

**ORIGINAL PAPER**

**Does Perceived Family Support has a Relation with Depression and Anxiety in an Iranian Diabetic Sample?**

**Saeideh Garousi, PhD**

Associate Professor of Social Sciences, Social Sciences Department, Human Sciences School, Family & women studies Center, Shahid Bahonar University, Kerman, Iran

**Behshid Garrusi, MD**

Associate Professor of Psychiatry-Neuroscience Research Center, Department of Community Medicine, Kerman University of Medical Sciences, Kerman, Iran

**Correspondence:** Behshid Garrusi, P.O. Box:444, Psychiatry-Neuroscience Research Center, Department of Community Medicine, Kerman University of Medical Sciences, Kerman, Iran  
E-mail: BGarrusi@kmu.ac.ir, behshidgarrusi@gmail.com

**Abstract**

**Background:** Considering psycho-social aspects of diabetes such as family support ,depression and anxiety ,may have a pivotal role in improvement of health status of the patients. In Iran (IR), as other parts of the world prevalence of diabetes and its burden are increasing therefore these issues must be seriously considered.

**Aims:** The aim of this study was identify the contributing factors that could be promote quality of life in diabetes. For this reason , relationship between perceived family support and psychiatric comorbidities (depression and anxiety) in Iranian diabetic population sample was studied .

**Methodology:** In this cross-sectional study which was conducted in South-east Iran, 386 diabetic patients were assessed. The assessment instruments were Diabetes Specific Family Support (DSFS), Hospital Anxiety – Depression Scale( HADS), and demographic variables.P-values less than 0.05 were considered as statistical significance.

**Results:** About 52% of the participants were female. The mean (SD) age was 50.77 (10.24) years. The mean score of supportive behaviors,in females was lower than males. There was no relationship between the mean scores of depression and anxiety with gender. Duration of diabetes, educational level and socio-economic level had significant relationship with depression. The relation between subscales of family behaviors (supportive and non supportive) and psychological comorbidities (depression, anxiety) were significant ( $P<0.05$ ) .

**Conclusion:** The survey results emphasized the important role of family support in Iranian diabetic patients .Families should be encouraged to provide a supportive environment for the diabetic patients that could be due quality of life promotion .

**Key words:** Diabetes, Perceived family support, psychological comorbidities, Depression, Anxiety, Iran (IR)

## Introduction

Diabetes is a chronic metabolic disorder that would be need to take care for lifetime by patients and their family. Diabetes and its complications are associated with high Burden of Disease (World Health Organization 2007). Although the prevalence of diabetes is increased worldwide, but increasing of diabetes in Eastern Mediterranean countries and the Middle Eastern will be prominent (King and Rewers 1993, Kin, Aubert and Herman 1998, World Health Organization, 2007).

In diabetic care, attention to psychosocial aspects of disease could be decrease diabetic complication and improve outcome. One of important aspects of diabetic care is, considering associated psychological problems especially depression and anxiety. Psychological disturbance that are associate with diabetes, could be affect the quality of life, therapeutic adherence and outcome of disease (Faulkner 1996, Garratt, Schmidt and Fitzpatrick, 2002).

Another aspect of diabetic care is social issues, that could be affect the course of disease. Some of studies showed social factors and social support could be have effect, not only complication of disease but also, mortality of disease (Garratt, Schmidt and Fitzpatrick, 2002, Engum et al., 2005). Social support is defined as individual's perception regarding assistance from others that could be include various aspects such as emotional, financial or belonging support (Desai et al., 2002, Hogan, Linden, Najarian, 2002).

Social network including family, friends or neighborhoods are source of support for diabetic patients that could be result to decrease of diabetes complications especially psychological complications. In diabetic care, social support especially family support have a great role (Engum et al., 2005). American Diabetes Association (2004), suggested life style, cultural,

educational, psychosocial and economic factors could be influence the diabetes management, that the family support is considered as important factors (Engum et al., 2005). Negative familial interaction might influence metabolic control (Ciechanowski et al., 2001).

Some of researches argue that psychological problems usually occur secondary to diabetic complication or loss of function, but others do not agree with it (Hogan, Linden, Najarian, 2002). Perceived social support could be result to decrease psychological complication and improvement of quality of life in diabetic patients (Taylor and Keeffe, 2001, Hogan, Linden, Najarian, 2002, Engum et al., 2005). The sense of impairment in social support could be result to developing psychological disturbances. Moreover, must be consider that, depression and anxiety, are associates with chronic disease, also.

Psychological disturbances could be due to nature of disease or to be as a complication of disease (Desai et al., 2002, Engum et al., 2005). Comorbidity of depression with diabetes could be affect the metabolic markers such as glycemic control, blood pressure and triglyceride level (Anderson et al., 2004). Therefore, depression was considered as a factor in clinical management and public health policy (Dunstan et al., 2002)

In recent years, in Iran (IR), increasing urbanization, changes in lifestyles, increasing of life expectancy and improvement of health care services could be result to increase of diabetic patients. It is estimated in 2030; about 6,726,000 persons will suffer from diabetes (World Health Organization, 2007). The burden of diabetes will be serious and need to great attention. Despite of high prevalence of diabetes in Iranian population, there are few researches about psychosocial aspects of it. The aim of this study was identification of some of aspects of social support and psychological factors that could be affect the

course and treatment of disease.

### Methodology

This cross sectional study was done in diabetic patients who referred to diabetes outpatients clinics in Kerman, the largest provinces in Iran. This research was approved by Ethical committee of vice chancellor for research in Kerman Medical Sciences University. All individuals informed about this study and they signed informed consent. The sample size was 386 persons that were selected by systematic random sampling. Inclusion criteria for selection of subjects were 1) age  $\geq 20$  years, 2) duration of diabetes diagnosis  $\geq 2$  years, 3) anti diabetic agent use (oral or insulin injection), 4) ability of reading and writing.

### Measurement of variables

The self-reported survey's questionnaire included three parts:

#### 1- Diabetes Specific Family Support (DSFS)

This self reported likert type questionnaire was developed in 1986 by Schafer, that include 16 items ,9 items for positive or supportive behaviors and 7 items for negative or non supportive behaviors(Schafer et al.,1987 )This questionnaire is scored from 1 ( none ) to 5 ( a lot of ) ,the total score is ranging from 16-80.Psychometric properties of this questionnaire in Persian was acceptable (Mourowatisharifabadi and Rohanee, 2008). Cut off point 22 (non supportive subscale) and 31 (supportive subscale) for categorization of DSFS subscales, to low and high was considered.

#### 2-Hospital Anxiety – Depression Scale( HADS)

This instrument was developed by Zigmond and Snaith in 1983 (Zigmond and Snaith, 1983). HADS has been developed for detection of depression and anxiety in hospitalized patients, but that would be suitable for using in the general population (Mykletun, Stordal, Dahl, 2001, Montazeri et al., 2003). Psychometric properties of this questionnaire in Persian was assessed that was acceptable (Montazeri et al., 2003). This scale have 14 items ( 7 items for each subscales ) on a 4-

point Likert scale (range 0–3) ,the total score is ranging from 0–21.HADS score was divided to three categories (for both depression and anxiety) : 0-7 normal .8-11 borderline and  $>11$  represents clinical subjects (Zigmond and Snaith ,1983).

### 3-Demographic variables

Such as age, gender, educational status (based on educational years), duration of disease, kinds of anti- diabetic agent use (oral agents, Insulin, both and without treatment), Socio-economic status (poor-medium, good, excellent), marital status (single, married, divorced or widowed) and family members that who live with patient, were considered in this research.

### Statistical analysis

All analyses were done using SPSS .15 software. For descriptive analysis, we used central tendency and dispersion (Mean  $\pm$ SD).

Pearson correlation test was used for exploration of relation between perceived family support and psychosocial factors (depression and anxiety) with in diabetic subjects.with a confidence interval of 95%.

P-value less than 0.05 was considered as significance.

There was no Conflict of Interest.

### Results

About 52 % (200) of the participants were female .The mean (SD) age was 50.77 (10.24) years old with a minimum of twenty years. About half of participants lived in Kerman city.

Thirty percent of patients were estimated their socio-considered economic status as good or excellent and about 56.5% and 9.5% of the respondents were in the medium and poor categories, respectively. More than 90% of them were living with their family (spouse, children or parents). Some of demographic characteristics were shown in Table1.

Frequencies of DSFS and psychological comorbidities in diabetic patients were shown in

Table.2

The mean score of supportive behaviors ,in females (30.92±5.79) was lesser than males (31.21± 4.76), but mean score of negative behaviors was greater (22.5± 4.35 vs 21.8±3.90 ,respectively).There was no significant difference between both sexes (p>0.05).Although the mean

score of depression and anxiety in women( Mean± SD for depression was 10.43±3.49 and for anxiety 10.76± 3.19 ) was greater than men (Mean± SD for depression was 9.87 ±3.4549 and for anxiety 10.08±3.07), but there is no significant difference between them (p>(0.05).

**Table 1: definition of some of demographic characteristics**

		Frequency	%	Mean	SD
Age (years)				50.77	1.57
Education (years)				10.30	5.44
Marital status	Single	58	15.1		
	Married	267	69.4		
	Widowed or divorced	60	15.5		
Employment	Employee	143	37		
	Non-employee	113	29.3		
	Housewife	130	33.7		
Duration of diabetes diagnosis				7.32	6.62
Kinds of treatment	Oral agents	158	48.1		
	Insulin	75	19.4		
	Both	105	27.3		
	Without treatment	20	5.2		

In addition, the mean score of supportive behaviors was greater in single patients (31.94 ±4.99), individuals that lived with their parents (32.27±4.74) and high socio economic status (31.25±4.66) than others. The mean score of

depression in individuals, whom lived alone (11.62± 4.28) or with children (11.46±3.73) were higher than others, as similar as that persons with low socio-economic status (13.44± 2.69).

**Table2- Frequencies of DSFS and psychological comorbidities in diabetic patients**

		Frequency	Percent	Mean ±SD
Supportive DSFS	Low	213	56.8	31.07±5.31
	High	162	43.2	
Non supportive -DSFS	Low	196	52.5	22.26±4.14
	High	177	47.5	
Anxiety	Normal	61	16.1	10.40±3.17
	Borderline	191	50.5	
	Clinical significant	126	33.3	
Depression	Normal	87	23.3	10.18±3.47
	Borderline	158	42.2	
	Clinical significant	129	34.5	

*DSFS =Diabetes Specific Family Support, Low Positive –DSFS ≤31 , High Positive –DSFS>31.1  
Low Negative –DSFS ≤22, High Negative –DSFS >22.1*

**Table 3-correlation between family behaviors and psychological co-morbidities in diabetic patients.**

VARIABLES	Pearson coefficient	P value	N
Supportive -DSFS/Depression	0.359-	0.000	363
Supportive -DSFS/Anxiety	0.039-	0.001	361
Non Supportive -DSFS /Anxiety	0.195	0.000	366
Non Supportive -DSFS /Depression	0.100	0.05	361

*DSFS =Diabetes Specific Family Support  
P-value < 0.05 was considered significance*

There was significant relation between depression score and patients' age ( $p < 0.000$ ) and educational level ( $p < 0.000$ ). With increasing of educational level, depression score was decreased ( $r = -0.375$ ). With increasing of diabetes duration, the mean score of depression was increased ( $p < 0.009$ ).

The relation between Diabetes Specific Family Support (DSFS) subscales and psychological comorbidities (depression, anxiety) was shown in Table 3.

### Discussion

Considering of social and psychological issues are very important in management of chronic disease such as diabetes. Researches are argued that control of these factors could be result to improve of diabetic management and decrease of its complications (Desai et al., 2002, Al-Amara et al., 2011).

In this study we focused on presence of depression and anxiety in diabetic patients and the relation between those and family support, because many of researches focused on role of family and its effects on psychological problems, in diabetic patients especially diabetic children. Based on Family system theory, family behaviors especially positive behaviors have been associated with therapeutic compliance in diabetic adolescents (Wysocki et al., 1997).

We found that duration of diabetes had significant effects on depression in diabetic patients. This finding is consistent with many of researches, because is expected that increasing in diabetic duration could be cause to increasing of diabetic complications, limitations, frustration and finally depression (Engum, 2007, Ajlouni, Khader, Batiha, 2008). But some of researches agree that there is no relation between duration of diabetes and depression frequency (Ajlouni, Khader, Batiha, 2008).

Many of researches are focusing on effects of socioeconomic status on course of chronic disease (Winkleby et al., 1992, Chandola et

al., 2007). Depression score in low socio economic group was higher than others. In low socio-economic classes, there are different stressors that may be due to social and economic problems. These stressors could be affect the individuals' well being, quality of life and finally psychological morbidity such as depression or anxiety (Engum, 2007). Low educational level is identified as risk factor for depression developing (Katon et al., 2004, Engum et al., 2005), that consistent with our results. Education improves knowledge about disease, change of lifestyles and risky behaviors that could be affect morbidity or mortality of chronic disease (Winkleby et al., 1992).

Although being female is associated with greater risk of depression in diabetic patients, our results showed, there was no relation between gender and depression or anxiety ( $p = 0.49$  and  $p = 0.08$ , respectively). Although this finding is in contrast to the some of researches, but there are evidences in favor of it (Engum, 2007). The reason why there is no relation between gender and psychological comorbidities (anxiety and depression), may be need to future researches.

Depression in the alone individuals and elderly persons whom lived with their children was greater than others. Loneliness and sense of dependence on others could be result to depression. In Iran sense of dependence to children is unacceptable; this cultural opinion could be affect the developing of depressive symptoms in elderly patients.

In our study the mean depression score in single persons was lower than others, but single persons are more prone to developing depression. This may be due to the associate problems with chronic disease that could be result to some of differences. Marriage is associate with need to higher adaptation with others and familial responsibilities such as children care, sexual relation and financial problems. In Iranian families, often single individuals live with parents and have less

responsibilities and are received positive family support . Although marriage was considered as protective factor in depression, but it is seemed that in diabetic patient could be consider as a risk factor.

In contrast, the high anxiety score in diabetic patients, there was no relation between demographic variables and its. Anxiety had significant relation with family support .Supportive behaviors could be results to decrease of anxiety and non supportive behaviors from family was associated with anxiety. These results were not surprising ,because sense of belonging to a network and received support from them could be result to acceptance of disease , adherence to treatment , improving quality of life and decrease of depression and anxiety (Wang and Fenske 1996, Toljamo and Hentinen 2006).

In this study, supportive family behaviors as an important kind of social support could be related to depression and anxiety, negatively. Non-supportive behaviors were associated with depression and anxiety. One of the most important factors in diabetic control is family support (Engum et al.,2005). Family support can affect the health and course of disease (Wysocki et al., 1997, Chandola et al., 2007). Control of blood glucose, healthy diabetic regime and quality of life in diabetic patients had relation with positive or supportive behaviors (Wang and Fenske 1996). Studies showed large social network may be decrease of mortality in chronic disease. It seems that reason of it is improving of care, financial support, behavioral regulation such as smoking or adherence to diet and psychological support. There are two models that interpret the effects of social support on course of chronic disease. One of these model is direct-effect model (Broadhead, Kaplan, Jamesand, 1983), that argues social support have a direct effect on health. Another model is stress-buffer model (Cassel, 1976, Palinkas, Wingard, Barrett-Connor, 1990), that believe, social support could be modify negative effects of physical or

psychological stress of disease.

### Conclusion

In Iranian culture, sense of belonging to family is very important and is expected family could be act as a supportive source. Therefore, In the diabetic care programs, family and interaction between its members must be seriously mentioned. Also our findings emphasized on the importance of family behaviors effects in diabetic management, and the indirect effects via psychological comorbidities.

Therefore, families must be educated regarding the associated psychological problems in diabetes and importance of their support to patients. These educations could be effective in reducing of diabetic complication, morbidity, costs and even mortality. In Iran as a country with developing diabetic care system, this attention would be considered seriously. Future researches need to identify the effects of social especially family support on diabetes course and prognosis based on special issues such as gender. Therefore in Iran, the future researches must be focused on psychosocial aspects of diabetes , especially familial interaction and psychological morbidity that cause better diabetic management and decrease of burden of diabetes .

### Acknowledgement

The authors thank Diabetic patients that participated in this study and Miss Fatemeh Raeesee for their cooperation.

### References

- Ajlouni K , Khader YS , Batiha BA. (2008) An increase in prevalence of diabetes mellitus in Jordan over 10 years. *Journal of Diabetes Complications*, 22(5):317-24
- Al-Amara RA, Sobeh MM, Zayedcand AA, Al-domid HA. ( 2011) Depression among adults with diabetes in Jordan: risk factors and relationship to blood sugar control. *Journal of Diabetes Complications*, 25(4):247-52

- American Diabetes Association.(2004) Standards of medical care in diabetes. *Diabetes Care*, Supplement 1, S15 – 35.
- Anderson RJ, Freedland KF, Clouse R E , Lustman PJ. (2001) The prevalence of comorbid conditions in adults with diabetes: a metaanalysis. *Diabetes Care*, 24:1069–1078
- Broadhead WE, Kaplan BH, Jamesand et al. (1983) The epidemiologic evidence for a relationship between social support and health. *American Journal of Epidemiology*, 117(5):521-37
- Cassel J.(1976) The contribution of social environment to host resistance.The Fourth Wade Hampton Frost Lecture. *American Journal of Epidemiology*, 104 (2):107-23
- Chandola T, Ferrie J, Sacker A, Marmot M. (2007) Social inequalities in self reported health in early old age: follow-up of prospective cohort study. *BMJ* ,334 (7601):990
- Ciechanowski PS, Katon WJ, Russo J E , Walker EA. (2001) The patient provider relationship: Attachment theory and adherence to treatment in diabetes. *American Journal of Psychiatry*, 158: 29 – 35
- Ciechanowski PS, Hirsch IB, and Katon WJ.( 2002) Interpersonal predictors of HbA(1c) in patients with type1 diabetes. *Diabetes Care*, 25: 731 – 736
- Desai MM, Rosenheck RA ,Druss BG , Perlin JB.(2002) Mental Disorders and Quality of Diabetes Care in the Veterans Health Administration. *American Journal of Psychiatry*, 159 (9):1584–90
- Dunstan DW, Zimmet PZ, Welborn TA, De Courten MP, Cameron AJ, Sicree RA, et al. (2002 )The rising prevalence of diabetes and impaired glucose tolerance: the Australian diabetes, obesity, and lifestyle study. *Diabetes Care* , 25:829–834
- Engum A, Mykletun A, Midthjell K, Holen A, Dahl AA .(2005) Depression and diabetes: a large population-based study of socio-demographic, lifestyle, and clinical factors associated with depression in type 1 and type 2 diabetes. *Diabetes Care* , 28 (8) : 1904–9
- Engum A.(2007) The role of depression and anxiety in onset of diabetes in a large population-based study. *Journal of Psychosomatic Research* , 62( 1) : 31–8
- Faulkner MS. (1996) Family responses to children with diabetes and their influence on self-care. *Journal of Pediatric Nursing*, 11(2): 82–93
- Garratt AM, Schmidt L, Fitzpatrick R. (2002) Patient-assessed health outcome measures for diabetes: a structured review. *Diabetic Medicine* , 19(11): 1–11
- Hogan B, Linden W, Najarian B.(2002)"Social support interventions: Do they work?". *Clinical Psychology Review* , 22 (3): 381–44
- Katon W, von Korff M , Ciechanowski P, Russo J, Lin E, Simon G,et al.( 2004) Behavioral and clinical factors associated with depression among individuals with diabetes. *Diabetes Care*, 27(4):914–20
- King H, Rewers M. (1993) Global estimates for prevalence of diabetes mellitus and impaired glucose tolerance in adults. WHO ad hoc Diabetes Reporting Group. *Diabetes Care*. 16 (1): 157–177
- Kin H, Aubertand RE, Herman WH.(1998) Global burden of diabetes, 1995–2025: Prevalence, numerical estimates, and projections. *Diabetes Care*, 21(9): 1414–1431
- Montazeri A, Vahdaninia M , Ebrahimi M, Jarvandi SH.(2003)The Hospital Anxiety and Depression Scale (HADS): translation and validation study of the Iranian version. *Health Quality of Life Outcomes*, 1:14.
- Mourowatisharifabadi MA, N. Rohanee N. (2008) Social support and diabetic self care .*Tabibe shargh* ,9(4) :275-284.[ in Persian ]
- Mykletun A, Stordal E, Dahl AA. (2001) Hospital Anxiety and Depression (HAD) scale: factor structure, item analyses and internal consistency in a large population. *British Journal of Psychiatry*,179:540-4
- Palinkas LA, Wingard DL, Barrett-Connor E. (1990) Chronic illness and depressive symptoms in the elderly: a population-based study. *Journal of Clinical Epidemiology* ,43 (11) :1131–41
- Taylor HR , Keeffe JE.(2001) World blindness, A 21st century perspective .*British Journal of Ophthalmology* , 85(3) : 261–6
- Toljamo M, Hentinen M. (2001) Adherence to self-care and glycemic control among people with insulin – dependent diabetes mellitus. *Journal of Advance Nursing* ,34(6):780-6
- Wang Y, Fenske MM. (1996) Self-care of adults with



- non-insulin-dependent diabetes mellitus: Influence of family and friends. *Diabetes Education*, 22(5):465-70
- Winkleby MA, Jatulis DE, Frankand E, Fortmann SP. (1992) Socioeconomic status and health: how education, income, and occupation contribute to risk factors for cardiovascular disease. *American Journal of Public Health* ,82(6):816-20
- World Health Organization (WHO) (2007), [www.who.int/diabetes/facts/world\\_figures/en](http://www.who.int/diabetes/facts/world_figures/en).
- Wysocki T, Greco P, Harvey LM, McDonell K, Danda CL, et al.(1997) Social validity of support group and behavior therapy interventions for families of adolescents with insulin-dependent diabetes mellitus. *Journal of Pediatric Psychology*, 22(5):635-49
- Zigmond AS, Snaith RP. (1983) The hospital anxiety and depression scale. *Acta Psychiatrica Scandinavica* ,67 (6):361–70