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Letter to the Editor

Movement abnormalities and schizophrenia in DSM-V

In an enlightening meta-analysis, Pappa & Dazzan (2009*a*) presented data from a series of medication-naive schizophrenia patients, and reported cumulative results to suggest that spontaneous movement abnormalities (i.e. dyskinesia and Parkinsonisms) are part of pathogenic disease progression of psychosis. In support, our group observed that among a group of high-risk individuals, after controlling for baseline symptoms and medications, the presence of spontaneous dyskinesia predicted an exacerbation in psychotic symptomatology 1 year later (Mittal *et al*. 2007). Given that spontaneous dyskinesia and Parkinsonisms may be associated with constitutional vulnerability to schizophrenia, it is clearly worthwhile to discuss this 'marker' within the framework of designing a new DSM.

In their recent letter, van Harten & Tenback (2009) have suggested several excellent points when weighing the benefits of including spontaneous movement abnormalities in DSM-V (in terms of prevalence, predictive value, biological basis, and the extent to which specificity of the symptom adds to the value of the criterion). The authors note that the prevalence of spontaneous movements (estimated to range from 13% to 20% for dyskinesia; 18–28% for hypokinetic/Parkinsonian signs based on instrumental measurements) (rates obtained using clinical scales are lower: 9% for dyskinesia; 17% for Parkinsonian signs; see Pappa & Dazzan, 2009*b* for details) approaches the ideal base rate for a criteria 'A' classification, and exceeds several less common existing criteria (e.g. thought disorder, catatonia, affect abnormalities). They also suggest that the hypothesis of a shared DA dysfunction provides a compelling rationale in terms of a sufficient biological basis.

However, there are also several problems with the suggestions posed by the authors. Specifically, with regard to predictive value, the authors suggest that only in schizophrenia and possibly schizotypal personality disorder (SPD) do medication-naive patients exhibit these movements. van Harten & Tenback (2009) then go on to note, 'Another factor that supports the inclusion of movement disorders in antipsychotic-naive patients with schizophrenia as an A criterion for schizophrenia is that is it highly specific. All other DSM criteria of schizophrenia are non-specific and non-pathognomic, i.e. many symptoms are also prevalent in affective disorders' suggesting that because movement abnormalities are unique to schizophrenia, as opposed to other disorders (that may include psychotic features), the movements are diagnosis-specific. Further, they argue that because spontaneous movement abnormalities are relatively easy to assess in a variety of clinical settings, they may serve as a useful marker and effective DSM-V criterion.

We offer the following cautions about this proposal. First, while there is evidence to suggest that hyperkinetic and hypokinetic movements are unique to the psychosis spectrum among psychiatric disorders, there has not been sufficient research comparing rates of movement abnormalities in patients with different subtypes of psychosis (e.g. schizophrenia, bipolar with psychotic features, depression with psychotic features), and consequently no strong empirical basis for the claim of diagnostic specificity. Indeed, the scant available evidence suggests that movement abnormalities may be common among several disorders that share psychotic features. For example, Mittal & Walker (2007) found that the presence of dyskinetic movements in high-risk populations predicted conversion to a range of psychotic disorders, including schizophrenia, schizoaffective disorder, depression with psychotic features, and bipolar disorder with psychosis. In another study examining rates of spontaneous Parkinsonisms among antipsychotic-naive patients with different psychotic disorders, researchers observed these signs across psychotic spectrum disorders, and in fact, the Parkinsonisms were significantly more prevalent in individuals with affective psychosis (i.e. bipolar disorder and depression with psychotic features) and schizoaffective disorder, when compared to patients with non-affective psychosis such as schizophrenia (Chong *et al*. 2005). Taken together, evidence suggests that spontaneous movement abnormalities have poorer specificity than proposed by van Harten & Tenback (2009) and this limits the value of these signs as a potential A criterion, although it does not necessarily preclude the inclusion of these spontaneous movements under a different diagnostic classification strategy.

With regard to van Harten & Tenback's (2009) suggestion to place movement abnormalities in the criteria 'A' category, we would also raise some questions about classification and stability. For example,

should spontaneous dyskinesia and spontaneous Parkinson's signs be considered in the same or in separate categories? Although these two classes can co-occur due to the nature of direct and indirect striatal-pallido pathways (Duval *et al*. 2009), each is presumed to reflect different aspects of striatal dopamine (DA) activity, where hyperkinetic movements (tremor, athetoid movements, chorea, ballism) are associated with high levels of DA, and hypokinetic (Parkinsonian type movements: akinesia, bradykinesia, rigidity) are associated with low striatal DA (Delong & Wichman, 2007). It is important to note that both categories are indicative of broad basal ganglia DA dysfunction, and this may be the pathogenic factor at play. However at present there is insufficient empirical evidence informing our understanding of common and distinct neurological underpinnings between the two movement subtypes and the etiology of psychosis, and until these relationships are clearer, we should not rule out or rule in any definitive category split.

Finally, several more general points should be considered when discussing an A-criterion movement abnormality for schizophrenia. First, it appears that there are non-specific genetic risk factors for psychosis, broadly defined, rather than for schizophrenia specifically (Cardno *et al*. 2002). Second, there is significant heterogeneity among psychotic patients (with and without schizophrenia) in the inherited and acquired genetic factors that confer vulnerability to their illness (Riley & Kendler, 2006; McClellan *et al*. 2007). These and other findings suggest that current DSM categories are not valid with respect to etiological distinctions. More specially, the evidence suggests that schizophrenia, bipolar disorder with psychotic features, and major depression with psychotic features share a variety of etiological factors, both genetic and environmental (Cardno *et al*. 2002; Pini *et al*. 2004). Finally, while it is true that movement abnormities have been observed at a rate that is comparable to some of the current diagnostic criteria for schizophrenia, patients with clinical and/or instrumentally measured movement abnormities, nonetheless, likely constitute only a subgroup (Neumann & Walker, 1996). It is plausible that this subgroup is also characterized by some distinct etiologic factors and pathophysiological processes. From a dimensional perspective of psychotic disorders (see van Os & Kapur, 2009), these points highlight the potential for spontaneous movement abnormalities to be considered separate dimension as opposed to a new A criterion for schizophrenia.

Although the inclusion of movement abnormalities as a DSM-V criterion for schizophrenia may not be justified, the use of this phenomenon as a biomarker for the new 'psychosis risk syndrome' is promising. Because researchers have developed standard measures for diagnosing high-risk syndromes (e.g. the Structured Interview for Prodromal Syndromes; Miller *et al*. 2002), it is now possible to identify groups of high-risk adolescents/young adults of whom approximately 35% will convert to a psychotic disorder in a 2-year period (Cannon *et al*. 2008). As a majority of these individuals are not yet medicated, the movement abnormalities may serve an excellent marker of emerging pathology (see Pappa & Dazzan, 2009*b* for a detailed discussion of issues of differentiating spontaneous *versus* medication-induced Parkinsonisms and dyskinesia). Indeed, our research has shown that the relationship between movements and symptoms increases in magnitude as high-risk individuals progress through the prodromal period towards the mean age of onset (Mittal *et al*. 2008) and further, the presence of baseline movement abnormalities differentiates those high risk individuals who eventually convert to psychosis (Mittal & Walker, 2007).

We encourage further discussion and serious consideration of research evidence, as well as practicality; an empirically informed DSM-V stands to benefit clinicians, researchers, and patients.

Declaration of Interest

None.

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Letter to the Editor

Co-morbidity and the concept of 'emotional disorders'

In his thoughtful comments on our paper (Goldberg *et al*. 2009), Jablensky (2009) writes 'much of the progress towards understanding the biology of mental disorders has so far been achieved by splitting rather than lumping'. Not only would I agree with this, but I would argue that the process has not gone far enough, and we are obliged to conjure up the spectre of 'co-morbidity' to account for the fact that the patient has symptoms listed in several different chapters of the DSM. Having a single cluster of 'Emotional Disorders' would allow researchers to study the various combinations of disorders, to elucidate which are distinctive in terms of the validators we have used. Thus, in addition to 'major depressive disorder' we could distinguish between anxious depression and pure depression, and within the depressive spectrum we could describe a patient as having 'depression with panic disorder', 'depression with somatic symptoms', 'depression with somatic over-concern' and so on. Few psychiatrists seriously think that the concept of 'major depression' refers to a single entity, yet our classification imposes tunnel vision upon us, and discourages research from elucidating differences between the common syndromes of psychological distress.

It will be argued that such changes are merely cosmetic, and that postulating 'co-morbidity' in any case allows such research. But progress so far has been disappointing, and in the rest of medicine it is unusual to tell the patient that he/she has unfortunately developed several quite different disorders at the same time.

Declaration of Interest

None.

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