

Counseling and depression among diabetic patients

Essmat A. Mansour, DNSc, Essmat M. Gemeay, DNSc, Ihab M. Moussa, MD, PhD.

ABSTRACT

الأهداف: تحديد مستوى الاكتئاب لدى مرضى السكري النوع الثاني ثم استقصاء أثر برنامج ارشادي (المشورة) على مستوى الاكتئاب بين مرضى السكري.

الطريقة: أجريت دراسة مخبرية في العيادات الطبية الخارجية، مستشفى التأمين الصحي التابعة لوزارة الصحة، المنصورة، مصر خلال الفترة من يونيو 2011م إلى سبتمبر 2011م. تم تحديد 120 مريض بالسكري النوع الثاني. كما تم كتابة ورقة استبيان من قبل الباحثين لجمع البيانات الاجتماعية والديموغرافية والبيانات ذات الصلة بالمرض، والعلاج، ومراقبة نسبة السكر في الدم، ومدى المرض، ووجود مضاعفات، كما تم تطبيق مقياس Zung للاكتئاب حيث يتكون المقياس من 20 بند، تتراوح الاستجابات من 1:4 حيث تكون أعلى درجة ممكنة هو 80 (الاكتئاب الشديد). تم تصنيف المرضى إلى مجموعتين متساويتين 60 مريضاً لكل مجموعة حيث استخدم الرمز (A) مجموعة الشاهد في حين كانت (B) هي المجموعة الحالة الذين حضروا البرنامج. وأجريت مقابلات مع كل من المجموعتين A و B بعد 3 أشهر لتقييم مستوى الاكتئاب.

النتائج: كشفت نتائج هذه الدراسة على أن 57.5% من مجموعة الشاهد يعانون من الاكتئاب بينما كان 32.5% فقط منهم يعانون من اكتئاب حاد في التقييم الأولي. في التقييم الثاني ارتفع معدل الاكتئاب أن تكون 67.5% من المجموعه الدراسة في حين أن مستوى شدة الاكتئاب انخفضت إلى 25%. فيما يتعلق بمجموعة الدراسة، وفي التقييم الأولي زاد معدل نسبة الأشخاص المصابين بالاكتئاب 39.7% بدلاً من 27%، كما انخفض مستوى الاكتئاب المتوسط والشديد ليصل إلى 56.1% بعد برنامج المشورة والتقييم في المرة الثانية بدلاً من 58.4% و 14.6%.

خاتمة: أن تطبيق برنامج المشورة على مرضى السكري النوع الثاني أدى الي انخفاض مستوى الاكتئاب لديهم.

Objectives: To determine the level of depression in diabetic patients and investigate the effect of a counseling program on the level of depression.

Methods: A pre-post experimental study was conducted at the outpatient medical clinics of the Health Insurance Hospital affiliated to the Ministry of Health, Mansoura,

Egypt. The study was carried out between June 2011 and September 2011. One hundred and twenty type II diabetic patients were recruited in this study. We used 2 tools for data collection: a) A structured interview questionnaire including socio-demographic and disease related data. b) The Zung self-rating depression scale. We classified the subjects into 2 equal groups of 60 patients each (group A - control and group B - experimental). Both groups were interviewed after 3 months to assess the level of depression.

Results: On initial assessment, depression was found in approximately 57.5% of the control group, and severe depression in 32.5%. On second assessment, the depression rate in the control group increased to 67.5%, while the severe depression rate decreased to 25%. In the experimental group, at initial assessment, it was noticed that the percentage of subjects with no depressions increase to be 39.7% instead of 27%, also, the level of mild and severe depression decrease to be 56.1% post assessment instead of 58.4% and 14.6%.

Conclusion: Counseling, as a nursing intervention, is helpful in reducing the level of depression among diabetic patients.

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From the Department of Medical Surgical Nursing (Mansour), Department of Psychiatric and Mental Health Nursing (Gemeay), College of Nursing, King Saud University, and the Department of Microbiology & Biotechnology (Moussa), Center of Excellence in Biotechnology Research, King Saud University, Riyadh, Kingdom of Saudi Arabia.

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Address correspondence and reprint request to: Dr. Essmat A. Mansour, College of Nursing, King Saud University, PO Box 642, Riyadh, Kingdom of Saudi Arabia. Tel. +966 (1) 4357605. Fax. +966 (1) 4355010. E-mail: essmatmansour@yahoo.com

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Diabetes mellitus is a chronic metabolic disease in which body either cannot make insulin or cannot use the insulin it makes.¹ It is a complex, long-term disease that affects day-to-day life and can add further burden to an already-complicated life.² Managing diabetes and the related complications can be stressful, and health problems such as diabetic neuropathy, which may worsen the condition psychologically, can lead to several episodes of depression.³ The more complications a person experiences, the greater the possibility that he or she will be depressed.⁴ Depression is not generally listed as a complication of diabetes; however, it can be one of the most common and dangerous complications. Many studies over the past 10 years have found a greater prevalence of depression among diabetics in comparison with the general population. This may be due to the physiological association between diabetes and depression, which may worsen the condition and accelerate the occurrence of complications.⁵ One study⁶ stated that "One plus one equals much more than 2 when you add diabetes and depression". Because of the physiologic and behavioral interaction between diabetes and depression, each becomes more difficult to control, increasing the risk of cardiovascular diseases, diabetic retinopathy causing blindness, and other serious complications.⁶ Depression should be promptly diagnosed, assessed, and treated in people with diabetes as it is associated with a significantly increased mortality in this population.⁷ Deterioration of glucose control and the onset of other illnesses and complications are speculated to be the cause.⁸ Physiologically, both depression and diabetes can cause stress hormone disturbance, intensifying the condition. The depressed patient with diabetes cannot achieve self-management behavior, which then makes glycemic control more difficult.⁹ However, glycemic control can be achieved through a number of physical and mental modifications. The patient and the family should be given guidance on the dietary system, medical intervention and follow up, exercise, and possible complications.¹⁰ According to a study by Rather,¹¹ counseling is the most efficient care that the nurse can provide for the diabetic patient. The counseling can be used as an implementation method that helps the client to use a problem-solving process for adjustment of his life style to cope with chronic or disabling disease or accept the possibility of death.¹¹ A further study¹² added that counseling provides emotional, intellectual, spiritual, and psychological support. In addition to the physical and physiological aspects of diabetes, counseling as a nursing intervention could help the patients address psychosocial concerns related to impairment and limitations experienced.

This will help in the development of realistic methods of coping with new complicated life situations, leading to a healthy manipulation of life events resulting in control of both glycemic and depression levels.⁷ We hypothesize that a counseling program may decrease the level of depression among diabetic patients; therefore, the aim of the current study is to determine the level of depression in diabetic patients and investigate the effect of a counseling program on this level.

Methods. We conducted this pre-post experimental study at the outpatient medical clinic, of the Health Insurance Hospital affiliated to the Ministry of Health, Mansoura, Egypt. The study was carried out between June and September 2011. One hundred and twenty patients fulfilling the following inclusion criteria were recruited: All patients should have type II diabetes mellitus, diagnosed for at least 3 years. All patients diagnosed with depression were excluded. We designed a structured interview questionnaire to collect socio-demographic data. Data related to the disease, including: treatment, glycemic control, duration of the disease, and the presence of complications either macro or micro vascular was recorded from the patient's file. We also utilized the Zung self-rating depression scale to collect data. This comprises a 20 item scale, with values ranging from 1-4 that correlate with the patient's response to each statement, Most people with depression score between 50 and 69, and the highest possible score is 80.¹³

After obtaining appropriate approval to conduct the study from ethics committee, the patients were selected and assigned randomly into 2 groups of 60 patients (A & B) to equate the groups on all known and unknown extraneous variables. When the groups are composed of similar patients sharing the same selection criteria, many potential sources of bias are eliminated.

Group A, comprising the control group was interviewed 2 times only. The first time in June 2011 at the beginning of the study when they completed the questionnaire sheet and the depression scale, and the second time in September 2011 after 3 months again completing the same depression scale. Group B, the experimental group was interviewed 4 times. The first time at the beginning of the study when they completed the questionnaire sheet and the depression scale. At the second and third meetings, on dates agreed upon by the patients, they attended a comprehensive educational counseling program that covered all aspects of diabetes including definition, manifestations, investigations, complications, treatment, and life style modifications regarding diet, smoking, exercise, follow up foot care,

and stress management. The experimental group was further classified into 4 groups each consisting of 15 patients. Each group arranged their appointment sessions together, and the 2 sessions were held in the same week. The program took place over 2 weeks, and each subgroup of the experimental attend the first session of the counseling program which contains the same items, the second session began with a review and a discussion of the previous session, and the remaining items of the counseling program were discussed. At the end of the second session, each patient received a handout containing the information discussed in the program sessions. During this session, they also agreed on the next and last meeting in September 2011 when they would again complete the depression scale.

Each patient's sheet was uniquely numbered to prevent any errors in sheet collection. During the completion of all the sheets, an investigator interviewed the patients individually, with Arabic translation using the same expression each time to prevent and misinterpretations by the patients, and to overcome any English language problems. All sessions were conducted in a lecture room at the Health Insurance hospital, and in September 2011 both groups attended according to their follow-up appointment time, and the final tasks of the study were completed. In preparation of the counselling sessions, we started by creating the optimum environmental conditions for the development of affective therapeutic interaction, namely, physical setting, time, and interpersonal space. During the intervention, 3 main actions were necessary to facilitate the processes of the program, namely, building trust, attentive behavior, and asking questions and providing a therapeutic response using simple language and a pleasant manner. The researcher's friendly, respectful greeting welcomed the patients, with a tone of voice that shows interest, concern, and friendliness.

Regarding closure validation, at the end of the session, the counselor restates the session content and the feelings expressed by the counselee. In addition, the counselor checks with the counselee to ensure the closing statement is accurate. The participants were evaluated to determine the extent to which they had gained knowledge, skills, and practice by using direct questions, especially open-ended questions, and re-demonstration if needed. The effectiveness of the counseling program was evaluated by using the Zung self-rating depression scale. This scale was used as an evaluative tool for one time: 3 months after the program

The study protocol was approved by the pertinent research and ethical committees and all the legal guardians of the patients. Signed informed consent

was obtained from every patient before inclusion in the study. No hazards were present. Participants were assured of confidential; and anonymity was also assured by assigning a number for each patient instead of names to protect their privacy. Data were only available to the researchers and participants.

The collected data were coded and analyzed. Descriptive statistics for the variables were calculated. All the statistical analysis was performed using the Statistical Package for Social Sciences (SPSS Inc., Chicago, IL, USA) Version 18.

Data were presented using descriptive statistics in the form of frequencies and percentages. Interval and ratio variables were presented in the form of means and standard deviations. Chi square test was used to test the difference between the study and control group regarding the nominal and ordinal variables. Paired t test was used to compare the depression score before and after the counseling program. Independent t-test was used to compare between the study, and control group's depression scores. The significance level was chosen as $p < 0.05$.

Results. The distribution of subjects in both groups according to their socio-demographic data is summarized in Table 1. Nearly half of the subjects in the control group were between the ages of 45-<50 years, while the same percentage of the study group were between the of 50-<55 years. The data also illustrate that more than two-thirds were married in both groups. Regarding gender, more than half of the subjects in the control group were female, while the same percentage in the study group was male. In relation to the level of education, the data shows that less than half of the subjects in both groups had a secondary education and diploma degree. A comparison between the groups regarding their smoking history, disease duration, and treatment, revealed that 53.3% of the controls, and 40% of the study group are non-smokers. Most of the subjects in both groups had disease duration of 5-10 years, as shown in Table 2. Regarding treatment and glycemic control, most subjects in both groups were insulin dependent with good glycemic control

Table 3 summarizes the distribution of the subjects according to the presence of complications, and shows that most subjects in both groups had cardiovascular disease, while near half from the control and experimental group had nephropathy.

Figure 1 illustrates the comparison between pre and post depression among the control group. With pre meaning "at the beginning" and post meaning at the end of the 3 months. The figure shows a decrease in

Table 1 - Distribution of the subjects in both groups (control and study) according to their socio-demographic data.

| Socio-demographic data | Control group | | Study group | | χ^2 | P-value |
|------------------------|---------------|--------|-------------|--------|----------|---------|
| | n | (%) | n | (%) | | |
| <i>Age</i> | | | | | 14.798 | 0.002 |
| 40-≤45 | 14 | (23.3) | 4 | (6.7) | | |
| 45≤50 | 27 | (45.0) | 20 | (33.3) | | |
| 50≤55 | 18 | (30.0) | 27 | (45.0) | | |
| >55 | 1 | (1.7) | 9 | (15.0) | | |
| <i>Marital</i> | | | | | 4.695 | 0.320 |
| Married | 41 | (68.3) | 41 | (68.3) | | |
| Single | 3 | (5.0) | 4 | (5.8) | | |
| Separate | 4 | (6.7) | 0 | (3.3) | | |
| Divorced | 3 | (5.0) | 5 | (6.7) | | |
| Widow | 9 | (15.0) | 10 | (15.8) | | |
| <i>Gender</i> | | | | | 3.333 | 0.05 |
| Mail | 25 | (41.7) | 35 | (58.3) | | |
| Female | 35 | (58.3) | 25 | (41.7) | | |
| <i>Education</i> | | | | | 0.268 | 0.966 |
| Illiterate | 9 | (15.0) | 11 | (18.3) | | |
| Read and write | 15 | (25.0) | 15 | (25.0) | | |
| Secondary and diploma | 25 | (41.7) | 24 | (40.0) | | |
| Bachelor | 11 | (18.3) | 10 | (16.7) | | |

Table 2 - Comparison between control and study group regarding their smoking history, disease duration, and treatment.

| Variables | Control group | | Study group | | χ^2 | P-value |
|--|---------------|--------|-------------|--------|----------|---------|
| | n | (%) | n | (%) | | |
| <i>Smoking</i> | | | | | 2.376 | 0.305 |
| Non | 32 | (53.3) | 24 | (40.0) | | |
| Smoker | 18 | (30.0) | 21 | (35.0) | | |
| Negative smoker | 10 | (16.7) | 15 | (25.0) | | |
| <i>Duration of diabetes mellitus (years)</i> | | | | | 1.670 | 0.432 |
| 3-5 | 17 | (28.3) | 11 | (18.3) | | |
| 5-10 | 27 | (45.0) | 31 | (51.7) | | |
| >10 | 16 | (26.7) | 18 | (30.0) | | |
| <i>Treatment</i> | | | | | 1.976 | 0.114 |
| Insulin | 39 | (65.0) | 46 | (76.7) | | |
| OHG | 21 | (35.0) | 14 | (23.3) | | |
| <i>Glycemic control</i> | | | | | 0.674 | 0.227 |
| Poor | 21 | (35.0) | 26 | (43.3) | | |
| Good | 39 | (65.0) | 34 | (56.7) | | |

Table 3 - Distributions of subjects in both groups according to the presence of complications.

| Variables | Control group | | Study group | | χ^2 | P-value |
|---|---------------|--------|-------------|--------|----------|---------|
| | n | (%) | n | (%) | | |
| <i>Presence of macro vascular complications</i> | | | | | 19.766 | 0.000 |
| None | 9 | (15.0) | 2 | (3.3) | | |
| Cardiovascular disease | 46 | (76.6) | 44 | (73.3) | | |
| Coronary artery disease | 1 | (1.7) | 14 | (23.3) | | |
| Peripheral vascular disease & hypertension | 4 | (6.7) | 0 | | | |
| <i>Presence of micro vascular complications</i> | | | | | 18.152 | 0.000 |
| None | 12 | (20.0) | 7 | (11.7) | | |
| Nephropathy | 27 | (45.0) | 29 | (48.3) | | |
| Retinopathy | 19 | (31.6) | 24 | (40.0) | | |
| Neuropathy | 2 | (3.4) | 0 | | | |

the percentage of the subjects without depression, an increase in the percentage of the subjects with mild depression, and an obvious decline in the percentage of the subjects with severe depression.

Regarding the level of depression pre and post counseling in the experimental group, Figure 2 shows that there is an increase in the percentage of the patients with no depressions to be 39.7% instead of 27% precounseling, while the levels of mild depression decreased to 56.1% and severe to 4.2%

Concerning comparison between the groups regarding their depression score post counseling, Figure 3 shows that subjects with no depression increase to 39.7% for study group versus 7.5% for the control. A

decreased in the percentage of the subjects with both mild and severe level of depression to 56.1% and 4.2% for the study group versus 67.5% and 25% for the control group.

Regarding mild depression, this was experienced by 56.1% of the experimental group versus 67.5% of the control group. Finally, 4.2% of the experimental group experienced severe depression versus 25% in the control group.

The results of initial assessment utilizing the Zung self-rating scale before counseling (Figure 4) show that the control group had the lower percentages regarding experience of depression. Also, 14.6% of the control group experienced severe depression versus 32.5%

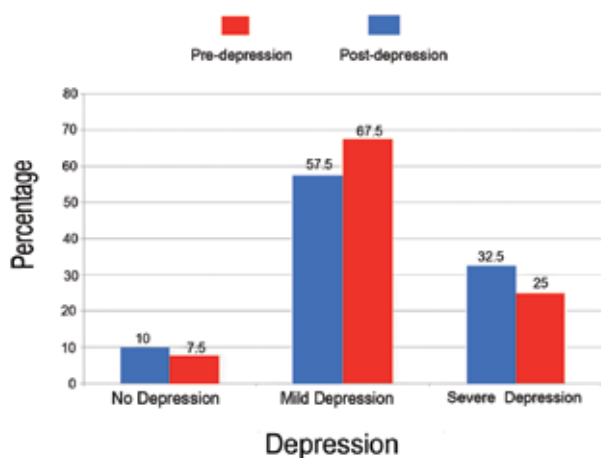


Figure 1 - Comparison between pre- and post- depression among control group ($p=0.001$, $t=-3.606$).

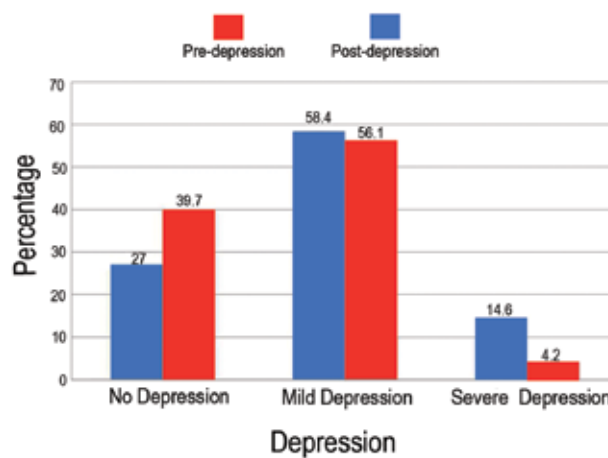


Figure 2 - Comparison between pre- and post- depression among study group ($p=0.016$, $t=-2.506$).

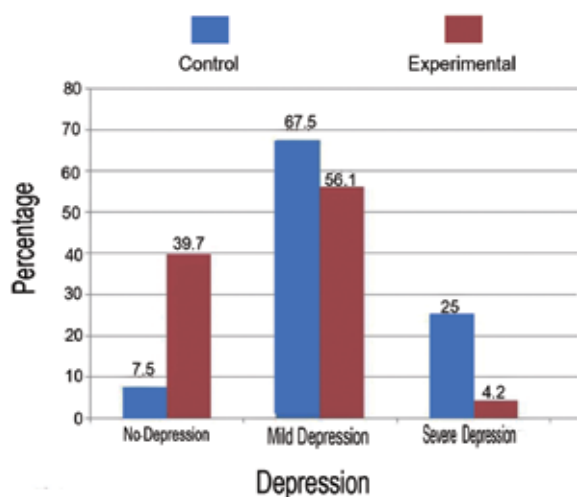


Figure 3 - Comparison between control and study group regarding their post depression score ($p=0.000$, $t=-0.555$).

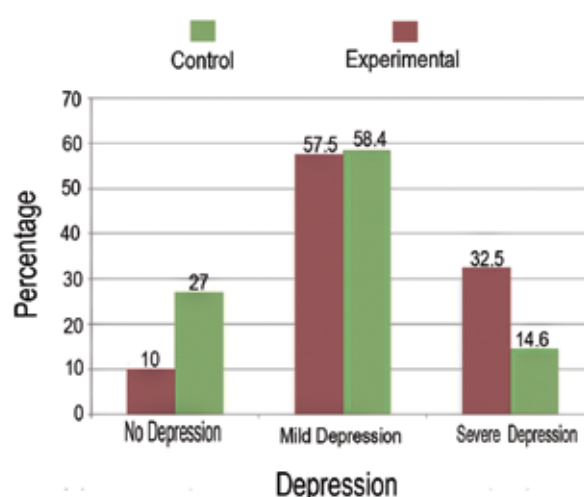


Figure 4 - Comparison between control and study group regarding their pre depression score ($p=0.945$, $t=-0.347$).

of the experimental group. The ratio was near equal regarding the level of mild depression, being more than half for both groups.

Discussion. Depression appears to be more common in people who have diabetes than in similar adults without diabetes.¹⁴ The combination of diabetes and depression is complicated; a depressed mood leads to more carbohydrates cravings, and thus increases the glycemic level. At the same time, the burden of diabetes leads to more depression because it is a difficult disease to manage. Regardless of which comes first, the fact remains that depression appears to increase mortality among diabetics.¹⁵ Depression should be diagnosed, assessed, and treated in diabetics, and patients should be helped to find healthy ways to cope with these difficult diabetic related situations. Diabetics need to work together with others to come up with different ways of dealing with various situations.⁵

The aim of this study was to determine the level of depression in diabetic patients, and to investigate the effect of counseling program on the level of depression. The study results show an almost equal distribution of the subjects between both groups regarding their marital status, and disease related data such as duration of the disease, complications, treatment, and glycemic control. These findings may be due to the pre-set selection criteria used to select the subjects, and lead to the similarities.

Data in this study show that more than half of the subjects in both groups had mild depression, while more than one third of the control group and approximately 15% of the study group had severe depression. These results confirm the association between diabetes and depression, and agree with Polensky,¹⁶ who reported that diabetes and depression are associated. Zhao et al¹⁷ also reported a strong association between diabetes and depression, while Denise¹⁸ stressed that the association between diabetes and depression is unclear.

The current study revealed an increase in the levels of no depression (not according to the results in Figure 1) and mild depression in the control group after 3 months compared to the initial assessment, and agrees with Polensky's findings.¹⁶ However, it was found that the percentage of the subjects in the control group who had severe depression decreased from the initial assessment. This may be due to the adaptation processes that the patient might have undertaken during that time, and the familiarity that the patients feel toward the disease symptoms and treatment. Magura¹⁹ also reported that many people with chronic disease learn to deal with their conditions and remain active, happy, and participants

in life over a period of 2-5 years. Regarding the level of depression among study group participants before and after the counseling program, the data illustrate that there is an obvious decrease in the level of depression among that group. It can be drawn that counseling had a positive effect on the level of depression among diabetics, in concurrence with other studies^{8,20} that reported that diabetics could benefit from working with a rehabilitation counselor to learn to cope with psychosocial and vocational impairments. Egede et al²¹ also suggested that counseling was helpful in reducing levels of anxiety and depression in diabetics, which in turn could lead to positive effects in improving their glycemic control, and Karla²² stated that counseling is an integral and effective part of diabetes management. Several study limitations should be considered. Subjects were chosen from only one setting, and therefore the results cannot be generalized, and the number of included subjects is not large enough to confirm the results. The absence, unwillingness, and refusal of patients to attend several counseling session lead to limitations in the number of sessions and necessitated the use of short-term counseling.

In conclusion, diabetes as a chronic disease is associated with different levels of depression. Counseling as a nursing action is helpful in reducing the level of depression among diabetic patients. Further studies are recommended using a large sample to investigate other dimensions of counseling and the effects in reducing post-diabetic depression. It is also essential for health care providers to clarify whether diabetes or depression comes first, and further research in this area is also required. We recommend that periodical counseling should be conducted in the hospital setting, at primary health care centers, and medical clinics during follow up as an integral part of diabetic management. Long term counseling programs will be more effective than short term one. We also recommend that depression be listed as a diabetic complication.

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