognitive insight**. This concept is defined by Beck et al. (2004) as the capability to distance oneself from erroneous beliefs and the ability to make a correct evaluation of one's interpretations using external feedback from others. This conceptualisation of insight is composed of two elements: self-reflectiveness and self-certainty. When someone is more self-reflective he or she is better able to consider different perspectives and evaluate alternative hypotheses in order to make a thoughtful conclusion. When individuals are too self-certain they are excessively convinced of the accuracy of their beliefs (Beck et al., 2004). It differs from clinical insight as it does not exclusively involve judgments about psychiatric challenges but it includes awareness of thought processes and reasoning styles (Jørgensen et al., 2015). In addition, cognitive insight holds the ability to appraise the limitations of our own thinking processes. This enables individuals with a psychiatric diagnosis to become able to recognize that their beliefs and thinking styles are fallible. As a result, it becomes more likely that their clinical insight is able to increase (Greenberger & Serper, 2010). Therefore, cognitive insight is a concept that includes cognitive processes that should support the development of clinical insight (Riggs, Grant, Perivoliotis, & Beck, 2012). In view of this, it was expected that clinical and cognitive insight would correlate. Indeed, most studies find a link between clinical and cognitive insight (Beck et al., 2004; Bora, Erkan, Kayahan, & Veznedaroglu, 2007; Chan, 2016; Engh et al., 2007; Favrod, Zimmermann, Raffard, Pomini, & Khazaal, 2008; Gori et al., 2015; Lepage et al., 2008; Mass, Wolf, & Lincoln, 2012; Misdrahi, Denard, Swendsen, Jaussent, & Courtet, 2014; Ng, Fish, & Granholm, 2015; Pedrelli et al., 2004; Uchida et al., 2009; Vohs et al., 2015). However, some studies have failed to demonstrate this relationship (Ekinci, Ugurlu, Albayrak, Arslan, & Caykoylu, 2012; Greenberger & Serper, 2010; Tastet, Verdoux, Bergua, Destaillats, & Prouteau, 2012; Tranulis, Lepage, & Malla, 2008; Van Camp, Oldenburg, & Sabbe, 2016; Zhang et al., 2016).

1.1. Objectives and method

As with clinical insight, the concept of cognitive insight was primarily designed for schizophrenia patients and patients with other psychotic disorders. This is because a limited capacity to re-evaluate anomalous experiences is a manifest symptom in individuals with psychosis (Beck et al., 2004). In addition, the delusions present in this group of patients are often very persistent, which indicates that these patients lack the capacity to correct their specific misinterpretations. Furthermore, it seems as if they less easily respond to corrective feedback of others (Beck & Warman, 2004). Therefore, Beck et al. (2004) have created a definition of cognitive insight that focussed on individuals with a psychotic disorder. However, since then there is a growth in research regarding cognitive insight in numerous subjects, even in healthy individuals. Because former reviews on cognitive insight have focussed on psychosis (Nair, Palmer, Aleman, & David, 2014; Riggs et al., 2012), important questions remain unanswered. In the current review, several will be addressed: 1. What is the state of the art in research concerning cognitive insight in psychotic disorders? 2. What does research to date tells us about the validity of cognitive insight in psychiatric disorders without psychosis? 3. What are the outcomes of the investigations in a healthy population? 4. Does the concept of cognitive insight, its definition and its measurement fits all the discussed target groups? 5. What are the implications for further research? To answer these questions, the current paper has reviewed all articles that have focused on cognitive insight, regardless of the diagnosis. We searched the databases Web of Science, PubMed and Science Direct for relevant papers using the search term "Beck Cognitive Insight Scale" or "cognitive insight". In PubMed and Web of Science we searched in "topic", whereas the search term was entered in the "abstract, title or keywords" section of Science Direct. This generated 228 results from Web of Science, 176 results from PubMed, and 107 results from Science Direct. The found papers were screened for relevance and included if they had been published in a peer-reviewed English-language journal and were published from 2004 up until March 2016. The search for relevant papers was completed by bibliographic cross-referencing. In order to keep the broadness of this review, all papers that discussed cognitive insight were included. In this manner we selected 106 articles on cognitive insight. In addition, 37 papers were added as background information. A detailed list of the included articles can be obtained on simple request to the authors.

2. Measuring cognitive insight

The current most widely used operationalization of cognitive insight is called the Beck Cognitive Insight Scale (BCIS; Beck et al., 2004). This 15-item self-assessment questionnaire consists of two subscales. The self-reflectiveness subscale includes nine items. It assesses the objectivity, openness to feedback and reflection. The second subscale is called self-certainty and consists of 6 items. Within this subset of questions, respondents are asked if they jump to conclusions, are certain about being right, and it assesses their resistance to correction or feedback. The two subscales are scored in opposite directions. By subtracting the score on the self-certainty subscale to the score on the self-reflectiveness subscale, a composite index is obtained. This composite index was designed because the level of self-certainty could diminish the ability to be self-reflective. The internal consistencies found regarding the subscales of the BCIS are described in Table 1. Because both subscales of the BCIS consist of less than 10 items, all these α values are considered to be within an acceptable range (Cortina, 1993; Holden, Fekken, & Cotton, 1991).

To our knowledge, only two studies tried to find cut-off scores for the BCIS. In the first study 418 non-psychiatric students and 93 outpatients with schizophrenia or schizoaffective disorder participated. It was not able to find a good limit to the scores of the scale (Martin, Warman, & Lysaker, 2010). In the second one, Kao, Wang, Lu, and Liu

Table 1
Coefficient α for the self-reflectiveness and self-certainty subscales.

Study	Participants	α S-R	α S-C
Beck et al. (2004)	Schizoaffective/schizophrenia	0.67	0.61
	MDD	0.69	0.59
Pedrelli et al. (2004)	Schizoaffective/schizophrenia	0.66	0.55
Mak and Wu (2006)	Schizoaffective/schizophrenia	0.82	0.71
Engh et al. (2007)	Schizoaffective/schizophrenia	0.72	0.63
	BD	0.73	0.61
	Healthy individuals	0.73	0.63
Favrod et al. (2008)	Schizoaffective/schizophrenia	0.73	0.62
Martin et al. (2010)	Healthy Individuals	0.74	0.75
Shimshoni et al. (2011)	OCD	0.71	0.59
Van Camp et al. (2016)	BD	0.65	0.72

α S-R = Coefficient alpha of the self-reflectiveness subscale; α S-C = Coefficient alpha of the self-certainty subscale; MDD = major depressive disorder; OCD = Obsessive-Compulsive Disorder; BD = Bipolar Disorder.