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Depression and Its Correlates in Older Adults in Ukraine

Nathan Tintle,

Department of Mathematics, Hope College, Holland, Michigan

Branden Bacon,

Departments of Mathematics and Psychology, Hope College, Holland, Michigan

Stanislav Kostyuchenko,

Department of Psychiatry, National Medical Academy of Postgraduate Education, Kyiv, Ukraine

Zinoviy Gutkovich, and

Department of Psychiatry, St. Luke's Roosevelt Hospitals, New York, NY

Evelyn J. Bromet*

Department of Psychiatry, Stony Brook University, New York

Abstract

Objective—Little is known about the epidemiology of late life depression in Eastern Europe. This study examined the 12-month prevalence and correlates of DSM-IV major depressive episode (MDE) in adults age 50 years and over in Ukraine. The correlates included demographic factors, mental health and alcohol history, physical conditions, and impairments in functioning.

Methods—A cross-sectional survey was conducted in Ukraine using the Composite International Diagnostic Interview (CIDI-3.0) as part of the World Health Organization-World Mental Health Survey Initiative. The sample included 1,843 respondents age 50–91. Unadjusted and adjusted odds ratios were used to examine associations of the risk factors with 12-month MDE in men and women separately.

Results—The 12-month prevalence of MDE was 14.4% in women and 7.1% in men. In both sexes, history of MDE before age 50 and poor self-assessed mental/physical health were significantly associated with MDE. Additionally, in men, living alone, 5+ physician visits, and role impairment, but not alcoholism, were associated with depression; in women, poverty, history of anxiety disorder, medical conditions, and cognitive and self-care impairment were significant.

Conclusions—The 12-month prevalence of late life MDE was substantially higher in Ukraine than in Western Europe and other developed countries. The risk factors, however, were similar to those found outside Ukraine. Depression is a recurrent condition, and history of depression was the strongest risk factor. Overall, the results show that older people in Ukraine constitute a high risk group for MDE and would therefore benefit from targeted interventions by primary care physicians.

*Corresponding author: E. J. Bromet, Putnam Hall-South Campus, Stony Brook, NY 11794-8790, Fax: 631 632 9433
evelyn.bromet@stonybrook.edu.

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Keywords

major depression; late life depression; Ukraine; risk factors; living alone; poverty

INTRODUCTION

The rate of depression increases with age in Eastern Europe (Bromet *et al.*, 2005; Bromet *et al.*, 2008; Hrabá *et al.*, 1997; Pakriev *et al.*, 1998) in contrast to the inverse association found in Western Europe (e.g., Alonso *et al.*, 2004), the US (e.g., Kessler, Birnbaum, Bromet *et al.*, 2010), and other developed countries (Kessler, Birnbaum, Shahly *et al.*, 2010). The specific rate of depression in older adults depends on the age distribution of the study population and the operational definition of clinical depression (Beekman *et al.*, 1997; Blazer 2003; Bonnewyn *et al.*, 2009; Djernes 2006; McDougall *et al.*, 2007; Newman *et al.*, 1998; Prince *et al.*, 1997). Thus, the rates of depression for people age 65 and over in the EURODEP surveys ranged from 8.8% (Iceland) to 23.5% (Munich) (Copeland *et al.*, 2004). In contrast, the World Health Organization (WHO) World Mental Health (WMH) Survey Initiative found that among 6 European countries, the 12-month prevalence of DSM-IV MDE measured with the Composite International Diagnostic Interview (CIDI) ranged from 2.9% (Germany) to 5.8% (Belgium) for adults ages 50–64 and 1.3% (Germany) to 3.6% (Spain) for respondents 65 and older (Kessler, Birnbaum, Shahly *et al.*, 2010). In contrast, the 12-month prevalence estimates for Ukraine, the only Eastern European WMH country in the report, were 10.1% in 50–64 year olds and 13.5% in adults age 65 and older.

We located only two other population-based studies of depression in older adults in Eastern Europe. The first, conducted in a rural area of Russia, found that for adults 50–65 years of age, the 12-month prevalence of ICD-10 depression was 37.0% based on the CIDI (Pakriev *et al.*, 1998). The second survey assessed 45–64 year olds in three urban areas with the Center for Epidemiologic Studies-Depression Scale (Bobak *et al.*, 2006); using a cut-point of 16, the rates ranged from 18.7% for men in the Czech Republic to 43.9% for women in Russia. Neither study sampled people over the age of 65.

Even less is known about the risk factors for depression among older adults in Eastern Europe although the high rate is assumed to reflect the high levels of poverty, alcoholism, disability, and poor physical health (Balabanova & McKee 2002; Bobak *et al.*, 2004; Gilmore *et al.*, 2002). In a pooled analysis, Bobak *et al.* (2006) found that female gender, being unmarried, poverty, high dose of alcohol, and university education in Russia were significantly associated with depression (Bobak *et al.*, 2006). Western studies have also consistently found living alone, history of mental health problems, poor physical health (particularly chronic pain), greater number of physician visits, and disability to be strongly correlated with late life depression (e.g., Beekman *et al.*, 1999; Blazer 2003; Bonnewyn *et al.*, 2009; Castro-Costa *et al.*, 2007; Djernes 2006; McDougall *et al.*, 2007; Menchetti *et al.*, 2006; Prince *et al.*, 1997; Prince *et al.*, 1999). Obviously, risk factors such as poor physical health and disability overlap and need to be examined in multivariable models (McDougall *et al.*, 2007).

This paper presents findings on the epidemiology of 12-month MDE in respondents age 50+ in the Ukraine-World Mental Health Survey (Ukraine-WMH). The study was conducted in 2002, when life expectancy was 72 for women and 61 for men. We therefore stratified the sample to identify sex-specific risk factors for late life depression.

METHODS

The Ukraine-WMH is a face-to-face household survey with a nationally representative sample ages 18+ from the 24 oblasts (states) and the republic of Crimea (Bromet *et al.*, 2005) conducted as part of the WHO-WMH cross-national research initiative (Kessler and Üstün, 2008). The survey was cross-sectional and employed a four-tier multi-stage cluster sampling design (Bromet *et al.*, 2005; Bromet *et al.*, 2008). The response rate was 78.3%. The sample (n=4,725) included 1,843 respondents age 50–91 who are the focus of this report.

Recruitment and consent procedures were approved by the Committee on Research Involving Human Subjects of Stony Brook University and by institutional review boards at the Kiev International Institute of Sociology which conducted the household survey and the Ukrainian Psychiatric Association which conducted a clinical reappraisal study. Written informed consent was obtained.

Measures

The data were gathered using the Composite International Diagnostic Interview (CIDI) version 3 translated into Russian and Ukrainian using WHO-approved forward and back translation procedures (Kessler & Üstün 2008). The interviewers were trained and monitored by a certified CIDI trainer (for details, see Bromet *et al.*, 2005). The CIDI was divided into two parts. All respondents completed Part I, assessing a core set of DSM-IV disorders, including MDE. Part II was administered to respondents with a mood or anxiety disorder or alcohol dependence plus a 16% probability subsample of the remainder. Part II contained additional risk factors examined in this report.

The diagnosis of MDE had good reliability in Europe and the US (Haro et al., 2006). In the clinical reappraisal study conducted in Ukraine (n=150), the kappa was 0.72 between psychiatrist interviews with the Structured Clinical Interview for DSM-IV [First *et al.* 2002] and the CIDI/MDE.

Demographic data included gender, age, current employment status (employed, not working), living arrangement (with spouse, with other relatives but not spouse, alone), education (high school, more education); poverty (not having enough money for food vs adequate money for food), rural vs urban dwelling, and region (Eastern, Central, or Western Ukraine).

The mental health risk factors included episodes before age 50 of DSM-IV MDE, anxiety disorder (panic disorder, agoraphobia without panic disorder, social phobia, generalized anxiety disorder), and alcohol abuse with or without dependence. We also assessed global self-rated mental and physical health on a 5-point scale dichotomized into poor/very poor

and satisfactory, good, or excellent. Physical disorders were assessed with a standard checklist of 14 disorders that was summarized into presence/absence of 3 broad conditions: (1) pain (arthritis or rheumatism, chronic back or neck problems, frequent/severe headaches or any other chronic pain condition over the last 12 months); (2) cardiovascular disease (stroke or heart attack within the last 12 months or lifetime diagnosis of heart disease or high blood pressure); and (3) other lifetime conditions (asthma, tuberculosis, other chronic lung disease, diabetes, ulcer, thyroid disease, neurological disorders, epilepsy, kidney disease, liver disease, or cancer). This section of the CIDI also asked about number of visits in the past 12 months to a general medical or family doctor, psychiatrist, and other medical specialists. The majority (55.6%) saw a physician at least once in the year before interview. We dichotomized total number of visits into the top decile (≥ 5) vs fewer visits. Impairment was determined from the WHO Disability Assessment Scale (WHO-DAS; Buist-Bouwman *et al.*, 2006) and included role impairment (dichotomized into impairment in normal activities occurring for at least 50% of the time versus less impairment), and impairment in cognitive functioning (difficulties with concentration, memory, understanding, or ability to think clearly), mobility (difficulties standing for long periods, moving around inside the home, getting out of the home), self-care (washing, getting dressed, eating), and social interactions (getting along with people, maintaining a normal social life, participating in social activities).

Analysis

Comparisons between men and women were evaluated using chi squared tests. Unadjusted odds ratios (OR) and ORs adjusted for other variables within and across specific domains were used to evaluate the associations of the risk factors with MDE. The Part I sample (n=1843) and Part II sub-sample (n=670) were weighted to approximate the population distribution of Ukraine on key demographic variables and selection into Part II of the CIDI (Bromet *et al.*, 2005). The chi squared and logistic regression analyses were conducted using SUDAAN (2003) to adjust the standard errors because of the clustered sampling design.

RESULTS

Sample characteristics

The weighted sample included 733 men and 1110 women with a median age of 63 (IQR=56–71). As shown in Table 1, almost 30% were over 70 years of age. The majority lived with their spouse (especially men), were high school graduates, no longer worked, and lived in Eastern and Central Ukraine. One-third lived in rural areas. As expected, the women were significantly older than the men. The women were also less likely to be employed and to live with their spouse (13.5% of women vs 3.9% of men were widowed). Moreover, the women were more likely to be living in poverty (48.3%) although this was true for a substantial proportion of both the men (30.7%) as well.

With respect to the other risk factors examined, 36.6% of the sample rated their mental/physical health as poor or very poor (42.4% of women and 27.8% of men). The majority of the sample reported one or more of the pain (86.6% of women and 64.4% of men) and cardiovascular (68.3% of women and 46.1% of men) conditions. Close to half of the sample

reported other diagnoses (54.1% of women, 40.1% of men). The most commonly reported were kidney and liver disease in women and kidney disease and ulcer in the men. A small number of respondents, 2.7% of women and 2.6% of men, had been diagnosed with cancer. The most frequent form of impairment was mobility (36.3% of women and 20.2% of men); the least frequent was social interactions (7.2% of women and 2.6% of men).

Prevalence of MDE

The 12-month prevalence of MDE (11.5% overall) was significantly higher in women (14.4%) than men (7.1%) ($\chi^2 = 28.4$, $p < 0.001$). The rates did not vary significantly by age cohort. In women, the rates were 12.2% (age 50–59), 15.6% (age 60–69), and 15.2% (age 70+); in men, they were 6.0% (age 50–59), 9.3% (age 60–69), and 5.7% (age 70+).

The median age of onset was 36 (IQR 22–50) and was similar for the men and the women. However, the rate of MDE before age 50 was twice as high in women (17.9%) compared to men (8.9%) ($\chi^2 = 49.7$, $p < 0.001$).

Demographic and mental health risk factors

Among men, the two demographic characteristics associated with an increased risk of MDE were living alone and living in poverty. After adjusting for all demographic variables, only living alone (vs with spouse) remained significant, with the rate of depression being four-fold higher in the men living alone (aOR=3.8). Among women, living alone, lower education, and poverty were significantly associated with MDE. In the model adjusting for all demographic variables, only poverty remained significant (aOR=1.4).

The bottom section of Table 2 (Block 2) shows that in both men and women, MDE and anxiety disorders before age 50 and poor self-rated mental/physical health were significantly associated with past year MDE. DSM IV alcohol use disorder was not a significant predictor. The adjusted analyses included the 4 mental health indicators as well as the demographic variables (age, employment, living arrangement, education, poverty, urbanicity, and region) because of their known relationship with mood disorder (Bromet *et al.*, 2005). We note first that the ORs for the demographic variables were similar to those appearing in Table 2 in these fully adjusted models. Regarding mental health, among men, MDE before age 50 (aOR=117.2) and self-rated mental/physical health (aOR=4.0) remained significant. Among women, prior depression (aOR=28.7) and anxiety (aOR=2.3) as well as self-rated mental/physical health (aOR=2.1) remained strongly associated with MDE. Of note, among the 12-month cases, 20.8% of men and 26.9% of women had no history of MDE before age 50; however, among respondents without a history of MDE, only 1.6% of the men and 4.7% of the women developed MDE during the 12 months prior to interview.

Physical health and impairment in functioning

The top section of Table 3 (Block 1) shows the associations of physician visits and physical health with 12-month MDE in the Part II subsample. Among men, reporting 5+ physician visits in the past year was associated with a 4-fold increase in MDE in both the unadjusted and the adjusted analyses (aOR=4.0). However, pain, cardiovascular disease, and other (medical) conditions were not associated with MDE. In contrast, among women, the

unadjusted analysis found that pain, cardiovascular disease, and other medical problems, but not physician visits, were each associated with MDE. However, when we adjusted for age group and the other medical variables, only “other conditions” remained significant (aOR=1.8).

The bottom section of Table 3 (Block 2) shows the associations of impairment with MDE. Among men, 4 of the 5 domains were significantly associated with depression in the bivariate analysis. After adjustment for all impairment domains, age group, we note first that the ORs for the 4 physical health variables (physician visits, pain conditions, cardiovascular conditions, and other conditions) were similar to those reported in Table 3. With respect to impairment, only role impairment remained significant (aOR=3.1). Among the women, each of the five impairment domains was associated with MDE in the unadjusted analyses, but only cognitive impairment (aOR=3.0) and self-care impairment (aOR=2.6) remained significant in the adjusted model.

Additional analyses

As a final summary of the data, we examined models that included only the significant correlates of depression found in the multivariable models in Tables 2 and 3. The Part II sample was used for these analyses. For men, of the 5 significant risk factors (living arrangement, depression before age 50, self-rated health, number of physician visits, and role impairment), only living alone (aOR 5.9; 95% CI 1.5–23.7; $p<0.05$) and depression before age 50 (aOR 51.3; 95% CI 13.3–198.3; $p<0.001$) remained significant. For women, of the 7 significant risk factors (poverty, depression and anxiety before age 50, self-rated health, other medical conditions, and cognitive and self-care impairment), depression before age 50 (aOR 24.5; 95% CI 12.7–47.1; $p<0.001$), poor self-rated health (aOR 1.9; 95% CI 1.0–3.6; $p<0.05$), and self-care impairment (aOR 1.8; 95% CI 1.1–3.1; $p<0.05$) remained significant.

DISCUSSION

The 12-month prevalence of DSM-IV MDE in older adults in Ukraine was 4 times higher than the average of 2.6% found for the developed countries in the WMH (Kessler, Birnbaum, Shahly *et al.*, 2010). For both men and women, a history of MDE prior to age 50 and poor self-rated mental/physical health were strongly associated with recent episodes of MDE. In men, the other significant risk factors in the multivariable models were living alone, 5+ physician visits in the past year, and role impairment. In women, they were poverty, anxiety before age 50, “other” (non-pain, non-cardiovascular) medical conditions, and impairment in cognition and self-care. Alcohol abuse/dependence prior to age 50 was not a significant risk factor for men or women.

The findings should be viewed within the context of the limitations of the study. The survey did not include institutionalized patients or individuals with severe cognitive or physical disabilities who would not have been able to participate. The sample also reflected survivor bias, a limitation of all population-based studies of older adults and a particular limitation in settings where life expectancy is <70 . The risk factors were not developed specifically for older adults (e.g., Karp *et al.*, 2009) or for former Soviet countries although pilot work

suggested that the measures were understandable and had adequate coverage. The measure of MDE over the life course required participants to recall earlier episodes. Older individuals with memory impairment might have more difficulty accurately remembering when prior episodes first occurred. On the other hand, there were relatively few first onset cases, especially among the men. Lastly, the study was cross-sectional, thus not allowing a determination of the causal direction of the associations.

The finding of a higher 12-month prevalence in Ukraine compared to Western Europe is consistent with the two prior population-based studies in Eastern Europe. With respect to risk factors, the one result that was not in keeping with prior research was the non-significant association of alcoholism history with recent depression. Bobak *et al.* (2006) reported a significant concurrent association between high alcohol intake and depressive symptoms. Our data also included a gender-specific composite measure of heavy alcohol use in the past 12 months (Webb *et al.*, 2005), which like DSM-IV alcohol disorder before age 50, was not significantly associated with past year MDE. We cannot rule out the possibility that our finding is a methodological artifact of bias due to sampling (mortality attributable to alcoholism) or measurement (CIDI/DSM-IV reflects western notions of abuse and dependence that might have generated a large number of false negatives in this sample). Regardless, our finding suggests that in the search for high risk groups for depression among older adults in Ukraine, drinking and alcoholism would not be at the top of the priority list.

Our findings about the significance of living alone are consistent with the report by Wilson *et al.* (2007) showing an association between not living close to family and depressive symptoms. In our sample, close to half of the people who lived alone were 70 years and older. This age group also had the highest rate of impairment across each domain. Living alone was a particularly strong correlate for men even though relatively more women lived alone.

In the adjusted analyses, the risk factors were sex-specific apart from history of depression and poor self-assessed mental/physical health. Twice as many women as men had an onset of depression before age 50, and overall there were few incident cases of depression after age 50. Thus people who experienced depression earlier in life ran a large risk of having recurrent episodes later in life. It is possible that this finding is due to recall bias in that people who are currently depressed would be more likely to remember prior episodes compared to people who are not currently depressed (Bromet *et al.* 1986). However, the data underscore the fact that depression is a recurrent disorder, and an earlier episode, which in Ukraine was by and large untreated (Bromet *et al.*, 2008), is the strongest risk factor for subsequent episodes (Barry *et al.* 2008).

The associations of medical conditions, physician visits, and functional impairment with MDE were consistent with previous reports (e.g., Beekman *et al.*, 1997; Bonnewyn *et al.*, 2009; Charney *et al.* 2003; Menchetti *et al.*, 2006; Prince *et al.* 1997) but the direction of these associations cannot be determined from our cross-sectional study. Although many of the medical conditions were lifetime, most of the depressive episodes occurred in people who had a history of depression, as noted above. Prince *et al.* (1997) emphasized that the measurement of depression is confounded with physical health and that the association

between depression and impairment is reciprocal. Longitudinal research focused on older adults in former Soviet countries is required to disentangle these complex associations. Overall, quality of life among the elderly in Ukraine, particularly those in poor health and experiencing functional impairments, and the quality of medical care at the time the survey was conducted, were suboptimal. In this respect, regardless of issues of causality, the findings highlight the parallels in the epidemiologic correlates of late life depression in Ukraine compared with other European studies and provide useful information for targeting high risk groups.

CLINICAL IMPLICATIONS

This representative survey of Ukraine shows that the rate of depression in older adults is considerably higher than the rates found in Western Europe although the risk factors are quite similar. In Ukraine, primary care physicians have almost no training in the recognition and treatment of mental health problems, and outpatient psychiatric services of common mental disorders like depression are practically non-existent (Gluzman & Kostyuchenko, 2006). Given the high rate of depression, older adults in Ukraine constitute a high risk group for whom effective interventions are urgently needed. Public health initiatives to increase awareness of depression and its treatment, particularly among general practitioners, would be an important first step (Paykel, 2006). Because mental health problems are under-detected and highly stigmatized in Ukraine, physicians need to design a supportive set of interventions that is integrated within routine health care so as to reduce the morbidity associated with MDE. Men who live alone or frequently seek medical attention and women living in poverty or diagnosed by their physicians with multiple conditions are readily identifiable high risk groups.

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Key points

- The 12-month prevalence of depression in adults age 50+ in Ukraine was 11.5%, and was twice as high in women (14.4%) compared to men (7.1%).
- History of depression and poor self-assessed mental/physical health increased the risk of MDE in both sexes.
- Other key risk factors from adjusted models were living alone, 5+ physician visits in the past year, and role impairment for men; and poverty, history of anxiety disorder, medical conditions, and cognitive and self-care impairment for women.

Table 1

Demographic characteristics of the sample (weighted data)

	Total N=1843 %	Men N=733 %	Women N=1110 %	χ^2 (df)
Age				
50–59	35.1	39.7	32.0	13.2 (2) ***
60–69	35.8	37.5	34.7	
70+	29.1	22.8	33.3	
Employed	28.1	38.1	21.5	58.1 (1) ***
Living arrangement				
With spouse	62.0	82.7	48.4	113.5 (2) ***
With other	16.9	6.3	23.9	
Alone	21.0	11.0	27.6	
Education, high school or less	62.9	59.8	64.9	3.4 (1)
Poverty	41.3	30.7	48.3	47.3 (1) ***
Urbanicity, rural	35.2	35.1	35.3	0.0 (1)
Region				
Eastern	44.1	46.1	42.8	3.5 (2) *
Central	36.0	32.7	38.2	
Western	19.9	21.3	19.0	

*
 $p < 0.05$,**
 $p < 0.01$,***
 $p < 0.001$

Table 2

Associations of demographic and mental health risk factors with 12-month DSM-IV major depressive episode (MDE)

	Men		Women	
	OR (95% CI)	aOR (95% CI)	OR (95% CI)	aOR (95% CI)
Block 1. Demographics^a				
Age				
50–59	1.0	1.0	1.0	1.0
60–69	1.6 (0.8, 3.1)	1.1 (0.4, 2.9)	1.3 (0.8, 2.1)	1.0 (0.6, 1.7)
70+	1.0 (0.4, 2.2)	0.6 (0.2, 1.7)	1.3 (0.8, 2.0)	0.9 (0.5, 1.5)
Employed				
Yes	1.0	1.0	1.0	1.0
No	1.5 (0.8, 3.0)	1.5 (0.6, 3.8)	1.6 (1.0, 2.6)	1.4 (0.8, 2.4)
Living arrangement				
With spouse	1.0	1.0	1.0	1.0
With other relatives	1.6 (0.5, 4.8)	1.7 (0.5, 5.6)	1.3 (0.9, 1.9)	1.2 (0.8, 1.8)
Alone	3.8 (2.2, 6.9)***	3.8 (2.0, 7.3)***	1.3 (1.0, 1.7)*	1.2 (0.9, 1.6)
Education				
high school	0.9 (0.5, 1.5)	0.9 (0.5, 1.6)	1.8 (1.1, 2.8)*	1.6 (1.0, 2.5)
>high school	1.0	1.0	1.0	1.0
Poverty				
Yes	1.7 (1.0, 2.9)*	1.5 (0.9, 2.7)	1.6 (1.2, 2.1)***	1.4 (1.1, 1.8)**
No	1.0	1.0	1.0	1.0
Urbanicity				
Rural	1.5 (0.7, 3.3)	1.7 (0.8, 3.6)	1.3 (0.7, 2.4)	1.2 (0.6, 2.2)
Urban	1.0	1.0	1.0	1.0
Region				
East	1.2 (0.4, 3.3)	1.2 (0.4, 3.4)	1.3 (0.8, 1.9)	1.3 (0.8, 2.1)
Central	1.5 (0.5, 4.3)	1.4 (0.5, 4.3)	1.4 (0.8, 2.3)	1.4 (0.8, 2.5)
West	1.0	1.0	1.0	1.0
Block 2. Mental Health^b				
MDE before age 50				
Yes	106.6 (52.0, 218.6)***	117.2 (54.6, 251.4)***	28.9 (16.9, 49.3)***	28.7 (16.3, 50.7)***
No	1.0	1.0	1.0	1.0
Anxiety before age 50				
Yes	7.3 (4.1, 13.1)***	1.8 (0.3, 9.7)	6.1 (3.9, 9.6)***	2.3 (1.3, 4.0)**
No	1.0	1.0	1.0	1.0
Alcohol before age 50				
Yes	1.0 (0.4, 2.4)	0.5 (0.2, 1.7)	1.0 (0.2, 4.2)	0.3 (0.1, 1.4)
No	1.0	1.0	1.0	1.0
Self-rated mental/physical health				

	Men		Women	
	OR (95% CI)	aOR (95% CI)	OR (95% CI)	aOR (95% CI)
Poor	4.0 (2.2, 7.3) ***	3.7 (1.2, 11.6) *	2.5 (1.7, 3.5) ***	2.1 (1.3, 3.4) **
Not poor	1.0	1.0	1.0	1.0

*
 $p < 0.05$,

**
 $p < 0.01$,

 $p < 0.001$

^a The adjusted odds ratios (aOR) for Block 1 adjust for all Block 1 (demographic) variables.

^b The adjusted odds ratios for Block 2 adjust for both Block 1 (demographic) and Block 2 (mental health).

Table 3Associations of medical conditions and functional impairment with 12-month DSM-IV MDE^a

	Males		Females	
	OR	aOR	OR	aOR
Block 1. Medical Conditions^b				
Number of physician visits				
5+	4.3 (1.2, 14.9) *	4.0 (1.2, 13.8) *	1.4 (0.8, 2.5)	1.0 (0.6, 2.0)
0–4	1.0	1.0	1.0	1.0
Pain condition				
Yes	3.5 (0.8, 14.7)	3.2 (0.8, 12.6)	2.5 (1.2, 5.1) *	1.8 (0.8, 3.9)
No	1.0	1.0	1.0	1.0
Cardiovascular condition				
Yes	1.1 (0.5, 2.4)	0.7 (0.4, 1.4)	2.2 (1.2, 4.1) *	1.9 (1.0, 3.7)
No	1.0	1.0	1.0	1.0
Other condition				
Yes	1.4 (0.6, 3.1)	1.1 (0.5, 2.2)	2.1 (1.3, 3.3) **	1.8 (1.1, 3.1) *
No	1.0	1.0	1.0	1.0
Block 2. Impairment^c				
Role impairment				
Substantial	3.6 (1.6, 8.1) **	3.1 (1.1, 8.4) *	2.3 (1.5, 3.5) ***	1.0 (0.6, 1.8)
Limited/None	1.0	1.0	1.0	1.0
Cognitive impairment				
Yes	2.7 (0.6, 11.9)	1.6 (0.3, 8.9)	4.3 (2.1, 8.6) ***	3.0 (1.4, 6.3) **
No	1.0	1.0	1.0	1.0
Mobility impairment				
Yes	2.5 (1.3, 4.9) **	0.8 (0.3, 2.4)	3.1 (1.9, 5.0) ***	1.7 (1.0, 3.0)
No	1.0	1.0	1.0	1.0
Self-care impairment				
Yes	4.3 (1.9, 9.6) ***	2.2 (0.6, 7.6)	4.6 (2.7, 7.9) ***	2.6 (1.3, 5.5) *
No	1.0	1.0	1.0	1.0
Social interactions impairment				
Yes	6.7 (1.5, 30.2) *	3.7 (0.4, 30.6)	2.3 (1.3, 4.0) **	0.6 (0.3, 1.3)
No	1.0	1.0	1.0	1.0

*
 $p < 0.05$,**
 $p < 0.01$,***
 $p < 0.001$ ^aPart II sample (weighted N=670)^bThe adjusted odds ratios (aOR) for Block 1 adjusts for all Block 1 (medical) variables and age cohort.

^cThe adjusted odds ratios for Block 2 adjust for age cohort, Block 1 (medical) and Block 2 (impairment).

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