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Implementation of community screening strategies for depression.

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Community screening for depression could be used for monitoring, early detection, prevention and maximize the impact of the policies to reduce its burden.

Depression is highly prevalent mental health disorder, affecting approximately 4 to 10% of people depending on the specific population and context,[1–3] and a major public health problem and cause of disability and loss of quality of life worldwide. Effective primary prevention strategies to reduce its prevalence and impact are needed, and the implementation of screening strategies for depression at the community level could be a key instrument to inform these strategies.

Screening programmes are preventive resources that aim to identify individuals and population groups with high vulnerability to different health problems among apparently healthy people, in order to prevent the onset, development, burden and/or impact of those health problems.[4] In the case of depression, due to the self-reported nature of symptoms and the use of self-reported measures, the implementation of screening strategies have drawn increasing interest worldwide.[5] However, before implementation of screening strategies the recommendations of the UK National Screening Committee,[6] and the US preventive services task force should be followed,[7] including a consideration of the aims, feasibility and effectiveness, and availability and suitability of screening measures for the detection of relevant cases, as well as the availability of treatments.

Clinical screening

In clinical settings one of the main objectives of screening strategies is the detection of clinically relevant cases who could benefit from treatment. By contrast, at the community or population level, screening strategies for depression focus on the identification of the

characteristics of those with depression, as well as groups with a higher vulnerability of developing it, who might benefit from primary prevention measures.

Depression screening has been mainly proposed and implemented in primary care.[8] Primary care is typically the entry to the healthcare system for patients with depression and, in many countries, diagnosis and management is carried out at this level. However, evidence about the effectiveness and efficiency of screening for depression at primary care is limited, and screening is only recommended in situations in which it is possible to guarantee the patient's continued care, which may convey financial costs.[9,10]. Screening in clinical settings only covers health service users and so some high-risk population groups, such as homeless people, might not be included. Data from clinical screening strategies might therefore not be applicable to the whole population.

Community screening

Community screening strategies for depression have been proposed,[11] as these could determine the prevalence of possible depression and depressive symptoms within populations and be used to identify vulnerable groups. Community screening strategies could identify probable cases of depression among people belonging to population groups with reduced (or without) access to health services, such as homeless people.[12]

Community screening strategies will not be feasible in all contexts, as they require a high availability of economic and human resources, such as staff recruitment, training, and administration of the screening measures. As with primary care contexts, a clinical consultation should be recommended or, at least, suggested for the probable cases identified, which limits the feasibility of community screening to contexts in which this is possible, mainly countries with universal healthcare coverage.[8,10]

Imperfect screening questionnaires

The measures most frequently used worldwide for the screening of depression are: the 2-8- and 9-item versions of the Patient Health Questionnaire (PHQ-2, PHQ-8 and PHQ-9 respectively used in the UK Biobank and the European Health Interview Survey); the Centre for Epidemiological Studies-Depression Scale (CES-D), used in the European Social Survey; and the first and second versions of the Beck Depression Inventory (BDI and BDI-II), used in several primary care settings in the USA. Despite their extended use, the use of these self-reported instruments can result in a high proportion of individual false positive cases, and to an overestimation of the prevalence of specific depressive disorders in the population.[13] The excessive identification of cases of depression could potentially harm patient's health and place an additional burden on already strained health resources due to consumption of medication or unnecessary consultations.

Community screening aims to detect early depressive symptoms, before people develop full-blown depression, for targeted primary preventative strategies. Prevalence estimates obtained from community screening could be considered a relevant and suitable resource for such detection, if the data used to obtain them are population-based or representative of the population.[14] Estimates of depression prevalence derived from community screening should consider positives in the screening as possible cases, not people with depression.

Strategies have been proposed to improve the accuracy of the estimates derived from the use of screening questionnaires.[13,15] These strategies include: the adaptation (usually increasing) of the cut-off values to detect possible cases using self-reported questionnaires (such as a cut-off score of 12 or higher instead the value of 10 for the PHQ-9); the use of two-step approaches, such as using a self-reported questionnaire as a first step to estimate the prevalence and a clinical interview in a randomly selected subsample as a second step to double check the potential deviations of the estimations; and the use

of a Bayesian approach based on assumptions derived from data from previous research to account for the imperfect diagnostic accuracy of screening tools.

Improving systematic screening.

While systematic screening for depression in clinical settings is not recommended, screening tools might be useful for assessing symptoms severity and the outcomes of treatments in patients with depressive disorders in primary care.[10] Combining the data from clinical and community screening opens a window of opportunity to capture different relevant information for the monitoring of depression. Data can be collected about specific treatments and vulnerable groups, and the quality of the data from other monitoring sources (such as data from population health surveys) can be enhanced.

Previous trials, [16,17] indicate that web-based patient portals to screen for depression as part of population health programmes can improve participation rates in screening programmes, and better identify cases, compared to screening in clinical appointments. Systematic community screening using both electronic based and face-to face strategies could enhance case detection and reach population groups that usually have high depression rates but are difficult to reach, such as homeless people.[12]

Linkage between data collected in clinical and community settings should takes advantage of new technologies and data collection systems, such as mobile technologies and social media, and use shared identification codes to guarantee anonymisation or pseudo- anonymisation; this could constitute a key step forward to synergistically improve clinical and community screening.[18] Previous research[14] has shown that the linkage of secondary data from different sources within health information systems (such as linkage of data from clinical records and population health surveys), could improve

their reliability, validity, and accuracy for the detection and monitoring of people with probable depressive disorders at both the clinical and population levels.

	Goal	**Strengths**	**Weaknesses**
Clinical screening	Detection of possible cases who could benefit from treatment	Population is already screened within the healthcare system.	Only covers health service users; some high-risk population groups might not be included.
Community screening	Detection of early depressive symptoms for targeted preventative strategies	Representativeness of the results and identification of vulnerable population groups.	Requires a high availability of economic and human resources.

Limits with comparability

The wide availability of valid and reliable questionnaires for the assessment of probable depression and depressive symptoms could seem to be an advantage, but in reality, it limits the comparability of outcomes from screening programs. To enhance comparability, a core set of equivalent tools could be used for the assessment of depression or, ideally, the same questionnaire could be used across different contexts, such as the use of the PHQ-9 proposed by the joint initiative by funders and journals.[19]

There are also differences in the scoring of the same (or equivalent) screening tools, and in how their results are interpreted.[10,20]

These differences could have serious implications at both the individual level and at population levels. At the individual level the use of inadequate cut-off scores could lead to false positives and, conversely, false negatives, leading to unnecessary treatments and opportunities of treatment respectively. At the group level, misinterpreting the results of screening tools could lead to inadequate public health decision making, which could preclude the optimal allocation of primary preventive resources. Specific guidelines are needed for community screening of depression, including evidence-based recommendations about what specific tools should be used, their possible equivalence, how to use them, and about the interpretation of their results. This should improve the effectiveness and comparability of screening strategies.

Despite the challenges for their implementation and use, data from community screening strategies (ideally linked to data from clinically screening, other clinical data, and data from other sources) could be a relevant and suitable resource to enhance the detection of individual, group and environmental characteristics associated with probable depressive disorders including in vulnerable population groups, to inform the development of preventive measures and, ultimately, to reduce the burden and impact of depression at all levels.

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Competing interests

All authors declare that they have no conflict of interests.

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