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Correspondence on population health surveys and screening tools for depressive disorders: aims and uses by Arias de la Torre *et al*

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Arias de la Torre *et al* argue in ‘Population health surveys and screening tools for depressive disorders: aims and uses’ that population-based studies like the European Health Interview Survey (EHIS) are primarily intended to identify and compare vulnerable groups and factors associated with depression on a population level, not to estimate prevalence of major depressive disorders (MDD).¹ We fully agree that the use of brief depression questionnaires in such studies provides meaningful data on the perceived burden by depressive symptoms.

While questionnaire sum scores can be easily analysed, reported and compared, the common practice of reporting the share of participants that score above a given threshold as prevalence² is highly problematic. For their widely cited prevalence analysis,³ Arias de la Torre *et al* argue that they employed a broad definition of ‘current depressive disorders’, including MDD, dysthymia and mere occurrence of depressive symptoms or ‘probable cases of depression’. However, there is no evidence that a cut-off of 10 for the eight-item Patient Health Questionnaire depression scale (PHQ-8) accurately distinguishes persons fulfilling these vague definitions from those who do not. On the contrary, at a true prevalence of 5%, over 75% of persons with a score above the cut-off may be false positive screens (<http://www.depressionscreening100.com/phq-8/>).⁴

When using different evaluation tools, prevalence estimates can only be compared meaningfully when the imperfect accuracy of each tool in the context of an accepted illness definition is taken into account. Analysis of depression screening tool data in a Bayesian framework enables us to derive meaningful and comparable MDD prevalence estimates from the EHIS. We have demonstrated, under a range of realistic assumptions, how little information the EHIS data actually contain about MDD prevalence, despite the large sample size.⁵ The imprecision of our estimates and lack of power to establish MDD prevalence differences across countries should be understood as a consequence of the PHQ-8’s imperfect diagnostic accuracy, not as evidence for absence of such differences. Revealing this uncertainty is not a weakness but rather a strength of the Bayesian approach.

We are concerned that exaggerations of depression prevalence and the precision of estimates due to ignoring imperfect diagnostic accuracy are

misleading and harmful. They potentially identify non-existent and magnify negligible prevalence differences and could therefore lead to mistargeted research and public health initiatives. The proportion of persons scoring above a cut-off on a screening test should not be reported as prevalence without appropriate adjustment for diagnostic accuracy.

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