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## Research Article

# Psychiatric Disorders in Diabetic Patients in Rafsanjan

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### ABSTRACT

**Objective:** To determine prevalence rates, associated features, and risk factors for psychiatric disorders subsequent to the diagnosis of IDDM.

**Methods:** In this cross-sectional study were been selected 100 randomly who referred to Rafsanjan Diabetes Center. The data of this study is gathered demographic questionnaire and Minnesota Multi-phasic Personality Inventory (MMPI). Data was analysed with software SPSS-17.

**Results:** 76% of the patients were female and 24% were men 45.4% of the illiterate population. The results showed hypochondriasis (22%) and schizophrenia (19%) and depression (11%) are three psychiatric disorders that patients with diabetes in high-risk groups have reported.

**Conclusion:** The present study demonstrated that about 30-45% of patients with diabetes suffered from common mental disorders. The prevalence of some psychiatric disorders is considerable in diabetic patients in Rafsanjan.

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## Introduction

Diabetes mellitus is one of the major health problems in developing countries in terms of its mortality and prevalence. Prevalence diabetes was about 8% in 2011 and is predicted to rise to 10% by 2030. Nearly 80% of people with diabetes live in low- and middle-income countries [1]. Asia and the eastern Pacific region are particularly affected [1, 2]. Diabetes is a serious public health problem. It is a major cause of disability and death in the most countries. Diabetes is expensive for people with the disease and their families and for nations as well. Diabetes is a lifelong condition that seriously affects a person's quality of life. Diabetes as a chronic disease, not fatal but can cause permanent disability [3]. World Health Organization in 2004 shows that after 15 years, almost 2% of diabetic patients were blinded and about 10% of

patients had severe visual disabilities. Also, 50 percent of diabetics suffer from diabetic neuropathy. The world is facing a growing diabetes epidemic of potentially devastating proportions. Its impact will be felt most severely in developing countries.

The WHO and the International Diabetes Federation are working together to support ongoing initiatives to prevent and manage diabetes and its complications, and to ensure the best quality of life possible for people with diabetes [4]. Psychological illness has a key role in physical symptoms and intensification psychological distress. The best example to explain this association is relation between depression and diabetes that is a reciprocal relationship mental and physical. Diabetes is a causes a person to have a variety of psychological disorders such as anxiety, depression and mental disorders [5]. Findings suggest that depression and type II diabetes could develop in parallel through shared biological

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pathways. In epidemiological studies, innate immunity has been proposed as a possible mechanism by which depression and type 2 diabetes could develop as a result of stressors throughout the life course. Fetal or maternal stress in utero, cumulative exposure to low socioeconomic status, and poor health behaviours in people with a genetic predisposition might lead, in parallel, to insulin resistance and type 2 diabetes, depression, dementia, and cardiovascular disease [6]. International studies have shown that there is significant relationship between the psychological symptoms and diabetes in men and women [7]. Grandinetti and colleagues in a study on 574 patients in the region Hawaii, found that prevalence of depression was increased among diabetic patients. Also was found in patients with diabetes, depression is associated with glycemic control [8]. In a survey the rate of depression among the subjects with diabetes mellitus was 27.8% and the prevalence of suicidal behaviour was 8/7% [9]. Depression in patients with type 2 diabetes is associated with poor self-care behaviours [7]. Because of the high prevalence of eating disorder and depressive symptoms, their interrelationship, and their associations with metabolic control, particularly among men, regular mental health screening is recommended for young adults with type 1 diabetes [10]. The prevalence of anxiety disorders in patients with diabetes is 60%. Results of researches have shown diabetes increases the risk of anxiety disorders. There is a Bilinear correlation between diabetes and anxiety and depression [11]. Hasaan *et al.* suggest that the presence of diabetes is a significant risk factor for women experiencing current anxiety disorders [12]. Diabetes II is significantly more common in people with major depression disorder, compared with the general population [13]. Since the patients with diabetes are a high-risk group for psychiatric disorders, assessment and management of diabetes risk factors should be considered in Psychiatric disorders [14]. The aim of study is evaluate the prevalence of psychiatric disorders in diabetic patients.

**Table 1:** Demographic parameters.

Academic state			Economic state				gender		Marital state		
More than diploma	diploma	Less than diploma	perfect	good	moderate	weak	man	woman	widow	married	Single
36	49	15	5	15	48	32	24	76	5	84	11

**Table 2:** Diabetic patients and risk of psychiatric disorders.

Subscales	Low Risk Frequency (%)	At risk Frequency (%)	High risk Frequency (%)
L	89(89)	7(7)	4(4)
F	55(55)	31(31)	14(14)
K	70(70)	25(25)	5(5)
Hs	31(31)	47(47)	22(22)
D	40(40)	37(37)	11(11)
Hy	38(38)	41(41)	9(9)
Pd	51(51)	32(32)	7(7)
Pa	63(63)	31(31)	6(6)
Pt	42(42)	49(49)	9(9)
Sc	42(42)	39(39)	19(19)
Ma	81(81)	16(16)	3(3)

**Table 3:** Diabetic patients and risk of psychiatric disorders (gender).

Subscales	Female Frequency (%)			Male Frequency (%)		
	Low Risk	At Risk	High Risk	Low Risk	At Risk	High Risk
L	67(88.2)	6(7.9)	3(3.9)	22(91.7)	1(4.2)	1(4.2)
F	40(52.6)	24(31.6)	12(15.8)	15(62.5)	7(29.2)	2(8.3)

## Methods

This cross-sectional study was carried out in type 2 diabetic patients referred to Rafsanjan Diabetes Center. Sample size was calculated with sample size calculation formula for limited population. The study sample was 100 diabetic patients that were simple randomly selected among all diabetes patients that refer to Rafsanjan Diabetes Center in 2013. Inclusion criteria was people with diabetes referred to the diabetes clinic that had the ability to understand concepts. Exclusion criteria was unwillingness of people to participate in research and sever physical diseases other than diabetes. The data of this study is gathered demographic questionnaire including: age, sex, marital Status, education status, and Minnesota Multi-phasic Personality Inventory (MMPI). The MMPI is a screening instrument used to differentiate various forms of psychopathology. subscales detect various features of psychopathology including hypochondriasis (Hs), depression (D), hysteria (Hy), psychopathic deviate (Pd), masculinity-femininity (Mf), paranoia (Pa), psychasthenia (Pt), schizophrenia (Sc), hypomania (Ma), and social introversion (Si), and the validity subscales consist of the cannot say, lie (L), frequent (F), and correction (K) scales [14]. The 71-item MMPI short form was developed by Kincannon and it is used widely in Iranian studies so its validity is proved [15-17]. Besides, the reliability of this questionnaire has been examined and verified [18].

## Results

In this study 76% of the patients were female and 24% were men. 45.4% of the illiterate population, 11% was single and 32% of the poor in the economic situation. Also, 84% of them were married (Table 1). The results showed hypochondriasis (22%) and schizophrenia (19%) and depression (11%) are three psychiatric disorders that patients with diabetes in high-risk groups have reported. frequency subscale of both sexes are given in (Table 2).

K	52(68.4)	20(26.3)	4(5.3)	17(70.8)	6(25.0)	1(4.2)
Hs	21(27.6)	39(51.3)	16(21.1)	10(41.7)	8(33.3)	6(25.0)
D	28(36.8)	37(48.7)	11(14.5)	12(50.0)	11(45.8)	1(4.2)
Hy	38(50.0)	30(39.5)	8(10.5)	14(58.3)	9(37.5)	1(4.2)
Pd	42(55.3)	28(36.8)	6(7.9)	15(62.5)	8(33.3)	1(4.2)
Pa	46(60.5)	24(31.6)	6(7.9)	17(70.8)	7(29.2)	0(0.0)
Pt	27(35.5)	40(52.6)	9(11.8)	15(62.5)	9(37.5)	0(0.0)
Sc	31(40.8)	28(36.8)	17(22.4)	11(45.8)	11(45.8)	2(8.3)
Ma	62(81.6)	12(15.8)	2(2.6)	19(79.2)	4(16.7)	1(4.2)

## Discussion

We propose to determine the magnitude of psychiatric disorders in adults with diabetes. The present study supports the hypothesis that there are high prevalence psychiatric disorders in patients with diabetes than general population. Findings of the present study revealed that 20.4 to 40% of patients with diabetes suffer from common psychiatric disorders, depending on the assessment method used. Among the various psychiatric disorders, hypochondriasis disorder was most common and the rate of high risk varied from 21 to 25% and 45 to 48% at risk for depression, depending on the method used for making the diagnosis.

Psychiatric diagnoses of anxiety, depression and eating disorders are frequently listed as psychological aspects of diabetes, and improvements in glycaemic control (HbA1c) reported as the primary outcome measure of treatment [19]. In a meta-analysis study by Vancampfort and associations funded, women with diabetes had a higher lifetime prevalence of any depressive and or anxiety disorder than women without diabetes. About 3 in 10 women with diabetes experienced a chronic disorder of any depressive disorder, while 1 in 2 women with diabetes experienced a lifetime event of any anxiety disorder. In the case of lifetime disorders, diabetes was significantly associated with any depressive disorder, and posttraumatic stress disorder [13]. The increased prevalence of depression in diabetes is explained partially by the fact that depression is an independent risk factor for development of type 2 diabetes [20]. In a recent report, Freedland analysed data from four large prospective population studies from the United States and Japan that determined the risk of diabetes development attributable to depression [21].

In this study found 48.7% of women, 45.8% of men with diabetes are at risk and 14.5% of women, 4.2% of men with diabetes are high risk for depression disorder, which is similar to results Garduno-Espinosa *et al.* The study showed that the prevalence of depression in patients with diabetes is 36 % that it depends on two factors: sex, duration of diabetes [22]. Also, the study conducted by Grandinetti showed there is a significant relation between depressive symptoms and HbA1c [8]. In a study in Iran, the prevalence of depression in patients with diabetes was estimated at 71% [23]. Patients with bipolar disorder (BD) are more frequently affected by metabolic syndrome (MetS) than the general population [24]. Evidence indicates that individuals with bipolar disorder are at greater risk than the general population for overweight and obesity and there is also increasing evidence of a relationship between bipolar disorder and the metabolic syndrome and its components [25]. Also, McIntyre *et al.* funded that bipolar disorder populations may be an at-risk group for diabetes [26]. In this study, 16% of patients with diabetes is at risk for hypomania. Given the purpose of this study is that the prevalence of mental disorders in diabetes, results

shows that 36.8% of women, 45.8% of men are at risk and 22.4% of women, 8.3% of men are high risk for Schizophreniadisorder. Studies have shown that a genetic overlap between the chromosomal regions associated with schizophrenia are associated with diabetes [27]. A multitude of studies reported negative impact of diabetes on cognitive abilities, the patients with diabetes mellitus presenting a high risk factor for the development of cognitive problems compared to healthy persons. Elevated blood glucose levels can result in brain malfunction and it promotes the synthesis of sorbitol, which damages blood vessels and causes degeneration of the nerves, resulting in neuropathology which can lead to dementia or cognitive impairment [28].

## Conclusion

The present study demonstrated that about 30-45% of patients with diabetes suffered from common mental disorders. The prevalence of some psychiatric disorders is considerable in diabetic patients in Rafsanjan.

## Ethical Approval

Taken.

## Conflicts of Interest

None.

## Funding

None.

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