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Letter to the Editor

Expanding epidemiological rigor: the case for AI-based screening and multicultural mixed-method research

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Dear Editor,

We read with great interest the article by O'Connor and colleagues, *"Prevalence of Mental Health Disorders in General Practice from 2014 to 2024: A Literature Review and Discussion Paper."* The authors are to be commended for their timely synthesis of research examining the burden of mental health disorders in primary care settings (Ravichandran *et al.* 2025). The paper underscores the ongoing relevance of mental health within general practice and highlights the pressing need for renewed attention to this issue in the post-pandemic context.

While the review provides valuable insights into the prevalence of mental health disorders, we wish to offer two constructive observations concerning future methodological directions that could further strengthen this line of inquiry.

First, the integration of technology and digital mental health data represents an important (Löchner *et al.* 2025), yet underexplored, avenue for enhancing prevalence research in general practice. The growing adoption of AI-based screening tools, telehealth platforms, mobile mental health applications, and electronic patient-reported outcomes (ePROs) in primary care provides unprecedented opportunities for continuous and scalable data collection (Ihsan *et al.* 2025; Jeong 2025). These digital modalities not only improve accessibility for patients reluctant to seek in-person consultation but also allow for more nuanced monitoring of symptom trajectories and comorbidities over time. Future studies could meaningfully incorporate these data sources to complement traditional interviews and electronic medical records, thereby yielding a more comprehensive understanding of the evolving epidemiology of mental health in primary care. However, it is important to acknowledge that AI-based screening tools are not without limitations. These include risks of algorithmic bias (Ratwani *et al.* 2024) – particularly when training data lack diversity – potential overreliance on automated outputs without clinical validation, and ethical concerns regarding data privacy and informed consent. Moreover, the generalizability of AI models across different healthcare systems and populations remains an ongoing challenge that requires rigorous external validation.

Second, there remains a critical need for multisite, multicultural, and mixed-method research designs to overcome geographical and methodological limitations evident in the current literature (Mazzucato 2025; Schueller *et al.* 2024). Much of the existing evidence originates from high-income European contexts, which may not fully capture the diversity of healthcare structures, cultural norms, and help-seeking behaviors observed globally. Cross-national, multisite studies–combining quantitative prevalence mapping with qualitative approaches (Creswell 2014; Jason & Glenwick, 2016) exploring patients' perceptions and stigma-related barriers – would allow for culturally grounded interpretations of prevalence data. Such an approach could prevent cultural overgeneralization and ensure that findings are both contextually valid and globally relevant. That said, multicultural mixed-method research also presents notable challenges. These include logistical complexities in coordinating across sites, potential inconsistencies in translation and interpretation of qualitative data, varying ethical and regulatory frameworks across countries, and the risk of superficial treatment of cultural context if not guided by deep community engagement and culturally competent research teams. Recognizing these limitations is essential to designing robust, equitable, and ethically sound studies.

In conclusion, O'Connor et al. have provided an important foundation for understanding the scope of mental health disorders in general practice. Building on this, the incorporation of digital data streams and cross-cultural, mixed-method frameworks can advance the field toward more equitable, comprehensive, and technologically adaptive models of primary mental healthcare research. provided that their inherent limitations are carefully addressed through transparent methodology, interdisciplinary collaboration, and ongoing critical reflection.

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