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The Relation Between Depressive Symptoms and Self-Care in Patients with Diabetes Mellitus Type 2 in Kosovo

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ABSTRACT

Background: The depression is a significant problem in patients with diabetes. This research is the first of its kind conducted in the Republic of Kosovo to determine the prevalence of depression diagnosed in people with diabetes mellitus type 2 (DMT2) and interrelation between depressive symptoms and behavior of diabetes self-care (glucose monitoring, exercise, diet, and self-health care). **Methods:** Research was conducted in the University Clinical Center of Kosovo (UCCK), in Pristine. The sample consisted of 200 individuals. Data collection was done through structured questionnaires. HANDS (Harvard Department of Psychiatry / National Depression Screening Day Scale) questionnaire was used to assess depressive symptoms and DSMQ (The Diabetes Self-Management Questionnaire) was used to assess self-care behavior. Data analysis was run through SPSS program, version 21. **Results:** The results showed that the prevalence of depression in diabetic patients was 66.5% in Kosovo. Being a woman, a resident of rural areas or with low level of education, there were significant predictors and were associated with increased chance of developing the symptoms of major depression. Significant relations were found between major depression and physical activity ($p < 0.05$). While between major depression and management of blood glucose level, dietary control and self health care, no significant correlation was found. **Conclusion:** This paper concluded the involvement of psychological aspect in health care plan for diabetics, in order to reduce the number of individuals affected by depression, to diagnose and to treat these individuals for a better quality of life.

Keywords: Depression, Diabet Mellitus Type 2, Self-care.

1. INTRODUCTION

The relationship between illness and emotions has attracted for a long time the humanity. More than 300 years ago, Dr. Thomas Willis suggested that there was a relationship between diabetes and depression, and that diabetes was the result of "long sadness" (1). Depression is a condition with high world-wide prevalence. Approximately 340 million people worldwide suffer from depression at any time (2). Reports from the International Diabetes Federation indicate that the prevalence of diabetes mellitus has reached globally epidemic levels. It is ex-

pected that the number of individuals with diabetes in 2030 will reach 439 million (3). The diabetes mellitus type 2 (DMT2) and depression are predicted to be among the five leading causes of deterioration and health loss in 2030 (4).

2. LITERATURE REVIEW

About 85% of people with DMT2 live in countries with low or average income. However, the majority of research studies for depression in diabetic patients were conducted in high income countries (5). Kosovo is considered to be among the countries with low/average income.

The data from the National Institute of Public Health of Kosovo reflect a significant increase of diabetes cases, reported by public institutions of tertiary health care. In 2005, the number of reported diabetes cases was 938, while in 2013 rose to 3565. Also, the depression cases data reported by public institutions of tertiary health care exhibit a significant increase: in 2005 the number was 94, while in 2013 amounted to 1934 (6, 7).

Li et al. (2009) conducted a study to measure the prevalence of undiagnosed depression in individuals with diabetes (8). Approximately 45% of diabetic patients had undiagnosed depression. The data suggested a two-direction relationship between depression and diabetes type 2 (9, 10).

The chronic diseases and anxiety or depression can be independent or inter-related (i.e. chronic diseases can lead to depression/anxiety, and vice versa depression/anxiety can lead to chronic illness, or the both conditions aggravate each other) (11). The depression did not show correlation with the duration of diabetes and glucose control. However, there is a significant correlation between depression and retinopathy in diabetic patients (12). Diabetic patients with depression are associated with lower adherence for diet, exercise and taking medication, compared with those without depression (13, 14). Reduced productivity at work is considered to be also associated with the presence of depression in diabetics patients. Egede (2004) found that adults with diabetes and depression were more likely to lose more than 7 work days per year (15).

3. METHODS

The research was conducted at the endocrinology and the hemodialysis unit in UCKK from March to May 2015. The sample choice was intentional. Participants were 200 individuals with diabetes mellitus type 2. 121 (60.5%) were female and 79 (39.5%) males. The average age was 64.9 years (SD 10.79). Only 18 (9%) had university degree. 120 (60%) lived in the city, while 80 (40%) lived in the rural areas. In this paper, there were used structured questionnaires, through which is defined self-care and the rate of depression in diabetics patients. The questionnaires were translated and adapted in Albanian language through Brislin method. The questionnaires used were HANDS (*Harvard Department of Psychiatry/ National Depression Screening Day Scale*) and DSMQ (*The Diabetes Self-Management Questionnaire*).

The instrument used to assess the last two weeks depressive symptoms was 10-points HANDS. This instrument has 10 closed questions with four options regarding the occurrence frequency of any depressive symptoms during the past two weeks using Likert scale (0 point-never, 3 points- all the time). HANDS had internal consistency 0.8. Regarding the specificity, HANDS has a better performance than 20 points Zung questionnaire, 21 points Beck Depression Inventory-II and 15 points the Hopkins Symptom Depression Checklist (16).

DSMQ has 16 closed questions with four options, similar to HANDS. Interpretation of points was made in four categories: management of glucose level in the

blood, dietary control, physical activity and health care utilization. The total score for each category were from 0–10. Zero means minimal patient care, while the tenth means maximal care. The points were computed from the formula: $(\text{amount of points scored in the relevant category questions} / \text{maximum amount of points of the relevant category}) * 10 = X$. Cronbach's alpha was acceptable (0.84). Schmitt et al. (2013) evaluated DSMQ-in as a reliable instrument, valid and acceptable for scientific analysis, and for clinical use in patients with diabetes type 1 and type 2 (17).

The request was sent to the Nursing Department at UCKK and was approved by the Ethical Committee. The data were analyzed in SPSS 21. Due to age, the questionnaires were done in a structured interview format - so that patients had the questions clear. Each individual with diabetes type 2 has been informed about the research objectives and assuring accurate confidentiality was requested for voluntary participation.

4. RESULTS

Self-care behavior of diabetics was evaluated in four different categories, the management of blood glucose level, dietary control, physical activity and health care utilization. The results showed generally an average self-care leaning from poor self-care (Table 1).

	Management of glucose level in the blood	Dietary control	Physical activity	Health care utilization
Very poor self care	1 (0.5%)	20 (10.3%)	25 (12.5%)	16 (8%)
Poor self care	1 (0.5%)	65 (33.3%)	50 (25%)	68 (34%)
Average self-care	86 (53%),	83 (42.5%)	73 (36.5%)	68 (34%)
Good self care	66 (40%),	26 (13.3%)	30 (15%)	42 (21%)
Very good self care	10 (6%)	1 (0.6%)	22 (11%)	6 (3%)

Table 1. Points on DSMQ questionnaire regarding self care behaviors for diabetic patient

Regarding how the diabetics assess their self-care for diabetes, only 23 (11.5%) of respondents answered that their self-care was very good, 159 (79.5%) answered substantially that their diabetes self-care was not good, and 18 (9%) of them agreed completely that their diabetes self-care was not good. Based on the results of 67 (33.5%) diabetics, major depression and its symptoms were absent. Whereas 133 (66.5%) had depressive symptoms. 10 (5%) of the participants were being treated for depression, while 190 (95%) were not being treated for depression.

The correlation between major depression and physical activity was significantly negative ($r = -0.279, p < 0.05$). Less physical activity, patients were more likely to have major depression. While between major depression and management of blood glucose, dietary control and utilization of health care was not observed any significant correlation.

T-test showed that diabetic women had significantly higher total points (higher depression) than diabetic

	Number	Points by mean	Standart deviation	P value
Men	79 (39.5%)	12.91	6.24	0.001
Women	121 (60.5%)	17.52	7.56	

Table 2. Points on HANDS questionnaire regarding gender

	Number	Points by mean	Standart deviation	P value
Rural areas	80 (40 %)	17.65	8.34	0.001

Table 3. Points on HANDS questionnaire regarding geographical distribution

male ($p < 0.05$) as shown in the Table 2. The major depression was observed more among the diabetic patients with lower level of education compared with diabetic patients with higher level of education ($p < 0.05$). Diabetic patients who lived in rural areas had significantly higher total points scored in the questionnaire than diabetic patients who lived in cities (Table 3).

5. DISCUSSION

This study investigated the link between depressive symptoms and self-care behaviors in adults with diabetes mellitus type 2 in Kosovo. The study showed that 66.5% were potential depression cases. In comparison with other published studies, the results of this research reported higher rates of diabetes prevalence. A meta-analysis of 42 published studies found that the prevalence of major depression in diabetic patients was 11% and the prevalence of serious clinical depression was 31% (18). A study in Jordan found that the rate of prevalence of undiagnosed depression of diabetic patients was 19.7% (19). Other studies reported a prevalence rate of 8% and 32.4% (20, 21). One possible reason of the difference in depression prevalence among diabetic patients reported in different studies may be the use of different instruments used in various studies.

The weak glucose control, because of the growth of diabetes complications, can cause or worsen depression and may reduce response to treatment with antidepressants (22). However, no significant relation was found between glucose control and depressive symptoms. Weaker glucose control is observed in diabetic adults with depression (23). In contrast, some other research found no link between depression and diabetes complications (21).

Our study showed that the average depression scores were 4.61 points higher among females than males. The higher depression prevalence for women is consistent with other studies (19, 24). Anderson et al. (2001) found that diabetes doubles the risk for depression, and this worth especially for women (18). Another result of this paper in accordance with the results of other published studies is that higher level of education reduce the chance for diabetics to be affected by depression (19, 25). Despite depressive symptoms, diabetics have stated that they respect the dates of medical visits. While physical activity was significantly correlated with self-care behaviors in diabetics. Other surveys have reported that diabetics with depression do not participate in the daily management activities (26, 27).

6. CONCLUSION

The prevalence of depression has never been evaluated before in diabetic patients in Kosovo and resulted higher than the prevalence reported in other studies. Being a woman, a resident of rural areas, or with low level of education, are significant predictors of the development of symptoms of major depression. The results showed negative significant relation between major depression and physical activity ($p < 0.01$). There was no significant correlation between major depression and management of blood glucose level, dietary control and health care utilization. One reason can be that all patients lived with their family except three persons. Thus, others care about taking medications, for medical visits, and diabetic diet. Even with the emergence of depressive symptoms, the diabetic patients way of living doesn't change completely. The category of physical activity makes exception since the choice whether to deal with physical activity belongs to diabetic patients affected or not by depression.

This study had its limitations. The sample taken into consideration was 200 patients. A larger sample would be appropriate to generalize the results to the entire population. Another limitation was the time period in which the survey has been extended. A longer period would allow to consider other factors. Diabetics should live with their family. Diabetic patients should be examined for symptoms of major depression. Organization of joint meetings of these patients and the introduction of social education programs in the medical settings will be an important factor in providing knowledge about diabetes and the importance of self-care behaviors.

• Conflicts of interest: none to declared.

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