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RESEARCH ARTICLE

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Identifying core stigmatizing beliefs about depression: results from an item-level statistical approach

Jana Chihai¹, Andrei Esanu^{1*}, Igor Nastas^{1,2}, Inga Deliv¹, Alina Bologan¹, Cornelia Adeola¹, Radislav Coşulean², Madalina Bivol², Mihaela Belous², Dorin Jelaga¹, Romil Popescu¹

¹Department of Mental Health, Medical Psychology and Psychotherapy, *Nicolae Testemițanu* State University of Medicine and Pharmacy, Chisinau, Republic of Moldova

²Mental Health Laboratory, Brain Research Center, *Nicolae Testemițanu* State University of Medicine and Pharmacy, Chisinau, Republic of Moldova

ABSTRACT

Introduction. Stigma surrounding depression continues to be a major barrier to treatment, social inclusion, and recovery. While general attitudes toward mental illness have been widely studied, fewer investigations have focused on the specific beliefs that drive stigma toward individuals with depression in a low- and middle-income country (LMIC) in Eastern European settings, particularly in Moldova.

Material and methods. A cross-sectional study was conducted with a sample of 460 participants from Moldova, who completed the Depression Stigma Scale. Each of the nine items reflected a different stigmatizing belief about depression. Descriptive statistics, including mean scores and standard deviations, were calculated for each item. An item-level comparative analysis was performed.

Results. The highest stigma scores were recorded for items such as: “I would not employ someone if I knew they had been depressed”, “Depression is not a real medical illness”, and “Depression is a sign of personal weakness.” The lowest scores were observed for beliefs related to dangerousness and avoidance, including “People with depression are dangerous” and “It is best to avoid people with depression so you don’t become depressed yourself.” These results suggest that stigma in Moldova is predominantly characterized by doubts about the medical legitimacy of depression and concerns over professional roles, rather than fear-based or exclusionary attitudes.

Conclusions. Anti-stigma interventions in LMICs, such as Moldova should prioritize improving public understanding of depression as a legitimate health condition and addressing discrimination in professional settings.

Keywords: depression, stigma, discrimination, mental health, LMIC.

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***Corresponding author:** Andrei Eşanu, PhD, MD, assistant professor Department of Mental Health, Medical Psychology and Psychotherapy *Nicolae Testemițanu* State University of Medicine and Pharmacy 165, Ștefan cel Mare și Sfânt blvd, Chişinău, Republic of Moldova, MD 2004 e-mail: andrei.esanu@usmf.md

Authors' ORCID IDs

Jana Chihai – <https://orcid.org/0000-0002-7720-5544>

Andrei Eşanu – <https://orcid.org/0000-0003-1289-4622>

Igor Nastas – <https://orcid.org/0000-0001-8751-9101>

Inga Deliv – <https://orcid.org/0000-0001-6080-9256>

Alina Bologan – <https://orcid.org/0000-0002-1771-7476>

Cornelia Adeola – <https://orcid.org/0009-0002-0728-9196>

Key messages

What is not yet known on the issue addressed in the submitted manuscript

While the stigma associated with depression has been widely examined in high-income countries, there is limited evidence from low- and middle-income countries (LMICs), particularly in Eastern Europe. Most existing studies in these settings focus on mental illness stigma in general and report aggregated stigma scores, without exploring the specific beliefs that drive stigma toward depression. As a result, the structure, content, and sociodemographic variation of depression-specific stigma remain poorly understood in LMIC contexts.

The research hypothesis

The hypothesis is that, in a low- and middle-income country (LMIC) such as the Republic of Moldova, public stigma toward de-

Radislav Coşulean – <https://orcid.org/0000-0001-8699-6862>

Madalina Bivol – <https://orcid.org/0009-0005-2827-9992>

Mihaela Belous – <https://orcid.org/0000-0002-2597-1060>

Dorin Jelaga – <https://orcid.org/0009-0004-7761-450X>

Romil Popescu – <https://orcid.org/0009-0007-6414-7377>

pression reflects a heterogeneous pattern of beliefs, with certain stigmatizing attitudes more frequently endorsed than others and varying across sociodemographic groups.

The novelty added by manuscript to the already published scientific literature

This study is the first to apply an item-level analysis of the Depression Stigma Scale (DSS) in a low- and middle-income country in Eastern Europe. By identifying the most frequently endorsed stigmatizing beliefs and examining their variation by demographic characteristics, the manuscript provides granular, context-specific evidence. These findings go beyond general stigma assessments and contribute directly to the development of targeted anti-stigma strategies adapted to LMICs.

Introduction

Depression is one of the most prevalent mental health conditions globally, with significant personal, social, and economic consequences. According to the World Health Organization, more than 280 million people are affected by depression worldwide, making it a leading cause of disability and a major contributor to the global burden of disease. Despite advances in mental health care and increased awareness, stigma remains a significant barrier to help-seeking, diagnosis, and treatment adherence among individuals with depression [1-3].

Stigmatization of depression manifests through negative stereotypes, prejudice, and discriminatory behavior directed at those experiencing the condition. Such beliefs may include the perception that people with depression are weak, unreliable, or dangerous, or that depression is not a real illness but rather a matter of personal will [2]. This stigmatization not only impairs the quality of life of those affected but also contributes to social exclusion, workplace discrimination, and internalized shame or self-stigma.

In Eastern European low- and middle-income countries (LMIC) such as the Republic of Moldova, research on mental health stigma remains limited, particularly in relation to depression. Historical neglect of mental health, limited access to services, and culturally embedded misconceptions contribute to the persistence of stigmatizing beliefs in this region [4, 5]. In Moldova, although reforms in mental health care have been initiated, public attitudes continue to reflect fear, misunderstanding, and reluctance to engage with individuals who suffer from depression.

Existing studies tend to focus on general stigma toward mental illness, often without differentiating between disorders. However, depression-specific stigma may take unique forms, especially regarding perceptions of functionality, employability, or moral character. Identifying which specific beliefs are most prevalent is essential for designing targeted anti-stigma interventions. Item-level analysis of validated instruments such as the Depression Stigma Scale (DSS) can provide deeper insights into the patterns of belief within a given population and guide context-sensitive strategies for stigma reduction [2, 6].

This article presents the results of an item-level statistical analysis of the DSS applied to a Moldovan sample, aiming to identify the core stigmatizing beliefs about depression in the general population. The findings may inform national efforts and those in similar LMICs regarding public education, workplace inclusion, and mental health policy.

This study aims to identify the core stigmatizing beliefs about depression in the general population of the Republic of Moldova through an item-level statistical analysis of the Depression Stigma Scale.

Material and methods

This cross-sectional study was conducted on a convenience sample of 476 adult participants from various regions of the Republic of Moldova. Inclusion criteria were: age ≥ 18 years, informed consent to participate. Individuals with a known diagnosis of psychotic disorders or cognitive impairment were excluded.

The study was approved by the Research Ethics Committee of *Nicolae Testemițanu* State University of Medicine and Pharmacy (minutes No 44, from 29.05.2024), and all participants provided written informed consent.

To assess stigmatizing beliefs about depression, the Depression Stigma Scale (DSS) was used, which contains 9 items measuring the extent of agreement with commonly held stigmatizing beliefs (e.g., “Depression is a sign of personal weakness”, “I would not employ someone if I knew they had been depressed”, “Depression is not a real medical illness”). Responses were recorded on a 5-point Likert scale from 0 (“strongly disagree”) to 4 (“strongly agree”).

Sociodemographic data were also collected, including age, gender, education, employment status, income, marital status, and urban/rural residence.

Descriptive statistics (mean, standard deviation, minimum, maximum) were calculated for each of the 9 DSS items. Item-level analysis was conducted to examine the distribution and intensity of stigma-related beliefs. Results were presented in the form of bar plots for visualization.

Although the analysis focused primarily on descriptive patterns, inferential comparisons between items were also explored to identify statistically significant dif-

ferences in the endorsement of specific beliefs. Data were analyzed using SPSS version 24.0, with a significance level set at $p < 0.05$.

Results

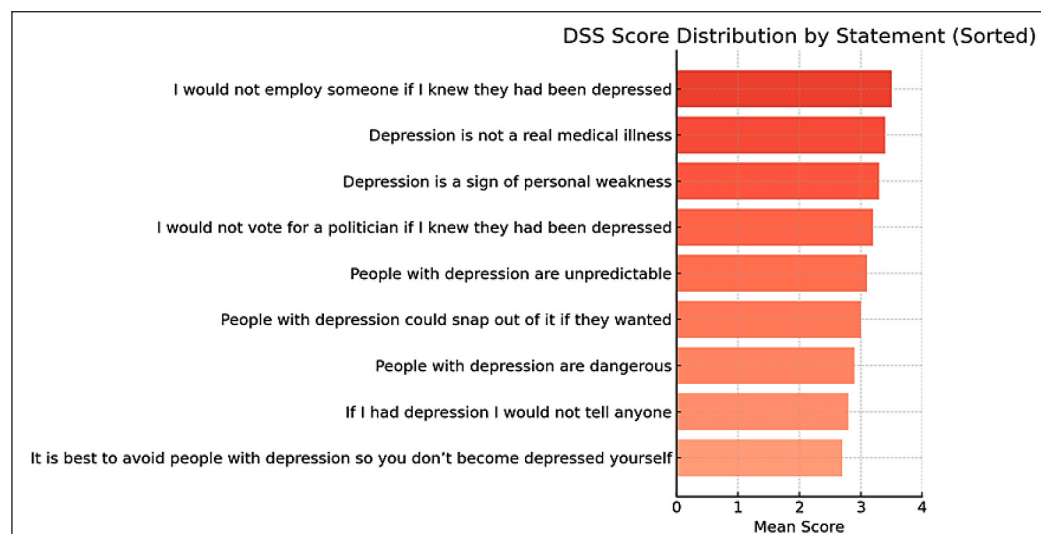
A total of 476 individuals participated in this cross-sectional study on stigma toward depression in the Republic of Moldova. The sample included 301 urban residents (63.2%) and 175 rural residents (36.8%), reflecting the geographic distribution of the population and mental health service access. Participants were recruited from 10 administrative units across the country, including both major urban centers (e.g., Chişinău and Bălţi) and smaller districts (e.g., Orhei, Călăraşi, Ialoveni), to ensure diversity in socio-demographic backgrounds.

The sample was composed of 281 women (59%) and 195 men (41%), with ages ranging from 18 to 65 years (mean age = 34.5 years). Educational attainment was distributed as follows: 36.3% ($n = 173$) had completed 9 years of school, 25.2% ($n = 120$) had finished 12 years or vocational school, 19.1% ($n = 91$) had graduated from college, and 10.9% ($n = 52$) held a university degree. A small proportion, 8.4% ($n = 40$), reported having completed only primary education.

This stratified sampling approach was designed to ensure representation across key sociodemographic groups relevant to mental health literacy and stigma. It also allowed for later analysis of stigma variation by gender, education, and area of residence.

Fig. 1 Mean scores for stigmatizing beliefs about depression

Note: The chart displays the average agreement level (on a 0–4 Likert scale) with each of the nine DSS items, sorted from highest to lowest mean score. Higher scores indicate stronger endorsement of the respective stigmatizing belief.



Analysis of stigma variation by gender revealed that men had significantly higher agreement with items suggesting dangerousness and unpredictability. For example, the average score for “People with depression are dangerous” among men was 2.1, compared to 1.6 among women ($p < 0.01$).

Educational level also influenced stigma levels. Respondents with only secondary education were more likely to agree with stigmatizing statements such as “Depression is not a real medical illness” (mean score 3.7 vs. 2.9 among those with higher education; $p < 0.001$).

Urban respondents generally showed lower stigma lev-

The Depression Stigma Scale (DSS) was used to assess the level of stigmatizing beliefs toward people with depression. The analysis of item-level responses revealed that the highest agreement rates were observed for the following items: “People with depression could snap out of it if they wanted”, “Depression is a sign of personal weakness”, and “Depression is not a real medical illness”. These beliefs suggest a persistent conceptual stigma, in which depression is perceived as a lack of willpower or not being a genuine illness.

High scores were also recorded for item – “I would not employ someone if I knew they had been depressed”, suggesting occupational stigma and the belief that individuals with depression are unfit for professional roles.

Conversely, the items with the lowest levels of agreement were: “People with depression are dangerous”, “It is best to avoid people with depression so you don’t become depressed yourself”, and “People with depression are unpredictable”, indicating that fear-based and avoidance-related stigma were less prevalent in this sample.

The average score for the item “People with depression could snap out of it if they wanted” was 3.4 (on a 5-point scale), whereas “People with depression are dangerous” had a mean score of just 1.8. This confirms that the dominant stigma in the Moldovan context tends to be conceptual and occupational rather than fear-based or exclusionary.

els across most items compared to rural respondents, particularly on items relating to avoidance and employment discrimination.

In terms of self-stigma, items “If I had depression I would not tell anyone” and “I would not vote for a politician if I knew they had been depressed” – revealed moderate agreement, suggesting a significant degree of anticipated discrimination and secrecy.

The internal consistency of the scale was high (Cronbach’s Alpha = 0.91), confirming the reliability of the instrument in the Moldovan context.

Discussion

This study provides a comprehensive analysis of public attitudes toward depression in a representative sample in the Republic of Moldova, using the Depression Stigma Scale (DSS). The results reveal that stigmatizing beliefs remain prevalent, particularly those that conceptualize depression as a personal weakness or a lack of willpower. The most frequently endorsed items were: "People with depression could snap out of it if they wanted," "Depression is a sign of personal weakness," and "Depression is not a real medical illness." These findings align with prior research highlighting the persistence of conceptual stigma in LMICs, where mental illness is often viewed through a moral or characterological lens rather than a biomedical one [2, 7, 8].

Moreover, the relatively high agreement with occupational stigma – such as "I would not employ someone if I knew they had been depressed" – indicates that discriminatory attitudes may translate into tangible social and economic exclusion. This echoes findings from studies conducted in LMICs, including in Eastern Europe, where mental illness is still associated with reduced trust in competence and productivity [3, 9, 10].

Conversely, items reflecting fear-based and avoidance stigma (e.g., "People with depression are dangerous" and "It is best to avoid people with depression") were less frequently endorsed. This pattern suggests that although respondents may not view individuals with depression as threatening, they still hold beliefs that contribute to marginalization and discrimination, especially in the workforce and public life [9, 11, 12].

The analysis also demonstrated statistically significant variations in stigma levels across sociodemographic groups. Male respondents exhibited higher endorsement of beliefs related to dangerousness and unpredictability, consistent with gender-based differences observed in international literature. Educational attainment was inversely associated with stigma, with individuals holding only secondary education more likely to deny the medical legitimacy of depression. Similarly, stigma scores were higher among respondents residing in rural areas, supporting evidence that urban environments may provide greater exposure to mental health information and services [13, 14].

Self-stigmatizing attitudes were also evident. Items such as "If I had depression, I would not tell anyone" and "I would not vote for a politician if I knew they had been depressed" revealed moderate levels of internalized stigma and anticipated discrimination. These beliefs are of particular concern, as self-stigma has been shown to negatively impact help-seeking behavior and adherence to treatment [15-17].

The internal consistency of the DSS was high (Cronbach's Alpha = 0.91), confirming its reliability for use in the Moldovan context. The item-level analysis allowed for a nuanced understanding of specific stigma domains – conceptual, occupational, fear-based, and self-stigma – highlighting the complex ways in which public perceptions about depression are structured [18].

Taken together, these findings underscore the need for adapted anti-stigma interventions in LMICs, such as Re-

public of Moldova. Efforts should focus on increasing mental health literacy, challenging harmful stereotypes, and promoting recovery-oriented narratives. Special attention should be given to men, individuals with lower educational attainment, and rural communities, where stigma levels are highest. Public health campaigns, inclusion of mental health education in school curricula, and peer-led awareness initiatives may serve as effective tools for reducing stigma [19-21].

Future research should explore causal pathways through longitudinal designs and assess the effectiveness of anti-stigma programs in LMIC settings. Additionally, qualitative studies may offer deeper insights into the lived experiences of individuals affected by depression and stigma.

Conclusions

This study provides the first item-level analysis of depression stigma in the Republic of Moldova, offering a nuanced understanding of the specific beliefs that sustain stigma in a low- and middle-income country context. The findings reveal that the most strongly endorsed beliefs relate to questioning the medical legitimacy of depression, attributing it to personal weakness, and concerns about the employability of individuals with depression. In contrast, fear-based beliefs, such as the idea that people with depression are dangerous or should be avoided, were less commonly held. These insights represent a valuable contribution to the evidence base needed to design targeted and culturally adapted anti-stigma interventions in LMICs.

Competing interests

None declared.

Authors' contribution

JC conceived the study, led the study design, coordinated the data collection process, and drafted the manuscript. AE contributed to the study design, supervised the analysis, and revised the manuscript critically. IN performed statistical analysis and supported interpretation of the findings. ID and AB participated in data collection and contributed to manuscript preparation. CA and RC assisted with participant recruitment and data entry. MB, MBeI, and DJ conducted literature review and formatting. RP contributed to data visualization and statistical validation. All authors reviewed the manuscript critically and approved the final version for publication.

Informed consent for publication

Obtained.

Ethics approval

The study was approved by the Research Ethics Committee of *Nicolae Testemițanu* State University of Medicine and Pharmacy (minutes No 44, from 29.05.2024).

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