EDITORIAL

Symptom rating scales for schizophrenia and other primary psychotic disorders in ICD-11

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The subtype system for categorising presentations of schizophrenia will be removed from International Classification of Diseases 11th Revision. In its place will be a system for rating six domains of psychotic disorder pathology: positive symptoms, negative symptoms, depressive symptoms, manic symptoms, psychomotor symptoms and cognitive symptoms. This paper outlines the rationale and description of the proposed symptom rating scale, including current controversies. In particular, the scale could adopt either a 4-point severity rating or a 2-point presence/absence rating. The 4-point scale has the advantage of gathering more information, but potentially at the cost of reliability. The paper concludes by describing the field testing process for evaluating the proposed scale.

A change is coming in the diagnostic classification of schizophrenia and other primary psychotic disorders. Individuals with diagnoses of Schizophrenia, Schizoaffective disorder, Schizotypal disorder, Acute and transient psychotic disorder and Delusional disorder exhibit a wide range of similar symptoms (Tandon *et al.* 2009). The clinical diagnosis of one of these disorders should convey the person's symptom profile in order to communicate with other health professionals and the patient, to facilitate treatment in an individualised manner, and to be relevant for monitoring the disorder's course (Reed, 2010; Keeley *et al.* 2014). In the case of schizophrenia, effectively characterising and communicating the pattern of symptoms the person is experiencing is a challenge because of the heterogeneous expression of the disorder. The strategy of previous diagnostic manuals (i.e., International Classification of Diseases and Related Health Conditions 10th Revision (ICD-10) and Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV); WHO, 1992; APA, 1994) has been to classify individuals into one of a set of discrete subtypes. The subtypes each represented a prototypic combination of schizophrenia symptoms, like the prominent hallucinations and delusions of the paranoid subtype.

However, the subtype system has failed in various respects. First, a substantial number of individuals with a diagnosis of schizophrenia do not fit any of the subtype descriptions, instead falling into the miscellaneous 'undifferentiated' category (e.g., Kendler *et al.* 1994; Beratis *et al.* 1997). Second, individuals' symptom profiles change over time, such that people with the diagnosis move from one subtype to another as their symptom profile evolves (Kendler *et al.* 1985; Fenton & McGlashan, 1991). If the subtype represents a true 'type,' which philosophers would term a 'natural kind,' then there should not be such temporal instability (Zachar, 2000); a tiger does not turn into a lion and back again. Instead, such 'types' are the field's construction of convenient descriptions that do not match any enduring reality, for example, in terms of prognostic validity. Indeed, there does not appear to be any genetic association or differentiation among the subtypes (Owen *et al.* 2010). Even if subtypes do not represent some deeper reality, one could argue that they provide heuristic value for the field. However, the subtypes fail at even this purpose; they have generated relatively little scientific study over the past 20 years (Braff *et al.* 2013), and subtype diagnosis provides little information about treatment choice or response (Mattila *et al.* 2015).

If subtypes do not work, what should take their place? Both the DSM-5 and the proposal for ICD-11 have suggested replacing the subtypes with a set of *symptom ratings*, which could be applied across the whole group of primary psychotic disorders, thereby adding dimensional information to a categorical classificatory approach (Gaebel *et al.* 2012; APA, 2013). Rather than trying to pigeon-hole patient descriptions into a fixed set of types, each patient would be rated on all relevant symptoms to provide a complete profile description. Symptom ratings offer a number of advantages. First, they would

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offer complete information about the totality of the patient's presentation. Whereas a diagnosis of paranoid schizophrenia simply communicates the relative prominence of hallucinations and delusions, it does not indicate the relative strength or absence of other kinds of symptoms. A system that requires a rating of all symptom domains (including an indication of their absence) provides more complete information without having to rely on placing individuals in uninformative miscellaneous categories. Second, a rating system could contain information about the severity or intensity of the symptom. If the rating system incorporates a dimensional component, the diagnosing clinician could document information about the severity of a symptom, which could aid in tracking treatment response over time or informing case management.

While the other proposed changes and features of the ICD-11 chapter on Schizophrenia and Other Primary Psychotic Disorders have been well described elsewhere (Gaebel, 2012; Gaebel et al. 2012), there has not yet been a detailed description of the proposed symptom rating scale in the literature. The purpose of this paper is to describe the proposal for the ICD-11 psychotic symptom domain rating system, to elucidate some of the issues and unresolved controversies about its use, and to describe how the ICD-11 revision process proposes to test the new system for improvement prior to its implementation and formal adoption.

Proposed ICD-11 psychotic symptom rating scale

The proposed ICD-11 symptom rating scale includes six domains: Positive Symptoms, Negative Symptoms, Depressive Symptoms, Manic Symptoms, Psychomotor Symptoms and Cognitive Symptoms. These domains were selected by the ICD-11 Working Group for Schizophrenia and Other Primary Psychotic Disorders through a thorough review of the literature and scientific vetting process. Indeed, these domains correspond well to the general consensus within the field of the important domains in schizophrenia and other psychotic disorders (Peralta & Cuesta, 2001; Tandon et al. 2009; Potuzak et al. 2012).

The *Positive Symptoms domain* includes description of delusions, hallucinations, experiences of passivity and control, disorganised thinking and disorganised behaviour. *Negative Symptoms* encompass reductions or restrictions in affect, speech, motivation, pleasure and social interaction. Indeed, the distinction between positive and negative symptoms is well established in the literature, and is associated with differences in course, treatment and outcome (Heilbronner et al. 2016; Siskind et al. 2016).

An innovation of the symptom domain system is the inclusion of descriptions of mood, both from the depressive and manic poles. Individuals with schizophrenia often experience disruptions in mood (Conley et al. 2007; Potvin et al. 2007), even if they do not meet the full requirements for a diagnosis of schizoaffective disorder. Nonetheless, the ratings are used for both schizophrenic and schizoaffective periods of illness. The *Depressive Symptoms* and *Manic Symptoms domains* are not equivalent to depressive and manic episodes, respectively. The symptom domain is intended only to reflect mood, not the syndrome of an episode, which also includes other symptoms (e.g., appetite changes, sleep disruption). Further, behavioural changes like agitation or retardation should be captured in the Psychomotor Domain, rather than here, and anhedonia is conceptualised as a negative symptom, not as an indicator of depressed mood. The only outside indicator of mood that is explicitly included in the Depressive Symptoms domain is suicidal ideation.

The *Psychomotor Symptoms domain* captures a wide range of motoric disturbances, including increased activity in the form of purposeless behaviours such as fidgeting, shifting, fiddling, inability to sit or stand still, wringing of the hands, stereotypy, grimacing, etc. This domain also includes decreased activity, like a visible generalised slowing of movements or speech, as well as catatonic symptoms both of the hyper- and hypo-quality such as extreme restlessness with purposeless motor activity to the point of exhaustion, posturing, waxy flexibility, negativism, mutism, or stupor. The ICD-11 proposal also includes a separate Catatonia syndrome (MC70 Catatonia), which can be independently diagnosed as well as captured within this domain.

Finally, the ICD-11 system includes a *Cognitive Symptoms domain*. Many individuals with a psychotic disorder diagnosis experience a range of cognitive deficits, which can greatly impact their functioning (Green et al. 2004; Milev et al. 2005). The Cognitive Symptoms domain includes the description of deficits in any of the following areas: processing speed, attention/concentration, orientation, judgment, abstraction, verbal or visual learning, or working memory. Ideally, the assessment of this domain would be based upon standardised and locally validated neuropsychological tests. Currently, there is not a recommended test battery for assessing this domain, and such tests may not be available in all localities or clinical settings. As such, it is up to the diagnosing clinician to identify the best means possible for assessing this domain, recognising that it may not be possible to assess all components of the domain.

The best way to rate these domains remains an open question. Currently, the ICD-11 development process is considering two options: a 4-point severity scale

and a 2-point presence/absence scale. Each option has potential pros and cons. A 4-point scale, rated as absent, present and mild, present and moderate, or present and severe, would be able to take advantage of the possible dimensionality of a symptom rating system. Indeed, one of the potential benefits of a symptom rating system is the possibility of documenting additional information about symptom severity. This feature would not only allow clinicians to assess the cross-sectional symptom profile of psychotic disorders at a certain point in time, but also to monitor the longitudinal development of psychotic disorders in all six symptom domains for improvement or deterioration under the influence of treatment or other events. The current draft of the 4-point scale provides the rater some guidance regarding the differentiation of mild, moderate and severe ratings, both generally (i.e., across all domains) and specifically (within each domain). The general guidelines specify that *mild* ratings would reflect the presence of one or two symptoms within the domain that only minimally affect the individual's functioning. The symptoms may be intermittent or fluctuating, and would be within the bottom third of severity compared with other patients. A *moderate* rating would indicate the presence of several (e.g., three or four) symptoms from the domain that effect the person's everyday functioning. The symptoms are present for the majority of the time, and would be in the middle third compared with other patients. A *severe* rating indicates many symptoms from the domain, or a smaller number that have a severe or pervasive degree of impact. The person experiences serious negative social or personal consequences from the symptom, which is present very frequently or constantly. These symptoms would fall within the most severe third of comparable patients.

In addition to this general guidance, the rating system offers examples of what these symptoms might look like at each severity level within each domain. For example, Table 1 presents the mild, moderate and severe descriptions of the Negative Symptom domain. As can be seen in the descriptors for each rating, there is an attempt to provide sufficient differentiation amongst each option to provide clear and reliable ratings across severity while maintaining a degree of flexibility for the clinician to apply what he or she considers the most appropriate rating. Consistent with the ICD-11's adoption of flexible diagnostic guidelines (First *et al.* 2015), these descriptions allow for a degree

Table 1. *An example of the 4-point severity rating scale for the negative symptom domain*

Negative symptoms

This qualifier may be used together with a diagnosis from the grouping of Schizophrenia and Other Primary Psychotic Disorders to indicate the degree to which negative psychotic symptoms are a prominent part of the current clinical presentation. Negative symptoms include constricted, blunted, or flat affect; alogia or paucity of speech; avolition (general lack of drive, or lack of motivation to pursue meaningful goals); asociality (reduced or absent engagement with others and interest in social interaction) and anhedonia (inability to experience pleasure from normally pleasurable activities). To be considered negative psychotic symptoms, relevant symptoms should not be entirely attributable to depression or to an under-stimulating environment, be a direct consequence of a positive symptom (e.g., persecutory delusions causing a person to become socially isolated due to fear of harm), or be attributable to the direct physiological effects of substances or medications, including withdrawal effects. Catatonia, including catatonic mutism, should be considered as part of the rating of the Psychomotor Symptoms qualifier, rather than here

0 Symptom not present	
1 Present, but mild	*Example symptoms* (*not all are required*): Blunted emotional experience or expression, with subtle but detectable affective changes. Limited initiation of speech, but is responsive to questions. Little interest in external events, but capable of initiating motivation for basic activities of daily living or completing a task when prompted
2 Present and moderate	*Example symptoms* (*not all are required*): Flat emotional expression. Minimal initiation of speech for purposes other than indicating immediate needs and desires, but is responsive to questions with terse phrases. Lack of volition leads to neglect of hygiene or required activities, but will complete them with significant prompting
3 Present and severe	*Example symptoms* (*not all are required*): Person reports feeling empty or robotic most of the time. Generally does not initiate speech, even to indicate immediate needs and desires. Person is not capable of initiating behaviour even with significant prompting, which may lead to serious neglect of self-care to the extent that it puts the person at risk of harm (e.g., infrequently taking life-sustaining medication)
9 Unable to make a rating based on available information	

of clinical interpretation that is necessary for the system's adoption across a range of clinical settings, cultures, languages and professions.

One potential problem with the 4-point anchor descriptions is the conflation of functional impairment with symptom severity. Although ICD-11 in general does not require functional decline as a definitional requirement for a mental disorder (which is different than the DSM-5), mixing symptom severity with functional impairment on this scale might complicate the use of the scale, impacting its reliability and usability. Indeed, one argument against the 4-point scale is that it might be too complicated with the inherent ambiguity between ratings of mild, moderate and severe symptoms leading to poor reliability. If clinicians are not able to apply the ratings in a consistent manner, than the scale's function of communicating information is seriously compromised.

In contrast, the 2-point rating scale would simplify the available options to indicate the presence or absence of symptoms within a domain. This scale only includes a description of the kind of symptoms that fall within each domain (in Table 1, the first cell before the rating options), followed by an indication of whether those symptoms are present or absent for this individual. The 2-point scale has the disadvantage of not describing the severity of the symptoms. However, it has the advantage of being potentially easier to apply. The differentiations among the ratings of mild, moderate and severe are purposefully and inherently ambiguous, in that they require a degree of clinical judgment. Any time clinical judgment is a factor, there is the possibility of decreased reliability across providers and across time.

It is important to note that both rating options (2-point and 4-point) provide an option for indicating that a rating is not possible based upon available information. Conceivably, there are a number of circumstances where it may not be possible to rate an individual on one or more domains, such as the difficulty of assessing the cognitive capabilities of a mute patient.

Field testing

One of the guiding principles of the development of the ICD-11 has been the maximisation of the clinical utility of the manual, which incorporates traditional concepts of reliability and validity along with implementation characteristics like ease of use and user preference (First, 2010; Reed, 2010). In the context of the psychotic symptom domain rating scale, the system should be easily understood by practicing professionals without a need for extensive training or specialised tools. They should be able to apply the ratings in

a consistent manner that meaningfully informs the treatment or management of the case. Further, the assessment of clinical utility is not something that can be done from an armchair; in other words, the developers of the psychotic symptom domain rating scale, while certainly experts within their content, are not in an optimal position to evaluate how it will be used by front-line providers who do not necessarily share their extensive subject expertise. As such, the evaluation of the scale requires field testing prior to its implementation.

The ICD-11 field testing strategy has been to develop a series of studies to examine any individual component of the classification system (Keeley *et al.* 2016). Any individual study can only optimally evaluate a single research question, and other designs can supplement the weaknesses inherent in any single design. As such, the psychotic symptom domain rating scale will be tested under two conditions designed to balance the strengths and weaknesses of each other.

First, the scale will be evaluated in what have been termed the case-controlled field studies (Keeley *et al.* 2016). This series of studies evaluates the implementation characteristics of the proposed ICD-11 diagnostic guidelines in controlled conditions where the material presented to the diagnostician is held constant. This kind of study is particularly useful for determining if clinicians can come to a reliable decision, where the only source of variability in outcome is their interpretation of the guidelines. This study presents clinicians with a written vignette that they rate using the proposed symptom domain scale. These case-controlled field studies have been implemented through the WHO's Global Clinical Practice Network (GCPN; Reed *et al.* 2015) which is a network of over 12 000 mental health and allied professionals who have agreed to participate in studies to improve the ICD-11. It has the advantage of reaching a wide range of clinicians from all over the globe, who may not have the resources or time to participate in other kinds of field trial.

The second phase of field testing will come through the ICD-11's ecological implementation field studies (Keeley *et al.* 2016). These studies are based in the clinic, with providers applying the new guidelines to their patients in a naturalistic setting. The intention of these studies is to determine how the guidelines will function in the setting where they are intended to be applied. In this context, patient presentation may vary considerably, which helps to examine the applicability of the guidelines to the range of cases a clinician may encounter.

To date, we are unaware of any psychotic symptom rating scale that has empirically evaluated the number of rating options. While several such scales exist (e.g.,

PANSS, Kay *et al.* 1987), the rating option employed (e. g., 5 Likert-type points) has been assumed *a priori*. As such, the field trials currently underway as part of the ICD-11 revision represents an important step in improving the usability of ratings of psychotic symptoms. While the ultimate impact of such a scale on the diagnosis, management and treatment of psychotic disorders will be determined with time, we are cautiously optimistic that the inclusion of such a scale in the ICD-11 is a step in the right direction.

Conflict of Interest

None.

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