

Relationship between Socio Demographic Data, Ruminative Thoughts and Quality of Life among Patients Having Type Two Diabetes Mellitus

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Back ground: Diabetic patients are known to have a worse quality of life than individuals without diabetes. They are more risky for depressive symptoms, which may have an additional negative effect on their quality of life.

Aim of the study: to assess the correlation between sociodemographic data, ruminative thoughts and quality of life among patients with type 2 diabetes. **Research Design:** Descriptive research design was used to assess relationship between sociodemographic data, rumination and quality of life among patients with type 2 diabetes.

Setting: The study was carried out at Berkat El-Sabea central hospital, Menoufia governorate, Egypt.

Sampling: A convenient sample consisted of two hundred patients. **Tools of the study:** two mainly tools are used, 1- Ruminative scale by Treynor. 2- Quality of life scale by Elfeky. **Results:** diabetes is common in urban, 55% of the sample, negative ruminations are common among type 2 diabetes $P=0.000$, quality of life are good with $P=0.000$. **Conclusion:** Negative ruminative thoughts are common among patients with type two diabetes; however the quality of life of the study group was good. Hence the ruminative thoughts of the study group strongly negatively correlated with their quality of life. **Recommendations:** Making booklets, posters, and visual aids for patients to explain causes, symptoms, complications and treatment modalities of the disease to decrease ruminations. Presence of liaison psychiatric nurse in the outpatient clinics for early detection of psychosocial problems of diabetic patients and early referral for help.

Key Words: Quality of Life (Qol), Ruminative Thoughts, and Diabetes Mellitus (D M).

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I. Introduction:

Type 2 diabetes is a major public health problem that includes people of all ages and races. It is considered as one of the most common chronic diseases in approximately all countries, and its prevalence is continuously increasing related to changing in lifestyles resulting in physical inactivity, and increased obesity (1). It was estimated that diabetes affected 285 million adults (20–79 years) worldwide in 2010, and this prevalence will double to 439 million adults by 2030 (2, 3). Diabetes is a progressive disease affecting the patient's physical, cognitive, emotional, familial and social functions and well-being. Diabetes is accompanied with higher risk of some macro and micro vascular complications (4).

Health care providers and patient's relatives are often unaware of the possible co-occurrence of psychiatric conditions in their diabetic patients. In fact, around 45% of psychiatric disorders go undiagnosed in patients treated for diabetes. Experts recommend that clinicians screen all patients with diabetes for psychological distress using either the patient health questionnaire (PHQ) or other standardized assessment. Commonly, its prevalence is 2 or 3 times higher in those with diabetes than those without diabetes. Unfortunately, the exact relationship between these 2 conditions remains uncertain. Hyperglycemia worsens during periods of depression, and it actually increases and prolongs any depressive state. Moreover, prolonged use of high-dose antidepressant medications doubles a patient's risk of developing diabetes later in life (5, 6).

Psychological studies mention various cognitive coping strategies of diabetic patients. These include negative mechanisms such as self-blame, i.e., blaming oneself for what one has experienced; catastrophizing, i.e., emphasizing the terror of the experience; and other-blame, i.e., blaming others for one's own experiences and rumination, i.e., thinking all the time about the negative event (causing, symptoms and consequences) (7).

Rumination is defined as repetitive thoughts generated by attempts to cope with self-discrepancy that are directed primarily toward processing the content of self-referent information and not toward immediate goal-directed action (8). The person ruminates to answer questions such as: How do I feel about this event? How can I change my thoughts and feelings about the event? How can I prevent disturbing thoughts and feelings in the future?

However, in answering these questions, ruminators tend to focus on their emotions (i.e., self-referent information) as opposed to problem solving (i.e., goal-directed action) (9).

Rumination may be a means of coming to terms with diabetes by thinking about the diagnosis itself, the thoughts and feelings it evokes, and its implications. However, the specific role of rumination in adjustment to illness is unclear. Some evidence links rumination to the onset and maintenance of psychological distress (10). The role of maladaptive cognitive content among individuals with diabetes has been acknowledged in cognitive models. Rumination is one of them, and it has been documented as a key predictor of depression in diabetic patients (11).

Diabetic patients are known to have a worse quality of life than individuals without diabetes. They also have an increased risk for depressive symptoms, which may have an additional negative effect on their quality of life. (1).

Reviews show that higher levels of ruminative symptoms are associated with an impaired quality of life in individuals with diabetes. Diabetes' specific quality of life is severely lower among individuals with diabetes and ruminative symptoms. Ruminative symptoms may even predict the development of functional limitations. As a consequence, ruminative symptoms jeopardize the ability of diabetic individuals to take care of themselves (12).

Nurses' role is very important in helping patient to control associated morbidity and mortality. Nurses, on the front lines, can screen patients for early diabetes identification, recognize and initiate corrective measures for inadequate treatment regimens, help patients set and achieve therapeutic goals, and assess diabetes-related physical and psychological complications as they arise (13).

Significance of the Study:

The International Diabetes Federation (IDF) listed Egypt among the world top 10 countries in the number of patients with diabetes. It is expected that the number of patients with diabetes in the Middle East and North Africa (MENA) region to increase by 96% from year 2013 to 2035 or from 34.6 million to 67.9 million. In Egypt, the prevalence of diabetes is about 15.56% among adults between 20 and 79 years of age, with an annual death of 86,478 because of diabetes. Diabetes is accompanied with higher risk of some macro and micro vascular complications. These complications increase mortality rate among diabetic patients to be about twice as much as that of non-diabetic individuals of a similar age (3, 4).

Moreover, patients with these complications have lower quality of life (QoL) compared with diabetic patients without the complications (5). When diabetes and psychiatric conditions co-occur, treatment outcomes decline through impaired quality of life, reduced patient adherence, increased emergency room visits, higher rates of hospitalizations, and increased cost of care. A 2009 study found that the cost of care actually doubles in patients have both diabetes and mental health conditions compared with those who only have 1 of the 2 illnesses (6, 14).

Diabetes has many psychological complications including depression, ruminative thoughts, and low level of quality of life. These psychological problems increase the severity and complication of the disease (1). Hence it was a must to assess the correlation between diabetes, ruminative thoughts and quality of life to find suitable solutions for them and take preventive precautions for decreasing severity and improving the disease and its related consequences (15).

II. Methodology:

Aim of the study: The present study aims to identify the relationship between, sociodemographic characteristics, ruminative thoughts and quality of life in type two diabetes.

Research questions:

- 1- Is there a relation between rumination and quality of life in diabetic patients?
- 2- Is there a relation between rumination and sociodemographic data in diabetic patients?
- 3- Is there a relation between quality of life and sociodemographic data in diabetic patients?

Research Design: Descriptive research design was used to assess relationship between sociodemographic data, rumination and quality of life among patients with type 2 diabetes.

Setting: The study was carried out at Berkat El-Sabea central hospital, Menofia governorate Egypt.

Sample: A convenient sample consisted of two hundred (200) patients who agree to participate in the study who attending in diabetes clinic appointment file at Berkat El-Sabea central hospital. 2 days/ week for a period of 4 months at a period from (first of May2017 to end of August2017).

Data collection tools: The tools of this study were consisting of three instruments to gather the required data for the study as the following:

Tool one: Interviewing Questionnaire: This questionnaire was designed to collect Socio-Demographic Characteristics. This tool was designed by the researchers including data about the general characteristics of the study sample such as: age, sex, civil status, and level of education, occupation, income, place of residence, duration of the disease and presence of complication. It is based on previous reviews (16).

Tool two: Modified Rumination Scale that composed of 22 items and likert scale (1) means never (2) sometimes and (3) means often and (4) means always. Indicate if you almost never, sometimes, often, or almost always think or do each one when you feel down, sad, or depressed. The items indicate what you generally do, not what you think you should do. It is adopted from Wendy treynoretal., 2003. The tool is translated into Arabic. The tool is examined for translation and back translation by 5 professors. The researchers made back translation for the tool (17). Validity was determined by colleagues from the same department at Menoufia University who reviewed these instruments and judged it to measure what intended to be measured (face validity). Experts were also asked to judge the items for their adequacy (content validity).

Reliability Statistics

CRONBACH'S ALPHA	ALPHA BASED ON STANDARDIZED	N OF ITEMS
.752	.738	22

Tool Three:

Modified quality of life scale that composed of 30 item and likert scale (1) means never (2) sometimes and (3) means always. Quality of life scale which is adopted from quality of life scale of Amal Elfiky (2011) (18). words containing the first dimension, was found to include the quality of the family's own life, including the phrases (1, 3, 5, 7, 9, 11, 13, 15, 17,19,21, 23, 25, 27, 29, and the second dimension The quality of family life the subject matter includes expressions (2, 4, 6,8,10, 12, , 14, 16, 18, 20, 22,24,26,28,30) .

The two extremes of the quality of family life are "30, 90", respectively .The highest score means quality of family life is high and the lowest degree means the opposite.

Operational Design:

1. Pilot study:

A pilot study was done on a group of 20 patients diagnosed with type 2 diabetes from outpatient unit at Berkat El-Sabea central hospital. It was conducted to test the applicability of the tools and to estimate the time needed. On the basis of the pilot study result the researcher determined the feasibility of data collection procedures, developed an interview schedule, and identified the most suitable time to visit subjects. These numbers of pilot study were excluded from the total number of study sample.

2. Human Rights:

The subjects were chosen after their informed consent was obtained to participate in the study. The researchers approached each patient by giving them an overview of the study, and reassured the subjects that their privacy would be protected, and that any obtained information would be strictly confidential. The researcher fully informed each patient that he has the full right to withdraw from the study at any time and each one was given the free opportunity to refuse to participate.

3. Administrative and Ethical Consideration:

Official permissions for collecting data were obtained from the head of the faculty, the director of Berkat El-Sabea central hospital and the head of outpatients department before conducting the study, personal communication was done with nurses to explain the purpose of the study and assure their best possible cooperation.

4. Statistical Design:

The collected data were coded for entry and analysis (SPSS) statistical software package version (24) Data were presented using descriptive statistics in the form of frequencies, percentage, and Qui Square and Pearson correlation.

Limitation of the study:

1. Decreased number of patients of the study was a problem in detecting in depth quality of life of the patients
2. Detecting rumination in diabetic patients is a new issue and has not enough studies; there was a difficulty in finding references related to diabetes with ruminative thoughts.

III. Results

Table(1) Socio Demographic Data of patients with Type 2 Diabetes

Item	Number	%
Gender		
M	56	28.0
F	144	72.0
Total	200	100.0
Education		
Read And Write	35	17.5
Primary	41	20.5
Middle Education	62	31.0
High Education	62	31.0
Total	200	100.0
Income		
Sufficient	91	45.5
Insufficient	109	54.5
Total	200	100.0

Table(1) Illustrated that number of female in the study sample was higher than number of male representing 72% and 28% respectively. Regarding educational level, the result revealed that more than 62% of the study sample was middle educated and highly educated representing 31% for each. In relation to income the study illustrated that more than half of the sample size, their income were insufficient representing 54.5%.

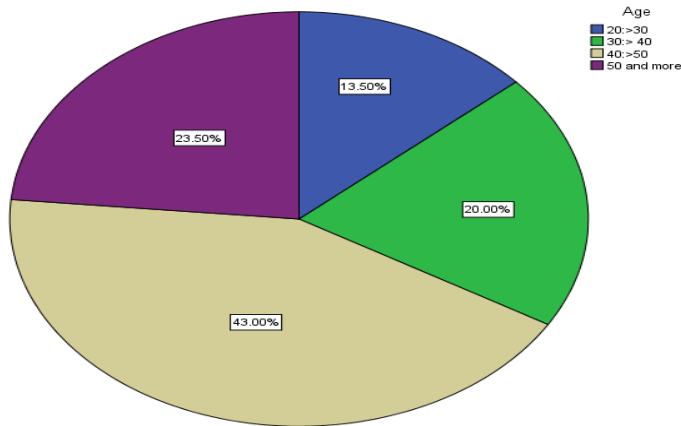
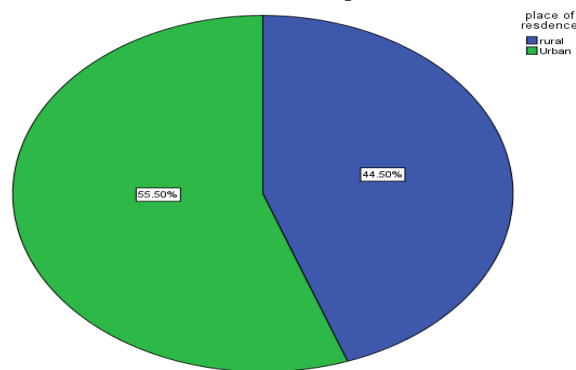


Figure (1) Age groups

In relation to the age, a higher group of the study was ranging from 40 to 50 years, representing 43% of the study sample.



Figure(2) Place of Residence

Over half of the sample was from urban areas, representing 55.5%.

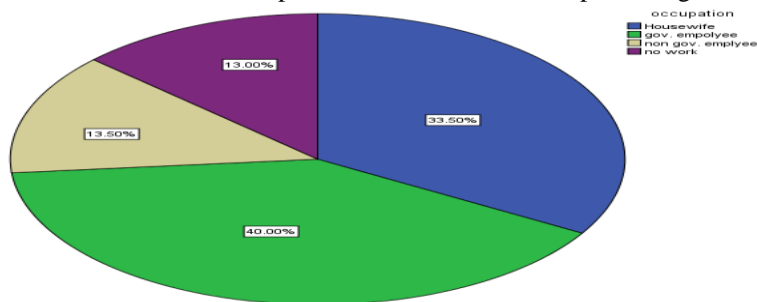


Figure (3) Occupation

Regarding occupation, majority of the sample were working as government employees representing 40%, while the least number of the sample were not working representing 13%.

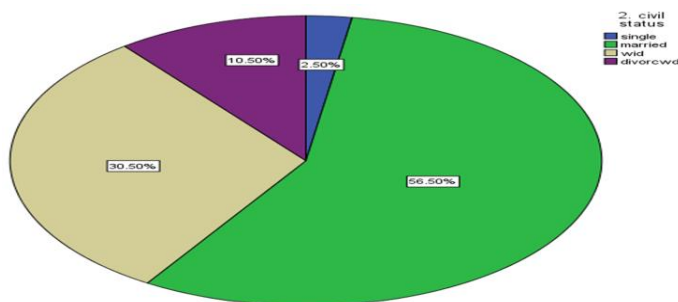


Figure (4) Social status

Regarding social status ,figure 4 revealed that more than half of the sample were married, and about one third of them were widow and tenth of them were divorced , while a very few number were single representing 56.5%, 30.5%, 10.5% and 2.5% respectively.

Table (2) Duration of the Diseases * Presence of complication crosstabulation count

		presence of complication		Total
		No	yes	
Duration of the diseases	less than 5 years	59	44	103
	more than five years	34	63	97
Total		93	107	200

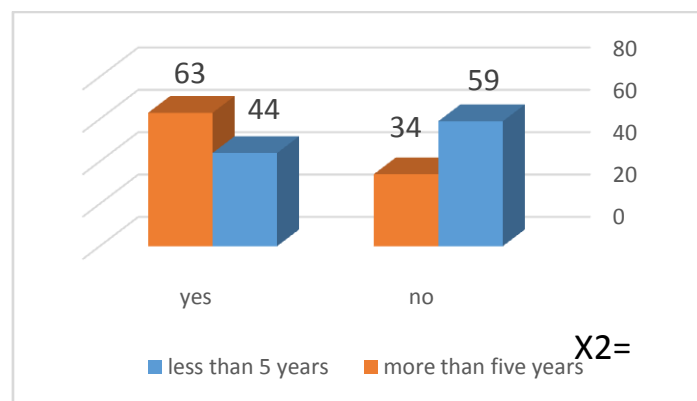


Figure (5)

Regarding duration of illness and presence of complications, this graph(5) and table(2) illustrate that 59% of the sample have duration of illness less than 5 years, and about 63% have complications.

Table (3): Frequency and percentage of the ruminative thoughts among patients with type two diabetes

		Never		Some time		Most of the time		Almost	
		F	P	F	P	F	P	F	P
1	Think about how alone you feel.	97	48.5	78	39.0	15	7.5	10	5.0
2	Think "I won't be able to do my job if I don't snap out of this?"	62	31.0	93	46.5	30	15.0	15	7.5
3	Think about your feelings of fatigue and achiness	46	23.0	99	49.5	40	20.0	15	7.5
4	Think about how hard it is to concentrate	45	22.5	95	47.5	30	15.0	30	15.0
5	Think "What am I doing to deserve this?"	25	12.5	100	50.0	70	35.0	5	2.5
6	Think about how passive and unmotivated you feel.	41	20.5	82	41.0	57	28.5	20	10.0
7	Analyze recent events to try to understand why you are depressed	46	23	87	43.5	61	30.5	6	3
8	Think about how you don't seem to feel anything anymore	71	35.5	71	35.5	38	19	20	10
9	Think "Why can't I get going?"	61	30.5	71	35.5	53	26.5	15	7.5
10	Think "Why do I always react this way?"	66	33	56	28	42	21	36	18
11	Go away by yourself and think about why you feel this way.	55	27.5	43	21.5	76	38	26	13

12	Write down what you are thinking about and analyze it.	50	25	88	44	42	21	20	10
13	Think about a recent situation, wishing it had gone better	70	35	75	36.5	35	17.5	20	10
14	Think "I won't be able to concentrate if I keep feeling this way."	62	31	103	51.5	25	12.5	10	5
15	Think "Why do I have problems other people don't have?"	62	31	57	28.5	66	33	15	7.5
16	Think "Why can't I handle things better?"	77	38.5	52	26	46	23	25	12.5
17	Think about how sad you feel.	40	20	93	46.5	52	26	15	7.5
18	Think about all your shortcomings, failings, faults, mistakes	30	15	113	56.5	42	21	15	7.5
19	Think about how you don't feel up to doing anything	65	32	78	39	47	23.5	10	5
20	Analyze your personality to try to understand why you are depressed	56	28	93	46.5	25	12.5	26	13
21	Go someplace alone to think about your feelings	51	25.5	82	41	26	13	41	20.5
22	Think about how angry you are with yourself	51	7.5	93	46.5	93	46.5	92	46

Table (4): Mean And Standard Deviation Of The Total Rumination And Total Quality Of Life.

Items	Rumination Scale	Total. Quality
Mean	47.010	70.8300
Median	50.000	72.0000
Std. Deviation	8.1752	7.98750
Range	33.0	29.00
Minimum	31.0	56.00
Maximum Kolmogorov-Smirnov ^a	64.0	85.00
Statistics		
Df	183	144
P	200	200
	0.000	0.000

Table(4) Revealed that most of the study samples have negative ruminative thoughts with mean equal 47 and Std =8.17 and p=0.000. Moreover most of the study samples have positive quality of life with mean =70.8 ±7.98&p=0.000.

Figure (6) Correlation between Quality of Life and Ruminative Thoughts



Table (5): Correlation between Rumination and Quality of Life in Diabetic Patients:

Items	Rumination Scale	Total. Quality
Spearman's Rho	Correlation Coefficient	1.000
	Sig. (2-Tailed)	.000
	N	200
Total. Quality	Correlation Coefficient	-.527**
	Sig. (2-Tailed)	.000
	N	200

This table(5) and figure 6 show that, ruminative thoughts are strongly negatively correlated with quality of life, p=0.000.

Table (6): Correlation between Ruminative Thoughts and Socio Demographic Data

Item	Rumination Qi Square	Df	AsympSign
Age 20-50	13.272	3	.004
Education Read And Write, Moderately Educated	15.164	3	.002
Occupation	4.576	3	0.206
	Mann Wittny And Wilcoxon W	Z	P
Place Of Residence Urban	7606.000	-2.357-	.018
Income	4140.500	2.016	0,044

This table(6) shows that, there is statistically significant correlation between ruminative thoughts and age group from 20 to 50 with $p=0.004$, while, it is strongly correlated with educational level (read and write, moderately educated), with $p=0.002$. Moreover ruminative thoughts are strongly correlated positively with urban place of residence with $p=0.018$.

Table (7) Correlation between Quality of Life and Socio Demographic Data

	Quality Of Life Qi Square	Df	AsympSign
Age 20-30	17.969	3	.000
Education Read And Write	10.714	3	.002
Occupation	2.236	3	.525
	Mann-Whitney U & Wilcoxon W	Z	P
Place Of Residence Urban Rural	4429.500 10315.500	-.687	.492
Income	4313.000 & 8499.000	-1.589-	112

This Table (7): Reveals that there is strong positive correlation between quality of life and age group from 20-30 years, with $p=0.00$. Moreover, there is strong correlation between educational level (Read And Write Group) and total quality of life $P=0.002$.

IV. Discussion

Type 2 Diabetes Mellitus is a chronic disease strongly correlated with socio demographic data. Ruminative thoughts having negative consequences on patients' morbidity and mortality rate (19). This study aims to identify the relationship between, sociodemographic characteristics, ruminative thoughts and quality of life in type two diabetes.

In relation to gender, present study revealed that about two thirds of the study samples were female, representing more than two thirds of the study sample. This agrees with (Veghari et al., 2010) who stated that, the prevalence of DM in women was three times more than in men. In relation to the age group, the present study revealed that , the mean age of the sample were, from 40-50 years old, and this agree with (Treynor et al., 2003) who stated that patients of age from 55–65 years old, were five times more than patients with age from 25–35 years old in their study. This could be explained as diabetes are common in urban related to urbanization and low physical activity which is more common after age of 40(20).

Regarding the occupation, about two fifth of the study sample are government employees and about two thirds of them are moderately and highly educated. Also more than half of them are inhabiting the urban areas; this could be related to urbanization, low physical activity and the high prevalence of obesity (21, 22).

The present study revealed that there is statistically significant increase in the ruminative thoughts in the study sample. Most of the time, 30% of the patients, "Think about how hard it is to concentrate". 35% of the patients most of the time "Think what am I doing to deserve this?" The total mean of ruminative thoughts =47 & $p=0.000$. This agree with (S Kalra, B Kalra, 2009) who stated that in diabetes the patients coping are mostly ineffective and catastrophizing manifests as 'I am going to die today because of diabetes'. 'The world will come to an end because of diabetes' or 'No one will ever love me because I have an incurable disease. (20)

In contrast the results of the present study revealed that, there is statistically increase in quality of life among the study group $p=0.0000$ and mean =70.8. This could be rationalized as most of the study samples were having sufficient income and most of them are moderately and highly educated. Moreover, these results could be regarded to what previous researches said that, better socioeconomic status and better control of cardiovascular risk factors were associated with better QoL among the patients with diabetes (23). More over the improve in the quality of life may result from improve in family quality of life as the tool divided into two parts which are part one called family quality of life and this represented in odd numbers of the scale which are 1,3,5,Etc,the matter which improved their total quality of life.

In addition to that negative ruminative thoughts are negatively correlated to quality of life, this agrees with what (King H et al., 1998) the consequences of rumination as a 'sense-making' process may therefore lead to constructive or unconstructive outcomes and depending on whether the ruminative process increases or hinders the resolution of this ideal-real self-discrepancy (24).

Moreover, the distinction between reflective rumination (purposeful turning inwards with the intention of generating possible solutions to the discrepancy) and brooding rumination (focusing purely on the causes, symptoms and consequences of an illness) may further explain variable outcomes in response to the ruminative process (23). The results related increase of quality of life and negative correlation with rumination could be related as nearly half of the samples about 49% have duration of illness less than 5 years old. This group has no complications in addition to little number of the sample size, which could be the cause of good quality of life.

In relation to correlation between ruminative thoughts and sociodemographic data, the present study revealed statistically significant positive correlation between age and ruminative thoughts with $p=0.004$. This could be explained as ruminative thoughts are high in age group higher than 50 years old and this could be related to presence of complications and fear of death (25). In relation to education, the study revealed statistically significant correlation between education and ruminative thoughts with $p=0.002$. As the higher ruminative thoughts are among highly educated patients. This dis agrees with Matthews et al., 2004 who stated that rumination thoughts are common in illiterate diabetic patients. Moreover could be related to examples of ruminations themselves which include thinking about diabetes the whole day, worrying, having day dream about an insulin injection four hours before it is due, and having day dreams about developing kidney failure "because I saw it on T.V (26, 27).

In relation to the place of residence, the ruminative thoughts of diabetic patients are strongly correlated with it. These could be related to urbanization which increases diabetes and hence the ruminative thoughts increase (28).

In relation to quality of life and its correlation with sociodemographic data, the present study revealed that there is statistically significant correlation between quality of life and age group. As quality of life is strongly correlated with age group of 20-30 years old, with $\chi^2=17.969$ and $p=0.000$. This dis agrees with Kiadaliri et al., 2013 who stated that quality of life is correlated with older age group and this could be explained as shortage of the sample size (27,28).

Regarding quality of life and educational level, present study revealed significant positive correlation between read and write patients and good quality of life of the diabetic patients. These could be explained as knowledge increasing patient awareness of the disease and becoming curious about details of it. Hence, increasing coping with the disease (27).

V. Conclusion:

In the present study, diabetes mellitus is common in urban than rural areas and with age ranging from 20-50 years old. Negative ruminative thoughts are common in patients with type two diabetes; however, the quality of life of the study group was good. Hence, the ruminative thoughts of the study group strongly negatively correlated with their quality of life.

Recommendations:

- 1- Making booklets, posters, and visual aids to explain symptoms and complications of the disease to decrease ruminations among diabetic patients.
- 2- Presence of liaison psychiatric nurse in the outpatient clinics for early detection of psychosocial problems of diabetic patients and early referral for help.
- 3- Periodical psycho education for diabetic patients in out patients' clinics.
- 4- Early managements of ruminative thoughts to avoid falling in depression and secondary psychosocial problems.
- 5- Establishing medical convoys, and workshops with collaboration of ministry of health and ministry of information for education of the patients about effect of urbanization on the level of diabetes, complications and its psychosocial problems. Hence, providing solutions to decrease these problems.

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