

Original Article

## Examining the Relation between Family Support and Compliance to Treatment in Individuals with Diabetes

**Gamze Yildiz Aslan, RN, MSc**

Bahkesir State Hospital, Work Health and Safety Unit, Bahkesir, Turkey

**Ozlem Tekir, PhD**

Assistant Prof., Izmir Demokrasi University, Faculty of Health Sciences Department of Nursing, Izmir, Turkey

**Hicran Yildiz, PhD**

Associated Prof., Uludag University, Faculty of Health Sciences Department of Nursing, Bursa, Turkey

**Correspondence:** Ozlem Tekir, Izmir Demokrasi University, Faculty of Health Sciences Department of Nursing, Izmir, Turkey e-mail: ozlemtekir\_10@hotmail.com

### Abstract

**Background:** Diabetes Mellitus is a condition that has a significant effect on the lives of individuals with diabetes and their families. Individuals with DM display emotional reactions and difficulties in adjustment.

**Aim:** The purpose of this study is to examine the relation between family support and compliance to treatment in individuals with diabetes.

**Methodology:** The study population consists of individuals admitted to Bahkesir State Hospital Endocrinology Clinic; while the sample of the study consists of 260 voluntary individuals with diabetes whose conditions satisfied the study criterion. Data gathering forms were Survey Form and Hensarling's Diabetes Family Support Scale. Study data have been gathered from 30 November 2015 to 30 September 2016. Data have been assessed by using Shapiro Wilk's test, Mann Whitney U test, Kruskal Wallis-H test, Post-Hoc Multiple Comparison test.

**Results:** 95,38% of the individuals with diabetes taking part in the study have stated that they accepted treatment; 93,08% stated they do blood glucose monitoring; 22,69% stated they regularly perform medical nutrition treatment, 28,84% stated they perform regular exercise, 94,23% stated they take medication regularly, 23,46% stated they watch out for foot care and 82,69% stated that they receive family support for treatment and care. There is no statistically meaningful difference between Family Support Scale total score and regular implementation of medical nutrition treatment, foot care, previous training on diabetes and receiving family support for diabetes treatment and care.

**Conclusion:** In terms of Hensarling's Diabetes Family Support Scale sub-dimension support scores, namely empathic, encouraging, facilitator and sharing, there is no statistically significant difference between receiving family support for diabetes treatment and care.

**Key words:** Diabetes, family support, compliance to treatment.

### Introduction

Diabetes Mellitus (DM) is a highly serious and progressing chronic metabolism disease, which due to the interaction between genetic, environmental factors and lifestyle changes causes an absolute and relative deficiency of insulin secretion and/or insulin effect which in turn lead to degradations in

carbohydrate, protein and fat metabolism (Tanrıverdi et al., 2013; Çinar and Kara, 2010). Along with the rapid changes in lifestyle, diabetes has become an epidemic disease and a global threat in all developed and developing societies. With the addition of genetic, environmental, behavioural, socio economic and cultural factors, the prevalence of particularly Type

2 diabetes is rapidly increasing and is currently one of the leading causes of death. It is also a significant public health issue as it leads to conditions such as blindness, nerve damage and kidney failure which have a huge impact on the quality of life as well as the social and professional lives of individuals (Gulşen and Olgun, 2014; Olgun et al., 1998; Ozdemir and Hocaoglu, 2009; Gokdogan and Akinci, 2001, WHO 2016, Ridosh et al., 2017, Tekir and Esen 2012a, Tekir and Esen 2012b). It has been reported that there a total of 415 million individuals with diabetes worldwide and by 2040 this figure would reach 642 million (Ogurtsova et al., 2017; Savvopoulos et al., 2016).

Diabetes Mellitus is a condition that has a significant effect on the lives of individuals with diabetes and their families. Individuals with DM display emotional reactions and difficulties in adjustment. Disease symptoms, acute and chronic complications that develop along with diabetes have negative impacts on the welfare and social life of the person. Furthermore; learning self-care practises in diabetes, integrating such behaviour into daily life; are highly difficult and tiring when combined with other responsibilities and daily stress. Such negative conditions faced by individuals with diabetes exert additional pressure on their diabetes control. Therefore, diabetes requires a new experience of life and an effort for adjustment for the individual (Aba and Tel, 2012; Yaman and Sahin, 2015, Akin, 2011). The process of diagnosis and treatment includes several activities such as ensuring the individual complies to the disease and treatment, informing the individual about the disease, teaching the individual how to live with the disease and to encourage the individual, providing assistance for performing important care activities, and to help the individual to self-plan his/her treatment and care. Patients face difficulties during these periods, therefore assisting them to accept their disease could simplify compliance to the disease (Akin, 2011; Tekir, 2011; Demirtaş and Akbayrak, 2009). The main helpers, with regards to diabetes methods, of individuals with diabetes are their families and close friends (Akin, 2011). The existence of family support towards individuals with diabetes contributes to an increase in individual's self-care, reduction in morbidity as well as increasing the quality of life of the

individuals and even the household (Baykal, 2013; Sofulu and Unsal Avdal, 2016; Theofanidis & Dikatpanidou, (006). Hence, the family is highly important for a successful treatment of diabetes and therefore the family members have to comply with the treatment plan along with the diabetic individual, and also be encouraged to take part in the educative activities and diabetes care (Ersoy et al., 2007; Sofulu and Unsal Avdal, 2016; Ministry of Health of Turkey, 2015).

The purpose of this study is to examine the relation between family support and compliance to treatment in individuals with diabetes.

### Methodology

#### Study design, sample, setting and instruments:

The study population consisted of individuals with diabetes who were either inpatient during 30 November 2015–30 September 2016 in Balıkesir Public Hospital Endocrinology Clinic. The sample of the study consists of 260 voluntary individuals with diabetes whose conditions satisfied the study criterion. Face to face interview technique has been used for data collection and the medical reports of the patients have been availed of. Survey Form, Hensarling's Family Support Scale have been used as data collection forms.

**Survey Form:** Survey Form has questions related to socio-demographic characteristics, disease and compliance to treatment.

**HDFSS:** HDFSS, 'Diabetes Family Support Scale', which has been determined to yield a valid and reliable measurement, has been developed by Janice Hensarling in 2009 to measure the level of family support in Type 2 diabetic adult individuals and its Turkish validity and reliability has been conducted by Akin (2011). 4 sub-dimensions of the 24 article Diabetes Family Support have been identified: (Hensarling, 2009; Akin, 2011). The lowest possible score for Hensarling's Diabetes Family Support Scale is zero (0), while the highest possible total score is ninety-six (96) (Hensarling, 2009; Akin, 2011). Permission for implementation of the scale has been taken from the researchers that have conducted the validity and reliability of the scale.

**Data Assessment:** Data obtained in this study have been assessed by using SPSS 20 package program. Shapiro Wilk's has been used when examining the post normal distribution status of variables, due to

their unit numbers, Mann Whitney U and Kruskal Wallis-H Tests have been used when examining differences between groups, Post-Hoc Multiple Comparison Test has been used when meaningful differences have been observed in Kruskal Wallis-H Test and Spearman's Correlation Coefficient has been used when examining the relations between variables not released by normal distribution.

**Ethics:** With the purpose of conducting the research, an institutional approval has been received from Balikesir Province Public Hospitals Association and ethical board approval has been received from Balikesir University Faculty of Medicine Clinic Researches Board of Ethics (2016/47).

## Results

**Participants:** 79,23% of the individuals with diabetes taking part in the study were female and 20,77% were male. Looking at the age groups involved, 56-65 age group had the highest ratio with 40,77%. 81,15% of the individuals with diabetes taking part in the study are married. With regards to education levels of the individuals, the majority, 69,23%, are primary school graduates. With regards to the professions of the subjects, 71,54% are housewives while 22,69% are retired. 75,77% of the individuals have an income that is equal to their outcome. 58,46% of the individuals with diabetes are living with their spouse. 54,23% of the individuals have an extended family structure while 45,77% have an unclear family structure.(Table 1).

**Data about Compliance to Treatment:** 95,77% of the individuals with diabetes taking part in the study stated that they regularly observe the suggested treatment while 4,23% reported non-regular implementation. 95,38% have accepted the treatment. With regards to difficulties experiences by individuals with diabetes, 15,79% complained from insulin, 52,63% complained from medications, 15,79% complained from diet while 15,79% complained from exercising. Blood glucose is monitored by 93,08% of the individuals. Medical nutrition treatment has been regularly implemented by 22,69% of the individuals, "Sometimes, but not regularly" had a ratio of 48,85%, while 22,31% never implemented. 28,84% of the subjects exercise regularly, 58,85% never exercise while 12,31% exercise rarely. 94,23% of the subjects replied "I

regularly take my medications". 23,46% of the individuals have stated that they pay attention to foot care. The ratio of those who previously received diabetes-related education is 88,08%. The ratio of those receiving family support for diabetes treatment and care is 82,69%. All these data are provided in Table 2.

## Data about Diabetes Family Support:

Hensarling's Diabetes Family Support Scale total score has an average value of  $48,18 \pm 25,42$ . The highest value of the score is 96 and the lowest value is 0 (Table 3). In individuals with Type 2 diabetes, there is statistically meaningful difference between their emphatic support score and regular implementation of medical nutrition treatment, knowledge, foot care, previous education on diabetes and receiving family support for diabetes treatment and care ( $p < 0,05$ ) (Table 4). In individuals with diabetes, there is a statistically meaningful difference between their encouragement score and regular practise of medical nutrition treatment, monitoring blood glucose, foot care, previous education on diabetes and receiving family support for diabetes treatment and care ( $p < 0,05$ ) (Table 5). In individuals with diabetes, there is a statistically meaningful difference between their facilitator support score and regular practise of medical nutrition treatment, foot care, previous education on diabetes and receiving family support for diabetes treatment and care ( $p < 0,05$ ) (Table 6). In individuals with diabetes, there is a statistically meaningful difference between their sharing support score and blood glucose monitoring, previous education on diabetes and receiving family support for diabetes treatment and care ( $p < 0,05$ ) (Table 7). In individuals with diabetes, there is a statistically meaningful difference between their Hensarling's Diabetes Family Support Scale total score and regular practise of medical nutrition treatment, foot care, previous education on diabetes and receiving family support for diabetes treatment and care ( $p < 0,05$ ) (Table 8).

## Discussion

Looking at the outcomes of the factors that affect the compliance to treatment of the subjects; 95,38% complied to treatment, 22,69% regularly observed the medical nutrition treatment (TBT), 28,84%

regularly exercised, 12,31% exercised from time to time, 95,77% regularly observed the suggested treatment, 93,08% monitored blood glucose, 94,23% used prescribed medications regularly and in due form, 23,46% observed foot care, 88,08% received prior education on diabetes and 82,69% received family support for diabetes treatment and care. Arslan (2011) conducted a study on 400 individuals with diabetes and reported that 57,30% of the individuals had a good compliance to treatment. 72,50% of the patients taking part in the study are reported to regularly use their medications while 30,00% exercised. In addition, 57,50% of the subjects have reported to have taken part in an educational program related to diabetes.

Badur (2009) conducted a study on 200 individuals with diabetes and reported that 67% of them did not monitor blood glucose at home, 72% did not exercise regularly, 49% did not do any foot care and 52,50% did not eat in compliance to their diabetes condition. Their treatment compliance score has been reported as  $77,21 \pm 15,26$ . In addition, 83,50% of the patients have received education. A study conducted by Çitil et al. (2010a) on people with diabetes has reported that 56,50% of the subjects were on a diet, 13,30% fully observed diet, 57,50% exercised, 33,30% conducted blood glucose measurement at home, 19,40% received information about diabetes while 61,20% ensured foot care. Another study by Baykal and Kapucu (2015) reported, based on the own words of the subjects, that 66,20% had a good compliance to treatment, 89,80% regularly used their medication, 56,80% exercised, 78,30% were on a diet and 35,70% of them fully observed their diet while 61,00% did not receive any information regarding diabetes.

A study conducted by Taha et al. (2011) reported that 56,30% of the individuals with diabetes complied to treatment. They also reported that those ignoring their medical nutrition (diet) and exercise had lower compliance to treatment. Jansiraninatarajan (2013) reported that 76% of the individuals with diabetes had more compliance to medication than nutrition. Our study findings indicated a higher treatment-compliance by individuals with diabetes when compared to other studies. The reason for this could be the fact that

there was a diabetes education nurse available at the research centre, hence regular diabetes education.

Our study has yielded a statistically meaningful difference between regular practising of medical nutrition treatment with regards to Hensarling's Diabetes Family Support Scale Total Score ( $p < 0,05$ ). The Hensarling's Diabetes Family Support Scale total score of those never practising medical nutrition treatment is significantly lower than those practising it regularly or from time to time (irregularly). The same result has also been observed with regards to empathic, encouragement and facilitating support sub-dimension scores. Akin (2011)'s study concluded higher scale total score averages for those with a diet list and implementing it.

Furthermore, a similar conclusion has been made for the empathic, encouragement and sharing support sub-dimension scores. A study conducted by Wen et al. (2004) reported that family support has an impact on medical nutrition in elderly individuals with diabetes and that individuals with diabetes who receive family support pay more attention to their medical nutrition (diet). Consequently, study findings lead us to the conclusion that the level of family support towards individuals with diabetes is fairly high, based on the fact that they keep the relevant food available, are encouraging to implement their diet and try to be helpful so the patient can overcome his/her difficulties. The findings of our study indicates that members of the family have an important role to play to assist the individual with diabetes so the person has a grasp of the importance of the disease and complies with treatment. Even though our study did not yield any statistically meaningful difference in terms of compliance to treatment with regards to Hensarling's Diabetes Family Support Scale total scores ( $p > 0,05$ ), on average 48,40% of the individuals with diabetes accept treatment.

Despite the fact that our study did not yield any statistically meaningful difference between monitoring and non-monitoring of blood glucose, on the basis of Hensarling's Diabetes Family Support Scale total scores ( $p > 0,05$ ), 48,84% of the individuals with diabetes do monitor their blood glucose levels. However, there is a statistically meaningful difference ( $p < 0,05$ ) in monitoring blood

glucose in terms of Hensarling's Diabetes Family Support Scale sub-dimensions of encouragement and sharing support scores. The encouragement and sharing support score was significantly lower in those not monitoring blood glucose when compared to those monitoring blood glucose.

A study by Baykal and Orak (2018) examined the relation between family support and glycaemia control in patients and reported a meaningful relation between the most supportive family member and fasting blood glucose values. Based on the findings of the studies, it is possible to say that family members are supportive of the individuals with diabetes to measure their blood glucose levels. In our study, there is a statistically meaningful difference in paying attention to foot care due to diabetes in terms of Hensarling's Diabetes Family Support Scale total scores ( $p < 0,05$ ). The Hensarling's Diabetes Family Support Scale total score of the individuals with diabetes not paying attention to foot care is meaningfully lower than those who do pay attention to foot care.

The same applies for the sub-dimensions, namely empathic, encouragement and facilitating support scores. Our study findings have indicated that families are warning individuals with diabetes about foot care and they are also providing help to accomplish such care. In terms of Hensarling's Diabetes Family Support Scale total scores, there is a statistically meaningful difference ( $p < 0,05$ ) between having and having received any previous education on diabetes. The Hensarling's Diabetes Family Support Scale total score of those who did not receive any prior education on diabetes was significantly lower than those who did receive prior education. In terms of empathic, encouragement, facilitator and sharing support points, the sub-dimensions of Hensarling's Diabetes Family Support Scale, there is a statistically meaningful difference ( $p < 0,05$ ) with regards to receiving previous education on diabetes.

Similarly, a study by Akin (2011) comparing the Hensarling Diabetes Family Support Scale total scores on the basis of prior education on diabetes, has also reported a significantly higher scale total score averages for those with a previous education on diabetes than those without any prior education ( $p = 0,000$ ). Based on the findings of various studies,

it is possible to believe that individuals with prior education on diabetes have a higher level of awareness on this issue and therefore the families are more supportive to encourage the individuals with diabetes to act more sensibly with regards to their disease. In terms of Hensarling's Diabetes Family Support Scale total scores, there is a statistically meaningful difference between the existence and lack of family support for diabetes treatment and care ( $p < 0,05$ ).

The Hensarling's Diabetes Family Support Scale total score of those who did not receive any family support for diabetes treatment and care was significantly lower than those who did receive such support. In terms of empathic, encouragement, facilitator and sharing support points, the sub-dimensions of Hensarling's Diabetes Family Support Scale, there is a statistically meaningful difference between those who did and did not receive family support for diabetes treatment and care ( $p < 0,05$ ). Based on our study findings, one could claim that the individuals receiving family support are more successful in diabetes treatment and care related practises. Buyukkaya Besen (2009)'s study has also indicated meaningful differences between individuals with diabetes in terms of treatment of diabetes, diabetes education and receiving support from family members. Due to the family structure in our society and also due to the fact that diabetes is a more acceptable disease compared to other diseases, individuals with diabetes do receive support from the people they live with (Buyukkaya Besen and Esen, 2011)

**Conclusion:** Patients with higher Hensarling Diabetes Family Support Scale scores are observed to have a better compliance to treatment. Family support has been observed to have a positive impact on treatment compliance for individuals with diabetes. In this sense, families of individuals with diabetes are required to support such individuals in all aspects of diabetes treatment (diet, exercise, medication, glucose monitoring, foot care, education etc.) and to offer a lifelong active participation in their treatment. This also requires collaboration from health professionals with the patient and family. Being constantly dependent on medication, complications, the burden of dealing with additional diseases, not to mention other issues such as forgetfulness, elderliness and lack of

knowledge are all making life difficult for the individuals with diabetes. Accordingly, individuals with the disease need their families even more during the treatment and care process and are requesting their support. It is recommendable to increase the number of studies examining the effect of family support on compliance to treatment for individuals with diabetes and to develop solution proposals based on the identified issues.

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