A three-dimensional typology of delusions

Dear Editor,

Delusions are the classic symptoms of psychosis as well as a major source of distress and legal entanglement (Junginger and McGuire, 2004). Despite some advancement in our understanding of the genetic, pathophysiological and psychosocial correlates of delusions, there has been little progress in identifying clear diagnostic criteria that meaningfully identify delusional beliefs. For example, a necessary, but not sufficient component of delusions is that they are inaccurate portrayals of objective reality; however, this also is true of many non-delusional beliefs. Moreover, an emphasis on the objective inaccuracy of delusions implies that it is possible to determine whether a belief is false, which often is not the case. To complicate matters further, the content of delusions varies considerably across psychotic patients, even those with the same diagnosis.

Current approaches to understanding the heterogeneity in delusional content across the psychotic disorders have tended to focus on the presence or absence of thematic features, such as whether the content of the delusion is “grandiose”, “bizarre” or “persecutory”. However, there also are problems with this approach. First, it is unlikely that these themes reflect discrete pathological processes because they may co-occur within the same delusion. Second, the constructs underlying these themes are often difficult to operationalize and have unacceptable levels of inter-rater agreement. Of particular note, consider that Kappa values for “bizarreness” typically have been below 0.45 (Flaum et al., 1991; Junginger et al., 1992; Mojtabai and Nicholson, 1995). Clearly, there is a need for a qualitative understanding of how delusions differ across psychotic patients. One promising approach would be to identify core parameters that discriminate different types of delusions so that an empirically informed typology of delusions could be established.

For this study, we identified three parameters that were hypothesized to discriminate different types of delusions. These parameters included: (1) base rate—the real-world incidence of the event or situation described in the delusion; (2) physical possibility—the degree to which the event or situation is physically possible; and (3) consensus potential—the degree to which the delusional belief is open to public scrutiny (see Maher, 1992). We were interested in examining whether these three parameters differentiated patients with schizophrenia vs. those without and the degree to which these three parameters would be related to more traditionally defined delusion themes: grandiose, persecutory, bizarre, referential and Schneiderian.

We examined the primary delusions of 138 delusional psychiatric inpatients and outpatients. The sample was 59% male and 60% white. Eighty-three of the subjects were diagnosed with schizophrenia, 23 with bipolar disorder, 6 with major depression, 19 with schizoaffective disorder and 7 with other psychotic spectrum disorders using criteria from the Diagnostic and Statistical Manual for Mental Disorders—Third Edition Revised (American Psychiatric Association (APA), 1987). Means and standard deviations were computed for age (mean ± standard deviation (M ± S.D.) = 31.9 ± 8.9 years), education (M ± S.D. = 11.2 ± 2.8 years), age at symptom onset (M ± S.D. = 21.7 ± 5.7 years) and number of hospitalizations (M ± S.D. = 4.7 ± 4.1). The methodology and patient characteristics are described more fully in Junginger et al. (1992).
Interviewers identified a single prominent delusion for each participant during the course of a diagnostic interview. In the few cases in which there was more than one prominent delusion, conviction of the belief and its impact on daily life were the major variables for selection of the delusion for assessment. Subjects provided an account of this belief that was recorded verbatim. In order to avoid potential rater bias, all of the patients’ demographic information was excluded from the narratives. The narratives varied in length, but were generally between 100 and 130 words.

A psychiatrist and two clinical psychologists, each with 10 or more years of experience working with psychotic patients, collectively categorized the theme of each of the subjects’ narrative as being of one or more of five types: grandiose (n=37), persecutory (n=60), referential (n=26), Schneiderian (i.e., thought broadcasting, thought insertion, thought withdrawal and control) (n=17) and bizarre (n=15). Categorizations were made using definitions from the “Glossary of Technical Terms” in the DSM-III-R (APA, 1987). Each of the authors independently rated each narrative along the three different parameters using a Likert-type scale from 0 to 10. For base rate, the scale ranged from “never” to “all the time”, physical possibility “definitely not” to “definitely” and consensus potential “impossible” to “very easy”. Inter-rater correlation coefficients for single and mean of the two raters for base rate (ICC=0.62, 95% confidence interval (CI)=0.50–0.71 and 0.76, respectively, CI=0.67–0.83), physical possibility (ICC=0.78, CI=0.71–0.84 and 0.88, CI=0.83–0.91, respectively) and consensus potential (ICC=0.65, CI=0.54–0.74 and 0.79, CI=0.70–0.85, respectively) were acceptable. Agreement on the bizarreness of the delusions was low (K=0.37).

The analyses that follow are based on the mean estimate of the two raters to take advantage of its higher reliability. The three dimensions were all significantly correlated with each other (r’s=0.59–0.81, all p values<0.00). The base rate estimates tended to be quite low with little variability (M ± S.D.=1.1 ± 1.0), while physical possibility (M ± S.D.=4.1 ± 3.5) and consensus potential (M ± S.D.=4.4 ± 2.2) tended to be in the more moderate range and showed more variability.

T-tests were computed to determine whether the delusions of patients with schizophrenia vs. those without differed on the base rate (M ± S.D.=1.0 ± 1.0 and 1.1 ± 1.1, respectively), physical possibility (M ± S.D.=3.7 ± 3.4 and 4.6 ± 3.7, respectively) and consensus potential (M ± S.D.=4.1 ± 2.1 and 4.9 ± 2.3, respectively) ratings. The delusions of patients with schizophrenia were rated as being significantly less verifiable (t[136]=2.0, p<0.05), but there were no significant group differences on the other two parameters. The frequency of categorical bizarreness, defined by consensus between the two raters, in the delusions of the schizophrenia (27%) and nonschizophrenia (including schizoaffective, 22%) participants were similar (X²=0.39, ns).

Means of the base rate, physical possibility and consensus potential estimates were computed separately for patients with grandiose (M ± S.D.=0.8 ± 0.7, 3.6 ± 3.3 and 4.4 ± 2.4, respectively), persecutory (M ± S.D.=1.4 ± 1.2, 5.3 ± 3.6 and 4.9 ± 2.0, respectively), referential (M ± S.D.=1.0 ± .9, 3.9 ± 3.4 and 4.5 ± 2.1, respectively), Schneiderian (M ± S.D.=0.9 ± 0.9, 1.6 ± 1.3 and 2.3 ± 1.1m respectively) and bizarre (M ± S.D.=0.0 ± 0.1, 0.6 ± 1.4 and 3.1 ± 2.0, respectively) delusions. These results are presented in Fig. 1. The delusion theme categorizations were not mutually exclusive, so between group analyses could not be employed here. There are several noteworthy findings. First, all of the delusion subtypes had low

Fig. 1. Three-dimensional graph depicting classic delusional types, rated on base rate, physical possibility and consensus potential.
base rate estimates, suggesting that belief in an event or situation that never or almost never occurs reflects a pathognomonic feature of delusions more generally. Second, the physical possibility and consensus potential estimates appeared to parse the five delusion types into three groups. The Schneiderian and bizarre delusions had similarly low ratings on both scales, whereas the referential and grandiose delusions tended to have higher ratings. Persecutory delusions were rated as being the most possible and verifiable of all the delusion types.

In sum, findings from this study highlight the potential utility for an empirically validated typology of delusions. The finding that inter-rater reliability for bizarre was poor, and that bizarre occurred with equal frequency in the schizophrenia and non-schizophrenia groups raises further concerns about the use of bizarre as a marker for schizophrenic delusions. Conversely, the three probability estimate parameters examined in this study showed promise for differentiating between different types of delusions. When the ratings were examined in context of the classic delusion types, three different clusters of delusions appeared to emerge. These included delusions that that were characterized as being next to impossible and practically unverifiable, those that were fairly impossible and somewhat verifiable, and those that were possible and somewhat verifiable. A shortcoming of the present study was that nondelusional beliefs were not examined, although the finding that very low base rate ratings characterized nearly all of the beliefs in the present study suggests that this dimension may be pertinent for differentiating delusional vs. nondelusional beliefs. An important next step would be to further refine our three probability estimate parameters to improve their inter-rater reliability and potential clinical utility. Ultimately, an empirically validated typology of delusions can be used to inform the refinement of diagnostic instruments designed to identify meaningfully homogeneous groups of delusional patients.

References


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17 October 2005