Associations between depressiveness and psychosocial factors in Lithuanian rural population

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Key words: *depressiveness; social support; stress; suicidal intentions.*

Summary. *Background and objective. Data from various scientific studies all over the world show that depression is becoming one of the biggest health problems in society. The aim of this study was to evaluate characteristics of depressiveness and its associations with psychosocial factors (stress, social support, suicidal intentions) in Lithuanian adult rural population.*

Material and methods. Within the Countrywide Integrated Non-communicable Diseases Intervention (CINDI) program, the survey was carried out in a stratified random sample of population aged 25–64 in 5 rural regions of Lithuania between 2006 and 2007. A total of 1754 participants were examined.

Results. About half (43.8%) of respondents experienced high and moderate levels of depressiveness. Women in comparison to men reported higher levels of depressiveness. The likelihood of depressiveness among women was related to older age, lower education, small social network, lower level of social support, higher level of stress, and suicidal intentions. Whereas, the same indicator among men was associated with older age, lower education, being divorced, small social network, having no social support, higher level of stress, and suicidal intentions.

Conclusions. Depressiveness is highly prevalent among Lithuanian rural population with a higher prevalence among women than men. Older persons and persons with lower education of both genders were more likely to be depressed than younger and more educated persons. Absence of social support, high level of stress, and suicidal intentions were related to higher levels of depressiveness in both genders. Depressiveness was more common among women having a small social network and divorced men.

Introduction

Scientific data confirm the increasing importance of mental and behavior disorders (1, 2). According to the data of the World Health Organization (WHO), depression is the most common mental disorder. It is estimated that depression will be the most common disease in the world by the year 2020 (3, 4). A considerable increase in the number of people suffering from depression has been observed in European countries over the last decade (5, 6). Importance of scientific research in this field was emphasized in the Mental Health Action Plan for Europe adopted by the ministers of health of the Member States in the WHO European region (3).

Subsequently, more attention is paid to research on both depression and depressiveness. Depression is defined as an emotional disorder that presents with depressed mood, slow thinking, and changes in activity. Depressiveness is defined as depressive mental states of various intensities that are in continuum between absence of depression symptoms and clinical depression (7, 8).

Epidemiological research confirms that the prevalence of depression and depressiveness (4 to 6% for clinical depression and about 20% for depressiveness) is high and ranges from 6% to 17% across different European countries (1, 7, 9–11). Therefore, it is important to explore the reasons of inequalities in the prevalence of depression in various countries and different society groups (12–14). It has been proved that depression is caused by a complex interaction of many risk factors; however, the significance of separate risk factors in the development of depression is still being discussed. There are a lot of controversial discussions about the role of environmental and psychosocial factors in the development of depression (15).

Higher levels of depression in developed countries are explained by a decrease of social interrelations and lack of social support (6, 11, 14). It becomes more and more evident that social support and especially personal social network (number of close people) are significant factors influencing overall mental health and successful prevention of

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mental disorders (15). Special attention is being given for the analysis of gender-related differences in studies on depression and depressiveness. There are only a few studies confirming no differences in the prevalence of depression between men and women (16), and more studies have disclosed a higher prevalence of depression among women than men (9, 11, 17, 18). The reasons of gender differences in the prevalence of depressiveness are not completely clear, and the role of psychosocial risk factors is still being discussed.

Numerous studies have been carried out in this field in Western European countries over the last decade (7, 9, 10, 12). However, there is a lack of such studies in Eastern European countries (7, 19). The critical review on size and burden of mental disorders in Europe points out that there are no mental health epidemiological studies in six Eastern European countries, including Lithuania (19). However, such conclusion is not correct. The data on the prevalence of depressiveness in particular social groups in Lithuania are available (20–22). Nevertheless, the available data are insufficient to answer the question about the prevalence of depressiveness among Lithuanian adult population. The main objective of this study was to assess sociodemographic differences in the prevalence of depressiveness among 25–64-year-old Lithuanian rural population and to evaluate associations among depressiveness and social support, daily stress, and suicidal intentions.

Material and methods

The study was carried out within the WHO-coordinated Countrywide Integrated Non-communicable Diseases Intervention program (CINDI) between 2006 and 2007 (23, 24). The inhabitants aged 25–64 from five administrative regions (Kaišiadorys, Kretinga, Kupiškis, Joniškis, and Varėna) participated in the study. Two hundred people (100 women and 100 men) were selected in each region. The independent random samples, stratified by gender and 10-year age groups (25 to 34 years; 35 to 44 years; 45 to 54 years; 55 to 64 years), were drawn from the lists of the inhabitants registered at primary health care centers. A detailed sampling procedure was presented previously (24). A total of 1754 persons were enrolled into this study on mental health. Educational status was measured by four educational levels: incomplete secondary, secondary, vocational, and university. Marital status was assessed by asking whether subjects were married/cohabiting, single, divorced, or widowed.

For the evaluation of mental health status, a questionnaire was elaborated by the authors, and it included a few scales. The Beck Depression Inventory (BDI) was used to assess depressiveness (25). This 21-item self-report instrument is widely used in scientific research both in Lithuania and abroad as well as in clinical practice (21, 22, 26). Each item is rated on a 4-point scale (from 0 to 3) with total scores ranging from 0 to 63. Higher scores indicate more expressed symptoms of depressiveness. For data interpretation, depressiveness was evaluated according to the recommendations by Beck et al., who introduced the BDI (25), and the participants were divided into four groups according to expression of depressiveness symptoms: low (scores are from 0 to 11), moderate (11 to 17), high (17 to 35), and very high (scores exceed 35). The internal consistency of the scale was evaluated by Cronbach's α criterion. According to the obtained result (0.87), psychometric quality of the inventory was treated as very good. Two groups were defined for multivariate logistic regression analysis: not depressed (subjects with low level of depressiveness according to the BDI) and depressed participants (with moderate, high and very high levels of depressiveness).

To evaluate suicidal intentions, we used the question, "Have you ever thought about suicide in the last 12 months?" While answering, the respondents could choose one of the following categories: "I have never thought about this," "I sometimes have had such thoughts," "I have frequently thought about suicide," "I have thought about suicide seriously, even made plans how to carry it out," and "I have tried to commit suicide." In the analysis, the respondents were divided into two groups: nonsuicidal (with no suicidal intentions expressed) and suicidal (all the remaining answers).

Daily stress was estimated using the Reeder Stress Inventory. This inventory consists of four statements reflecting physical and psychological tiredness, stress, and exhaustion (27). The internal consistency, estimated using Cronbach α coefficient (0.81), is good. While analyzing the results, stress was estimated following the recommendations of the author and other researchers (27). According to the sum of scores, the participants were divided into three groups: reporting low levels of stress (from 1 to 3), medium (from 4 to 5), and high (from 6 to 8).

Two criteria were used to estimate the level of social support: social network indicated by the participants and subjective perception of the availability of social support. The size of social network was estimated by the number of close people (friends, husband/wife, brothers, sisters, mother, father, children, patronized children, stepchildren, and son/daughter in law) indicated in the questionnaire by a participant. The participants were grouped into tertiles according to the size of social network: small social network (0 to 4 people), average (5 people), and large (6 to 10 people). Subjective perception of availability of social support was estimated using the following questions: "Are there any persons

able to understand and comfort you to whom you can turn for help while experiencing difficulties and feel bad?" (possible answers: yes or no) and "What do you think how many people (including family members) are able to understand you?" According to the answers, the participants were divided into 4 groups: lacking social support (did not indicate a single person to whom a participant could appeal while experiencing difficulties and feel bad), receiving low (1–2 persons), moderate (3–5 persons), and high (6 and more persons) levels of social support.

Statistical analysis was performed using the statistical software package SPSS 15.0 for Windows. Quantitative variables were compared using Student's *t* test. Categorical variables were compared using the chi-square (χ^2) and *z* tests. The internal consistency of inventories was estimated using the Cronbach α coefficient. Internal consistency was considered high if a calculated coefficient was close to one.

Associations between depressiveness and psychosocial factors were examined by applying logistic regression analysis. Depressiveness was chosen as a dependent variable (depressive and not depressive participants were compared). The models were applied separately for men and women. The variables were entered into the model using a forward selection method. In the first model, age, marital status, and educational level were included as independent variables. The reference categories were age of 25–34 years (age group), being married (marital status), and being highly educated (education). Variables such as social network, perceived social support, stress, and suicidal intentions were additionally included in the second model. The reference categories were a large social network, high level of perceived social support, low level of stress, and no suicidal intentions. Odds ratios (OR) and their 95% confidence intervals (CI) were calculated.

Results

The results showed that symptoms of depressiveness were highly prevalent among Lithuanian adult rural population: one-fifth (19.4%) of respondents reported high and very high level of depressiveness; one-fourth (24.4%) of respondents, moderate level of depressiveness; and half (56.2%) of respondents, low level of depressiveness. A greater percentage of women than men experienced high and very high level of depressiveness ($P<0.001$) (Fig.). Symptoms of depressiveness such as sadness, anxiety about future, sense of being a loser and punishable, disappointment, disturbed relationship with surrounding people, suicidal thoughts, tiredness, crying, problems in sexual life, and loss of appetite were more frequent in women than men.

The level of depressiveness was analyzed by age, education, and marital status (Tables 1 and 2). High and very high level of depressiveness was more prevalent among older participants (45–54 and 55–64 years old) as compared to younger ones (25–34 and 35–44 years old). The level of education was also

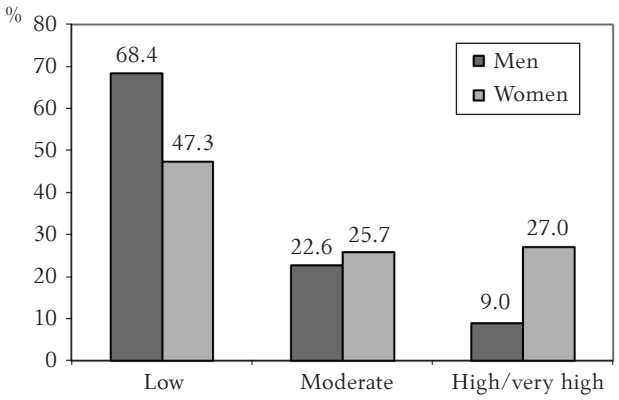


Fig. Distribution of men and women by the level of depressiveness
$\chi^2=100.005$; $P<0.001$.

Table 1. Distribution of men according to age, education, marital status, and level of depressiveness

Demographic variable	Level of depressiveness			Total n (%)	*P*
	Low n (%)	Moderate n (%)	High and very high n (%)		
Age group					
25-34	82 (79.6)	16 (15.5)	5 (4.9)	103 (100)	$\chi^2=22.476$; $P=0.001$
35-44	139 (75.5)	36 (19.6)	9 (4.9)	184 (100)	
45-54	127 (65.1)	43 (22.1)	25 (12.8)	195 (100)	
55-64	128 (59.8)	62 (29.0)	24 (11.2)	214 (100)	
Education					
Incomplete secondary	65 (52.8)	38 (30.9)	20 (16.3)	123 (100)	$\chi^2=21.337$; $P<0.0005$
Secondary	179 (68.1)	61 (23.2)	23 (8.7)	263 (100)	
Vocational and university	225 (75.0)	55 (18.3)	20 (6.7)	300 (100)	
Marital status					
Married/cohabiting	404 (70.4)	122 (21.3)	48 (8.3)	574 (100)	$\chi^2=13.828$; $P=0.032$
Single	35 (66.1)	12 (22.6)	6 (11.3)	53 (100)	
Divorcee	23 (46.9)	19 (38.8)	7 (14.3)	49 (100)	
Widower/widow	9 (75.0)	1 (8.3)	2 (16.7)	12 (100)	

Table 2. Distribution of women according to age, education, marital status, and level of depressiveness

Demographic variable	Level of depressiveness			Total n (%)	*P*
	Low n (%)	Moderate n (%)	High and very high n (%)		
Age group					
25-34	94 (56.3)	43 (25.7)	30 (18.0)	167 (100)	χ^2=72.953; *P*<0.0005
35-44	157 (64.1)	50 (20.4)	38 (15.5)	245 (100)	
45-54	115 (44.1)	64 (24.5)	82 (31.4)	261 (100)	
55-64	88 (30.7)	90 (31.4)	109 (38.0)	287 (100)	
Education					
Incomplete secondary	36 (28.3)	41 (32.3)	50 (39.4)	127 (100)	χ^2=29.396; *P*<0.0005
Secondary	122 (44.2)	72 (26.1)	82 (29.7)	276 (100)	
Vocational and university	292 (53.5)	131 (24.0)	123 (22.5)	546 (100)	
Marital status					
Married/cohabiting	342 (49.5)	180 (26.0)	169 (24.5)	691 (100)	χ^2=18.221; *P*=0.006
Single	36 (56.3)	13 (20.3)	15 (23.4)	64 (100)	
Divorcee	45 (39.8)	26 (23.0)	42 (37.2)	113 (100)	
Widower/widow	27 (32.5)	25 (30.1)	31 (37.3)	83 (100)	

Table 3. Adjusted odds ratios of being depressed in men and women by age, marital status, and education*

Independent variable	Men		Women	
	OR	95% CI	OR	95% CI
Age group				
25–34	1		1	
35–44	1.564	0.816–2.999	1.231	0.691–2.192
45–54	**2.897**	1.537–5.461	**2.243**	1.260–3.992
55–64	**3.006**	1.618–5.586	**4.085**	2.323–7.183
Marital status				
Married/cohabiting	1		1	
Single	1.593	0.841–3.02	0.872	0.508–1.499
Divorcee	**2.949**	1.583–5.495	1.331	0.874–2.028
Widow/widower	0.672	0.174–2.591	1.505	0.900–2.518
Education				
University	1		1	
Vocational	1.433	0.799–2.571	**1.779**	1.224–2.586
Secondary	**1.79**	1.025–3.126	**2.306**	1.025–3.126
Incomplete secondary	**3.086**	1.653–5.76	**4.125**	2.500–6.807

*The model includes age, marital status, and education. OR, odds ratio; CI, confidence interval.

Table 4. Adjusted odds ratios of being depressed in men and women by psychosocial factors*

Independent variable	Men		Women	
	OR	95% CI	OR	95% CI
Social network				
Large	1		1	
Average	0.869	0.492–1.536	**1.591**	1.038–2.302
Small	**1.806**	1.023–3.188	**1.661**	1.261–2.601
Level of perceived social support				
High	1		1	
Moderate	0.882	0.491–1.841	1.346	0.773–2.341
Low	0.966	0.479–2.023	**2.540**	1.432–4.504
No support	**6.822**	1.966–23.66	**6.803**	1.811–25.558
Level of stress				
Low	1		1	
Moderate	**3.735**	2.154–6.478	**4.448**	2.794–7.080
High	**8.304**	4.207–16.394	**7.839**	4.733–12.981
Suicidal intentions				
No	1		1	
Yes	**8.817**	3.780–20.567	**7.300**	4.081–13.057

*The model includes age, marital status, education, social network, perceived social support, stress, and suicidal intentions. OR, odds ratio; CI, confidence interval.

associated with the level of depressiveness. Men and women with vocational and university education were least likely to report high and very high level of depressiveness. The same trend was observed for married and single participants as compared to divorced and widowers/widows.

To evaluate associations between depressiveness and age, marital status, and education, logistic regression analysis was employed. The adjusted ORs of being depressed by above-mentioned social factors are presented in Table 3. Findings show that the likelihood of being depressed was 3 times greater among older men than younger ones. Divorced men were more likely of being depressed than married (OR, 2.95; 95% CI, 1.58–5.49). Depressiveness was more prevalent among men with incomplete secondary and secondary education.

Among women, depressiveness was most common in the age groups of 45–54 and 55–64 years. There was no association between marital status and being depressed, whereas a significant association was seen between being depressed and educational level. Highly educated women were less likely to be depressed than those with incomplete secondary education.

Table 4 shows the odds ratios of being depressed in relation to the psychosocial factors. The logistic regression analysis revealed that an absence of social support, stress, and suicidal intentions were found to be highly associated with depressiveness in men as well as in women. People having a small social network were more likely to be depressed than those with a large social network (ORs of 1.9 and 1.7 for men and women, respectively).

Discussion

The prevalence and causes of depression have been extensively investigated over the world (1–3). Aiming to explore the prevalence and causes of this disease, more studies on mental health (one of the main indices of mental health is depressiveness) are being carried out in the last decade by researchers of West European countries (7, 19). In Lithuania, this topic has not received much attention yet, and still it is little known about the real prevalence of depressiveness among adult population. The present study was carried out within the WHO-coordinated Countrywide Integrated Non-communicable Diseases Intervention (CINDI) program between 2006 and 2007 and aimed at the evaluation of associations between depressiveness and psychosocial factors in Lithuanian rural population.

The findings of our study show that depressiveness is highly prevalent in Lithuania: more than half of adult rural residents in Lithuania indicated that they experienced moderate or high level of depressiveness. One-fifth (19.4%) of the rural population reported high and very high level of depressiveness. It is difficult to compare data obtained in various countries as different contingent is explored, different methods of evaluation are applied, and all this may have an impact on the results obtained. The prevalence of depressiveness indicated in studies varies from 15% to 40% (1, 3, 10).

The results of this study indicate that odds of being depressed for both men and women were associated with older age and lower education. Similar conclusions have also been drawn in studies on depressiveness in other countries (9). Comparison of the prevalence of depressiveness among groups of different marital status (married/cohabiting, single, widowers/widows, and divorced) revealed that high levels of depressiveness were most prevalent among widowers/widows and divorced participants. Above-mentioned consistent patterns can be explained by the fact that bereavement of a spouse and adoption to loneliness can be considered as additional stressors and factors increasing vulnerability (13, 14). According to the data of multivariate regression analysis, marital status was particularly significant when comparing the odds of being depressed among men. Depressiveness among women was not related to marital status, whereas divorced men had a 3-fold greater odds of being depressed than married men. The explanation of these patterns could not be homologous. It might be that determined tendencies can be influenced by use of different stress copping strategies in men and women. Bereavement of a spouse and adoption to loneliness can be evaluated as strong stressors and factors increasing vulnerability among men (28).

It was showed that the likelihood of being depressed for both men and women was related to low levels of social support (both small social network and low level of subjectively perceived social support). Individuals who had no social support were 7 times more likely of being depressed than their counterparts with high social support. Analysis by gender revealed that low social support was related to depressiveness in both men and women; however, this association was stronger among women. The findings of our study confirm the significance of social support in the prevention of depressiveness. Other researchers have noted similar tendencies and have reported that social isolation generally causes feeling of emotional emptiness, which is directly related to experience of depression (14, 15).

According to the data of this study, women were 3-fold more likely to report high and very high levels of depressiveness than men. Similar consistent patterns confirming gender differences in the prevalence of depressiveness have also been documented in other studies (7, 9, 10). Although there are many explanations of the trends established, authors of

the recent studies tend to point out the differences in the manifestation of depressiveness in men and women: somatic symptoms of depression (tiredness, irritability, unwillingness to work, and sleep disorders) are more characteristic of men whereas emotional-cognitive symptoms (unhappiness, low self-esteem, guilt) are more common among women (16–18). The concept of masculinity, prevalent in West European countries, which can cause so-called "latent depression" expressed through self-destructive behavior (use of drug, fits of angers, suicidal behavior, etc.), is being mentioned as one of the possible reasons of such differences (17–19).

The findings of our study suggest that depressiveness both in men and women is related to the levels of social support and perceived stress, and suicidal intentions. Participants experiencing moderate and high levels of stress were about 4-fold and 8-fold, respectively, more likely to be depressed than those with low level of stress. Women and men reporting suicidal intentions had 7-fold and 8-fold, respectively, greater odds of being depressed. A close relationship between depressiveness and stress, suicidal intentions was confirmed by other studies (14, 26, 29).

Although our study has revealed many important consistent patterns, it has some limitations. The cross-sectional design of our study does not allow answering the question about causal relations among variables analyzed. It is unclear whether psychosocial factors such as stress and an absence of social support cause depressiveness or a depressed person perceives more stress due to his/her state and, therefore, abandons his/her social relations.

To sum up, the prevalence of depressiveness is an important health issue in rural population of Lithuania, and future research is needed to explore it deeper and more comprehensive. Despite the limitations of this study, it revealed significant differences in depressiveness between genders and groups of different age and education. Our study revealed close associations between depressiveness and social support, stress, and suicidal intentions. We hope that this will be taken into consideration while planning and implementing preventive activities and improving mental health in rural population of our country.

Conclusions

Depressiveness is highly prevalent among Lithuanian rural population. High and very high level of depressiveness was reported in one-fifth of the examined adults. Depressiveness was more prevalent among women than men.

According to the data obtained, older persons and persons with lower education of both genders were more likely to be depressed than younger and more educated persons. Absence of social support, high level of stress, and suicidal intentions were related to higher levels of depressiveness in both gender groups. Depressiveness was more common among women having a small social network and divorced men.

Lietuvos rajonų suaugusių gyventojų depresiškumo savitumai bei sąsajos su psichosocialiniais veiksniais

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Raktažodžiai: depresiškumas, socialinė parama, stresas, savižudiški polinkiai.

Santrauka. *Įvadas.* Pateikiama vis daugiau mokslo duomenų, patvirtinančių, kad depresija tampa vis aktualesne išsivysčiusių šalių visuomenės sveikatos problema. Tyrimai rodo, kad emocinius sutrikimus sąlygojantys veiksniai yra kultūriškai jautrūs ir kiekvienoje šalyje gali turėti skirtingą reikšmę. Tyrimo tikslas – įvertinti Lietuvos rajonų 25–64 metų gyventojų depresiškumo savitumus bei sąsajas su psichosocialiniais (socialinė parama, stresas, savižudiški polinkiai) veiksniais.

Tirtųjų kontingentas ir tyrimo metodai. Tyrimas atliktas 2006–2007 m. vykdant tarptautinę Lėtinių neinfekcinių ligų integruotos profilaktikos programą (CINDI). Tyrime dalyvavo 1754 asmenys, atsitiktinės sluoksniuotosios atrankos būdu atrinkti penkiuose Lietuvos rajonuose. Duomenys rinkti atliekant anketinę tiriamųjų apklausą.

Rezultatai. Tyrimas parodė, kad depresijos simptomai būdingi nemažai daliai Lietuvos rajonų suaugusiųjų: beveik pusei (43,8 proc.) tiriamųjų nustatytas didelis ir vidutinis depresiškumas. Moterims depresiškumas būdingas beveik tris kartus dažniau nei vyrams. Vyrų depresiškumo galimybė labiausiai siejosi su vyresniu amžiumi, žemesniu išsilavinimu, skyrybomis, suvokiamu socialinės paramos stygiumi, patiriamu stresu bei savižudiškais polinkiais. Moterų depresiškumo galimybė didėjo su amžiumi, t. y. vyresnio am-

žiaus, žemesnio išsilavinimo, turėjo mažą socialinį tinklą, jautėsi patiriančios stresą ir neturinčios socialinės paramos savo aplinkoje, turėjo savižudiškų polinkių.

Išvados. Depresiškumo paplitimas tarp Lietuvos rajonų suaugusių gyventojų yra didelis. Jis būdingesnis moterims nei vyrams. Vyresnis amžius, žemesnis išsilavinimas, suvokiamos socialinės paramos neturėjimas, didelis stresas ir savižudiški polinkiai yra susiję su didesniu depresiškumu. Moterų depresiškumo galimybę dar didina mažas socialinis tinklas, o vyrų – skyrybos.

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