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The authors reply

All that shines is not psychosis . . . but is still clinically important

We thank Preti and colleagues for their interest in our systematic review and meta-analysis on the prevalence of psychotic symptom in the community (Kelleher *et al.* 2012a). The authors raise a very important issue regarding our emerging understanding of the clinicopathological significance of psychotic symptoms in the population. As the term suggests, psychotic symptoms have traditionally been considered to relate to psychotic disorder. Indeed, more than 10 years ago Poulton *et al.* (2000) demonstrated that psychotic symptoms in childhood predicted an increased risk of psychotic disorder in adulthood. These findings led to a great deal of interest in studying young people with psychotic symptoms as a means of exploring risk for psychosis. Preti and colleagues rightly point out, however, that while childhood psychotic symptoms were associated with a relative increase in risk for psychosis, the absolute risk for psychotic disorder among young people with psychotic symptoms remained low. This raises the question: 'are psychotic symptoms clinically important?'

A number of more recent population surveys have shown that individuals who report psychotic symptoms are also more likely to report symptoms of non-psychotic psychopathology, especially symptoms of depression (Johns *et al.* 2004; Scott *et al.* 2009; Wigman *et al.* 2011). But an important question alluded to by Preti and colleagues is to what extent are population level psychotic symptoms clinically relevant? That is, what proportion of individuals with psychotic symptoms in the community has a psychiatric disorder? And, furthermore, what does the presence of psychotic symptoms tell us about such individuals beyond a given probability that they will have some kind of psychopathology? It is these questions that we have recently sought to address, using two in-depth diagnostic interview studies which assessed psychotic symptoms and DSM-IV psychiatric disorders in young people in the community (Kelleher *et al.* 2012b). In contrast to the relatively low level of association between psychotic symptoms and psychotic disorder (Poulton *et al.* 2000), we found a very strong association between psychotic symptoms and non-psychotic psychopathology. In fact, an absolute majority of young people aged 11–15 years (57–79%) who reported psychotic symptoms (chiefly auditory hallucinations) had at least one lifetime Axis I psychiatric

disorder. Interestingly, we found that psychotic symptoms were particularly predictive of severe psychopathology, characterized by multimorbidity (that is, the presence of more than one disorder). Furthermore, building on research showing that individuals who endorsed psychotic-like symptoms on questionnaire were also more likely to endorse questionnaire items relating to suicidal behaviour (Nishida *et al.* 2010; Saha *et al.* 2011), we showed that adolescents with a psychiatric diagnosis who report psychotic symptoms are at very high risk of severe suicidal behaviour, namely suicidal plans and acts (Kelleher *et al.* in press). Thus, the picture that is emerging is that so-called psychotic symptoms are, in fact, frequently symptoms of a wide variety of common mental disorders. Importantly, however, they mark out risk for a more severe spectrum of psychopathology characterized by severe illness, with high risk for multimorbidity and suicidal behaviour.

Preti and colleagues also raise the important issue as to how best assess for psychotic symptoms in the community. Some questionnaire studies, for example, have found prevalences of greater than 90% for putative psychotic symptoms in the population. Many such questionnaire items, however, might not be considered to reflect genuine psychotic symptoms, at least not as considered by clinicians. In fact, we specifically tested this hypothesis in a community sample of adolescents in a previous report (Kelleher *et al.* 2011). Indeed, we found that many questions that putatively assess psychotic symptoms had poor predictive validity for genuine psychotic symptoms when compared with a subsequent clinical interview assessment. Interestingly, however, we found that the question, 'Have you ever heard voices or sounds that no one else can hear?', had very good positive and negative predictive value for clinically verifiable psychotic symptoms. This was not limited to auditory verbal hallucinations; in fact, this item identified the majority of young people with clinically verifiable psychotic symptoms regardless of symptom phenomenology. The reason why this item performs so well compared to other items is unclear, although a similar finding has also been reported in results from the Avon Longitudinal Study of Parents and Children (ALSPAC; Horwood *et al.* 2008). It may partially reflect that the most common clinically verified psychotic symptom in young people, in our research at least, was auditory verbal hallucinations. We therefore included studies that used this question because of the established validity of this item. Had we included a wider range of questionnaire items then the reported prevalence would have been much higher. Precisely what these other items are assessing is open to debate, but in terms of measuring symptoms that

are identifiable to a clinician as psychotic-like in nature, they have questionable validity. Ultimately, of course, a questionnaire approach is no match for a well-designed clinical interview assessment study conducted by trained clinicians and academic diagnosticians. However, the resources required for the latter approach are enormous compared to the relative ease of questionnaire and lay interview studies. What is more, the objectivity of questionnaire studies compared to subjective clinical evaluations can be very valuable. In reality, each of these approaches has an important place in epidemiological research.

Last, we turn to the issue of stigmatization. A real mark of the stigma surrounding these symptoms is the lack of open discussion about them among the general public, despite their relatively high prevalence. In fact, the lack of open discussion of these symptoms is probably a major contributor to internalized stigma for people who themselves experience these symptoms. In our experience, young people with hallucination symptoms often feel frightened of the consequences of speaking about this seemingly 'taboo' subject. However, nothing breaks a taboo like bringing the subject out into the open for discussion. In fact, we have seen in our own work that it can be hugely de-stressing to young people who present with hallucinations to hear that these symptoms are experienced by lots of other young people (despite it seeming that no one is talking about them). We hope that by highlighting just how common these symptoms are we will contribute to more open discussion of the subject and will help to reduce stigma for individuals who experience them. Hopefully wider public discourse of these findings will also help to reduce the 'us' and 'them' view of psychosis and, in turn, reduce stigma for individuals with psychotic and other psychiatric disorders.

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