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On the existence of a linguistic distance in schizophrenia

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The article entitled ‘Social disadvantage, linguistic distance, ethnic minority status and first-episode psychosis: results from the EU-GEI case-control study’ by Jongsma et al., in *Psychological Medicine* (Jongsma et al., 2020) is an admirable attempt towards an appreciation of the sociocultural linguistic factors in psychosis. Though somewhat consistent with our recent proposal of the interplay of language phenomena, ethnicity, migration and urbanicity in the aetiology of schizophrenia (Alherz, Almusawi, & Barry, 2019), there are key conceptual considerations surrounding their conceived linguistic distance exposure and its interpretation. In linguistics, this is a theoretical measure for the extent to which dialects and languages differ, but without a standardised approach due to its unbounded interpretations.

The authors define it as a combined function of self-rated fluency and an estimated difference from a language tree. As a consequence of the subsequent binary coding however, the new variable essentially asks two questions: do you have the same first language as the majority population? And if so, are you perfectly fluent? If the answer is ‘No’ to any of these, the participant falls into the exposed category. It is therefore a measure of mismatch, not of distance, as it disregards the extent of language divergence. The fluency variable serves only to misrepresent those majority-language speakers who are somewhat humble in their self-rating as equally distant as those who speak a different language. While described as a necessary measure to address the substantial skewness of its components, it is notable that insufficient fluency is one of the exclusion criteria in the original study protocol (Gayer-Anderson et al., 2020), likely a direct contributor to the skewed response.

The indiscriminate sample of migrants and native-borns, where the latter naturally represent the majority of subjects who speak the same language also leads to a skewed first language variety in favour of the majority population. The mismatch in this case encapsulates much of the same variation imposed by migrant and ethnic minority status. This is not without merit, as in the absence of the fluency component, it would support our hypothesis that a linguistic mismatch could underly the perceived risk of psychosis for migrants and ethnic minorities, but the factors remain intertwined due to the aforementioned limitations. It cannot be inferred however, that greater linguistic distances lead to a greater psychosis risk. Instead, a higher resolution approach, focusing exclusively on migrants or ethnic minorities for instance, might address the skewness and allow for an analysis of the two variables separately. To that purpose, we have suggested a comparison of the risk among migrants in the same region, from the same region, with their mother tongues as the variable of interest. For example, do migrants in England from the Spanish-speaking and the English-speaking Caribbean share the same risk of psychosis? A more universal linguistic explanation that is inclusive of the risk in natives and same-language speakers as we suspect, should also consider the substantial variations in dialect and their hierarchical relationship with a desirable language form as captured by diglossia (Alherz et al., 2019). This would also be more reflective of the proposed cultural distance, as the created mismatch exposure in England could consider a German-speaker from Germany as distant, while an English-speaker from the Caribbean is considered unexposed despite an arguably greater difference in culture.

Regardless, any measure of fluency or linguistic distance in future studies will also be better served in recognising the following factors, which might also coincide with the known risk factors for schizophrenia, especially as they may be readily employed using existing datasets. These include: (1) the substantial covariance between linguistic distance and fluency. (2) The temporal elements of language acquisition, such as age-at-migration, and time since migration. (3) The seclusion of ethnic circles in urban areas, reducing contact with the majority language and the creation of multi-ethnolects. (4) The government-specific policies which differentially demand language acquisition prior to migration and employment (Ispording & Otten, 2011). This is a selective pressure not only for fluency, but potentially various other social factors related to schizophrenia.

Lastly, unless the individual’s mother tongue is in an inferior, hierarchical, diglossic relationship with the majority language, it is not clear that it represents a socially deleterious

exposure as suggested by the authors. This pertains to a wider issue in epidemiological studies, where deviations from the social average are frequently attributed to models of social adversity, defeat, discrimination and disempowerment, not accounting for contexts in which individuals might thrive under these exposures. In the case of language, this could be due to a circumstantial advantageous effect of an additional language, not only for employment but also for a wider social circle and support network.

The authors are congratulated for bringing the argument for a sociocultural linguistic factor further into the spotlight, and we eagerly anticipate future analyses into the emerging role of sociolinguistics in schizophrenia.

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