Acta Biomed 2021; Vol. 92, N. 3: e2021215 DOI: 10.23750/abm.v92i3.11574

Review

A breakthrough in research on depression screening: from validation to efficacy studies

Luigi Costantini[1], Alessandra Costanza[2,3], Anna Odone[4], Andrea Aguglia[5,6], Andrea Escelsior[5,6], Gianluca Serafini[5,6], Mario Amore [5,6], Andrea Amerio[5,6]

[1]Department of Medical and Surgical Sciences, University of Modena and Reggio Emilia, Modena, Italy; [2]Department of Psychiatry, Faculty of Medicine, University of Geneva (UNIGE), Geneva, Switzerland; [3]Department of Psychiatry, ASO Santi Antonio e Biagio e Cesare Arrigo Hospital, Alessandria, Italy; [4]Department of Public Health, Experimental and Forensic Medicine, University of Pavia, Pavia, Italy; [5]Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics, Maternal and Child Health (DINOGMI), Section of Psychiatry, University of Genoa, Genoa, Italy; [6]IRCCS Ospedale Policlinico San Martino, Genoa, Italy

Abstract. In the last two decades the awareness of depression as a public health issue has increased and the literature has flourished towards its primary and secondary prevention. Whereas timely targeting of depression risk factors is a frontier towards reducing the incidence of the disorder, nowadays the early diagnosis is of primary importance. Screening depressive disorders is paramount, since there are several types of depression. Besides, early diagnosis would improve the outcome of treatment, reduce the frequency of relapses and generally lead to higher levels of quality of life. We highlight the feasibility of depression screening in primary care and the need of a comprehensive public health approach. (www.actabiomedica.it)

Key words: depression, screening, primary care, PHQ-9

Introduction

Depression affects more than two hundred sixty million people across the world and is a leading cause of disability (1). The estimated prevalence of depressive disorders in 2016 was 3,627 per 100,000 and in the last decade the number of all-age years lived with disability (YLDs) increased of 14% (2,3). Resulting from a complex interaction of social, psychological and biological factors, depressive symptoms first appear during the late teens to mid-20s, they are often overlooked and untreated and they are accompanied by poor functioning. At its worst, depression can lead to suicide, the second leading cause of death in 15-29-year-olds (4,5).

Depressive disorders are independent risk factors for chronic diseases, such as cardiovascular diseases and diabetes, and are associated with elevated risk of early death (6,7). In 2016, depressive disorders caused the loss of an overall age-adjusted rate of 526 per 100,000 disability-adjusted life years (DALYs), being the most contributor to DALYs loss among mental and behavioural disorders (2). Encouraging self-care and positive lifestyle changes especially in vulnerable segments of population can help improve, resolve or prevent depression (8,9).

Reduced educational achievements, poor financial success and role performance, higher amount of days out of role, and increased risk of job loss represent the social costs of depression (10). Depressive disorders bring about direct and indirect costs (11). The overall costs of depression in Europe lay around €92 billion a year, much of which caused by loss of productivity (12).

In the last two decades the awareness of depression as a public health issue has increased and the literature has flourished towards its primary and secondary prevention (13). Whereas timely targeting of

depression risk factors is a frontier towards reducing the incidence of the disorder, nowadays the early diagnosis is of primary importance (14).

Screening depressive disorders is paramount, as there are several types of depression that can affect the most vulnerable individuals (15,16).

For example, bipolar disorder usually presents with depressive symptoms and it is common to misidentify it with major depressive disorder, a diagnosis that can negatively influence the pharmacological treatment worsening the course of illness (17) and promoting mood instability especially in presence of comorbidities (18-20).

Therefore, early diagnosis would improve the outcome of treatment, reduce the frequency of relapses and generally lead to higher levels of quality of life.

The present paper would like to highlight the feasibility of depression screening in primary care and the need of a comprehensive public health approach in order to develop an in-field knowledge of the real outcomes of depression screening.

Is depression screening feasible?

In the last two decades, different screening tools have been validated in primary care settings. Recent systematic reviews and meta-analyses provided an overview to the psychometric properties of widely applied depression screening tools defining the Patient Health Questionnaire 9 (PHQ-9) as the most valid one in terms of sensitivity and specificity (21,22). Short Likert-scale questionnaire, like PHQ-9 and PHQ-8, have been successfully used (23), while scarce evidence accounts for the widespread primary care use of ultra-short screening tools (i.e. PHQ-2) (21).

Screening tools are rather easy to use, since they consist in structured questionnaires charted either by health care professionals, caregivers, or patients themselves. PHQ-9 is being used in higher income countries as well as in the lower ones (21). Depression screening fits the need of low-resource settings by promoting the task sharing (24).

Theoretically speaking, depression screening implies very low costs, since the process could be easily performed in the context of the routine activity of general practices. Nevertheless, few studies analysed the cost-effectiveness of the screening process.

Some researchers rose concerns on the lack of evidence of screening harmlessness: the psychological consequences of a false positive, as well as the risks and costs of over-diagnosis, require careful in-field analysis (25).

Standardising the diagnostic approach to psychiatric disorders is challenging. The more common screening tools have been developed for adult patients use in Western, high-income countries. Discrepancies have therefore come to light between rigid symptom definitions and different framework of illness depending on the social and cultural background as well as the age of the patients (26,27). Screening tools are flexible enough to be adapted to specific situations.

However, homogeneity must be a priority in order to produce high quality evidence.

The answer to the issues above, and many others, go along with two assumptions. First, screening is useless without in-depth diagnostic confirmation. The results of screening should never be proposed as a diagnosis. On the contrary, the screening process should always include the referral to a Mental Health Professional. Second, our knowledge of screening functioning is limited by the lack of longitudinal studies. Cross-sectional studies have been able to widely validate the screening tools in different countries. From now on, research should be directed toward a better comprehension of the impact of the screening on the efficacy of treatment and the quality of health services.

Screening: a first step against stigma and toward curing

Depression is a pathology largely still affected by stigma in many cultures (2). The administration of a questionnaire might help primary care practitioners to break the wall of stigma.

Screening tools, as the PHQ-9, offer a clear description of the main features of depressive disorders. Patients charting the questionnaire might discover aspects of the illness they have never known. Thus, patients would be able to recognize depressive symptoms in themselves and others and act as caregivers. PHQ-9 administration to adolescents highlighted

the increased self-awareness of depressive symptoms (27). Therefore, depression screening might become a direct way towards therapeutic education, health literacy and patients' empowerment.

Directions for future research

The accuracy of screening tools has been already widely investigated (21). Actual research questions are represented by the efficacy of screening protocols, the impact of screening on patients' life and the cost-effectiveness of a widespread screening program.

It is clear that cross-sectional studies are not adequate to answer those questions and longitudinal protocols must be implemented. Screening protocols should be standardised in order to increase homogeneity across different studies (20). Some lessons can be learned from the literature to be applied in future studies.

The available literature suggests the use of PHQ-8 as a standard screening tool for depression in primary care (23). PHQ-8 is widely used, straightforward and highly consistent with the diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders. A two-stage screening model has been implemented by several studies and should be adopted. Semi-structured diagnostic interview, i.e., the SCID and the SCAN, performed the most accurate diagnoses (28).

The questionnaire can be charted either by the patients themselves or by general practitioners, health care professionals, and lay health workers. The demographic questionnaire should include the past medical history with special stress on mental disorders, known depression risk factors as housing, instruction, employment, and health insurance coverage. Questionnaires should be adapted to be easily understood by all the patients, according to their age, culture and educational level.

Longitudinal protocols should include the most appropriate treatment for each case. Patients should be followed up and outcomes as reduction of morbidity and mortality, reduced DALYs, and increased social functioning, should be measured. The general practitioners would have a key role in explaining the process, revising the screening results, deepening the clinical investigation and reassuring about the possibility of false positives.

Digital technologies have been effectively implemented in only few studies (29). Technology could streamline procedures and make screening sustainable to the organizational needs of primary care practices and speed up data processing (30). Organizational factors, cost-effectiveness and compliance predictors should be properly included in research protocols.

Conclusions

The gap in evidence of primary care depression screening concerns its efficacy rather than its validity or safety. Different skills are necessary to produce high quality scientific evidence. We encourage epidemiologists, psychiatrists, and general practitioners to team up, in accordance with the translational research approach, to address the research questions about depression prevention.

Conflicts of interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

Author contributions: Authors LC, AC, AO, AAg, AE, and AAm wrote the first draft of the manuscript. GS and MA carefully revised the final version of the manuscript. Our manuscript has been approved by all authors.

Acknowledgements: This work was developed within the framework of the DINOGMI Department of Excellence of MIUR 2018-2022 (Law 232/2016).

References

1. World Health Organization. Fact Sheet on Depression 2018 [Available from: http:\\who.int\news-room\fact-sheets\detail\depression].
2. Rehm J, Shield KD. Global Burden of Disease and the Impact of Mental and Addictive Disorders. Curr Psychiatry Rep 2019; 21(2): 10.
3. James SL, Abate D, Abate KH, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. The Lancet 2018; 392(10159): 1789-858.

4. Costanza A, Amerio A, Odone A, et al. Suicide prevention from a public health perspective. What makes life meaningful? The opinion of some suicidal patients. Acta Biomed 2020; 91(3-S): 128-134.
5. Ostertag L, Golay P, Dorogi Y, et al. The implementation and first insights of the French-speaking Swiss programme for monitoring self-harm. Swiss Med Wkly 2019; 149: w20016.
6. Van der Kooy K, van Hout H, Marwijk H, et al. Depression and the risk for cardiovascular diseases: systematic review and meta analysis. Int J Geriatr Psychiatry 2007; 22(7): 613-26.
7. Carnethon MR, Kinder LS, Fair JM, et al. Symptoms of depression as a risk factor for incident diabetes: findings from the National Health and Nutrition Examination Epidemiologic Follow-up Study, 1971-1992. Am J Epidemiol 2003; 158(5): 416-23.
8. Gianfredi V, Blandi L, Cacitti S, et al. Depression and Objectively Measured Physical Activity: A Systematic Review and Meta-Analysis. Int J Environ Res Public Health 2020; 17(10): 3738.
9. Nucci D, Fatigoni C, Amerio A, et al. Red and Processed Meat Consumption and Risk of Depression: A Systematic Review and Meta-Analysis. Int J Environ Res Public Health 2020; 17(18): 6686.
10. Kessler RC, Bromet EJ. The epidemiology of depression across cultures. Annu Rev Public Health 2003; 34: 119-38.
11. Odone A, Landriscina T, Amerio A, Costa G. The impact of the current economic crisis on mental health in Italy: evidence from two representative national surveys. Eur J Public Health 2018; 28 (3): 490-5.
12. The Economist. The Global Crisis of Depression. The Low of 21st Century? Summary Report. The Economist Events. 2014 24th November 2014:14.
13. Ajdacic-Gross V. The Prevention of Mental Disorders has a Bright Future. Front Public Health 2014; 2 (60).
14. Sheehan DV. Depression: underdiagnosed, undertreated, underappreciated. Manag Care 2004; 13(6): 6-8.
15. Serafini G, Lamis D, Canepa G, et al. Differential clinical characteristics and possible predictors of bipolarity in a sample of unipolar and bipolar inpatients. Psychiatry Res 2018; 270: 1099-1104.
16. Costanza A, Amerio A, Radomska M, et al. Suicidality Assessment of the Elderly With Physical Illness in the Emergency Department. Front Psychiatry 2020;11:558974.
17. Acciavatti T, Lupi M, Santacroce R, et al. Novel psychoactive substance consumption is more represented in bipolar disorder than in psychotic disorders: A multicenter-observational study. Hum Psychopharmacol 2017; 32(3).
18. Tonna M, Amerio A, Odone A, et al. Comorbid bipolar disorder and obsessive-compulsive disorder: Which came first? Aust N Z J Psychiatry 2016; 50(7): 695-8.
19. Amerio A, Tonna M, Odone A, et al. Heredity in comorbid bipolar disorder and obsessive-compulsive disorder patients. Shanghai Arch Psychiatry 2015; 27(5): 307-10.
20. Amerio A, Stubbs B, Odone A, et al. Bipolar I and II Disorders; A Systematic Review and Meta-Analysis on Differences in Comorbid Obsessive-Compulsive Disorder. Iran J Psychiatry Behav Sci 2016; 10(3): e3604.
21. El-Den S, Chen TF, Gan YL, et al. The psychometric properties of depression screening tools in primary healthcare settings: A systematic review. J Affect disord 2018; 225: 503-22.
22. Costantini L, Pasquarella C, Odone A, et al. Screening for depression in primary care with Patient Health Questionnaire-9 (PHQ-9): A systematic review. J Affect Disord 2021; 279: 473-483.
23. Wu Y, Levis B, Riehm KE, et al., 2020. Equivalency of the diagnostic accuracy of the PHQ-8 and PHQ-9: a systematic review and individual participant data meta-analysis. Psychol Med 2020; 50(8): 1368-1380.
24. Chen S, Fang Y, Chiu H, et al. Validation of the nine-item Patient Health Questionnaire to screen for major depression in a Chinese primary care population. Asia Pac Psychiatry 2013; 5(2): 61-8.
25. Thombs BD, Coyne JC, Cuijpers P, et al. Rethinking recommendations for screening for depression in primary care. CMAJ 2012; 184(4): 413-8.
26. Chen IP, Liu SI, Huang HC, et al. Validation of the Patient Health Questionnaire for Depression Screening Among the Elderly Patients in Taiwan. Int J Gerontol 2016; 10(4): 193-7.
27. Bhatta S, Champion JD, Young C, et al. Outcomes of Depression Screening Among Adolescents Accessing School-based Pediatric Primary Care Clinic Services. J Pediatric Nurs 2018; 38: 8-14.
28. Levis B, Benedetti A, Riehm KE, et al. Probability of major depression diagnostic classification using semi-structured versus fully structured diagnostic interviews. Br J Psychiatry 2018; 212(6): 377-85.
29. Aalsma MC, Zerr AM, Etter DJ, et al. Physician Intervention to Positive Depression Screens Among Adolescents in Primary Care. Journal Adolesc Health 2018; 62(2): 212-8.
30. Costanza A, Mazzola V, Radomska M, et al. Who Consult an Adult Psychiatric Emergency Department? Pertinence of Admissions and Opportunities for Telepsychiatry. Medicina (Kaunas) 2020; 56(6): 295.

Correspondence:
Received: 25 March 2021
Accepted: 7 April 2021
Andrea AMERIO, Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics, Maternal and Child Health (DINOGMI), Section of Psychiatry, University of Genoa, IRCCS San Martino, Largo Rosanna Benzi 10, 16100, Genova, Italy. Phone: +39 0103537668.
Fax: +39 0103537669.
Email: andrea.amerio@unige.it