



Letter to the Editor

On the dimensionality of formal thought disorder



To the Editor,

Formal thought disorder (FTD) is the predominant construct used to describe aberrant speech patterns in schizophrenia. A number of observable speech abnormalities are encompassed in descriptions of FTD, which has invariably given rise to investigations into the possible dimensionality of FTD. While there is a consensus that FTD is multifaceted, the exact number of dimensions is still being debated. Between two to six discrete dimensions have demonstrated some degree of validity (Cuesta and Peralta, 1999), with the only consistency being a poverty/productivity-based factor broadly reflecting negative FTD. The other FTD features, often subsumed under the label of positive FTD, have been otherwise classified as being unitary (Ott et al., 2002), binary – disorganisation, verbosity (Roche et al., 2015b), and even quinary – disorganisation, idiosyncratic, semantic, attentional, and referential (Cuesta and Peralta, 1999).

Clarifying the nature of positive FTD

The widely-used positive-negative FTD dichotomy has established utility in both mechanistic and clinical research (Roche et al., 2015b; Sumner et al., 2018), but the qualitative and quantitative heterogeneity of positive FTD suggests that a finer and more specific classification is possible and needed. Further determining the number of FTD dimensions will assist with resolving the aetiological features critical to FTD. This is an especially pertinent research topic in relation to the underlying neurocognitive mechanisms. For example, in their new meta-analysis, Bora et al. (2019) identified relationships between FTD and both neurocognitive and language dysfunction which differ between negative and positive FTD. Negative FTD appears associated with planning, fluency, working memory and semantic comprehension; and positive FTD with working memory, planning, inhibition, syntactic comprehension and semantic processing. It is plausible that greater sensitivity will be attained through studies of cognitive associations with more FTD sub-dimensions or individual FTD symptoms. We have previously found that inhibition was more closely linked with pressure of speech, while attention was more related to loss of goal (Tan and Rossell, 2017). More studies are clearly required examining the positive FTD sub-dimensions both in terms of mechanistic factors and prognostic indicators. Although we can find emerging evidence for mechanistic research in terms of neurocognition, investigations of possible neurobiological differences across FTD dimensions or even individual symptoms has not yet been completed.

Challenges of dimensionality research

Importantly, the emergent dimensions in factor analytic FTD studies may be dependent on the type of sample used, i.e. first-episode and

acute versus chronic and stable, where symptom severity can differ. Relatedly, the key challenge is in assessing samples with sufficient FTD symptomatology to permit the methodology required for the derivation of discrete dimensions. This will require more large-scale collaborations and the establishment of common methodological frameworks; however, interim reporting of relationships with individual FTD symptoms will be beneficial. The longitudinal stability of FTD dimensions also remains to be established. There are also a number of different FTD measures available which may influence the sensitivity and accuracy of dimension identification. While there is evidence of some common positive FTD sub-dimensions across the existing studies (e.g. idiosyncratic, disorganisation), we are not aware of any studies that have identified similar FTD dimension structures (i.e. three-factor only) using different stage cohorts or across measures. Therefore, future studies should continue exploring FTD dimensionality across different illness stages, as well as with more comprehensive assessment tools or even an internationally agreed upon standardised measure to assist with consistency.

Towards more dimensionality research

Presently, the most commonly identified FTD dimensions broadly reflect disorganisation, poverty and verbosity (Cuesta and Peralta, 2011; Roche et al., 2015b). As a start, new mechanistic and outcome studies in FTD should adopt these identified dimensions to test their utility. This may lead to enhanced understanding of what underlies FTD manifestations, as well as improving clinical utility. These empirical advances will positively contribute to discussions surrounding nosological change for FTD (Tan and Rossell, 2015) as well as improve the alignment between research distinctions and clinical relevance (Tan et al., 2017). This is particularly critical for positive FTD components, which have as yet unclear functional impacts relative to the more homogeneous negative FTD (Roche et al., 2015a). In sum, continued research into FTD dimensionality and its utility is required. Such work will help the collective establishment of consistent, robust and most beneficial classifications for the range of speech abnormalities that comprise FTD.

Contributors

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Declaration of Competing Interest

The authors declare no conflicts of interest.

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