Stress Management in Type 2 Diabetes: The Role of Self-Efficacy and Perceived Social Support

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Abstract: General self-efficacy and perceived social support are important factors to manage stress in type 2 diabetes. This study aimed to investigate the relationship between stress management, general self-efficacy and perceived social support among patients suffering from type 2 diabetes. In this cross-sectional study, 218 diabetic patients who were admitted to the diabetes clinic of Dezful Ganjavian Hospital were selected and then examined using convenient random sampling. Instruments used to collect data were the Cohen's perceived stress scale, Schwartz's general self-efficacy scale and perceived social support scale which were completed during interview sessions. The study data were analyzed using the SPSS Software Version 21 and running independent t-test, one-way ANOVA and Pearson correlation at a significance level $\beta = 0.05$. The mean age of the patients was $13.5 \pm 53.96$. There were 38.8 males and 64.2% females, consisting of 84.9% married, 4.1% single and 11% widowed. Furthermore, 60.6 and 39.4% of participants were literate and illiterate, respectively. Independent t-test showed that there is a significant difference between men and women in terms of general self-efficacy and perceived social support ($p<0.05$); however with regard to stress, this difference was not significant ($p>0.05$). Pearson correlation showed that enhancement of patient's perceived social support and general self-efficacy significantly reduces their stress levels ($p<0.05$). In addition, linear regression analysis indicated that the perceived social support and general self-efficacy were to account for 45% of patient’s stress variation ($p<0.05$). General self-efficacy and perceived social support are associated with stress levels in diabetic patients. Training programs with an emphasis on social support and self-efficacy is recommended for these patients.

Keywords: Type 2 diabetes, stress, perceived social support, self-efficacy, recommended

INTRODUCTION

Diabetes is one of the most common metabolic disorders in the world with an increased prevalence over the last decade (Guarguata et al., 2014). In fact, the disease is introduced by industrialized countries to human societies (Adam and Folds, 2014). The number of people suffering from this disease is increasingly in the world, especially in developing countries, to the extent that it is called a hidden epidemic (Dedov et al., 2016). It is estimated that the diabetes will have been the fifth leading cause of death in the world by 2030 (Joensen et al., 2016). Diabetes is of great importance due to causing severe disabilities and reduced life expectancy and imposing enormous economic costs on society (Ali et al., 2012). It is also the leading cause of blindness, kidney failure, cardiovascular diseases, reduced quality of life and premature death (Green et al., 2012). Globally, the number of people with diabetes was reported about 382 million in 2013 and it is estimated that it will have reached 592 million by 2035 (Hegazi et al., 2015). In 2013, countries with the highest diabetes frequency include China (98.4 mln. people), India (65.1 mln. people) and America (24.4 mln. people). It is further predicted that these frequencies will have reached 142.7, 109 and 29.7 mln. persons by 2035 (1). According to the WHO report, 42.6 mln. persons will have suffered from diabetes by 2030 in the Middle East. In a national survey conducted in Iran, there were about 11.4% diabetic adults with an age range of 25-70 years, one-fifth of whom were unaware of their disease. The prevalence of diabetes in Iran has been reported to be higher in males than in females and also, greater in the urban population than in the rural population (Noshad et al., 2015).

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Stress is an undeniable part of today’s modern life. Stress sources can be internal or external. Stress can have a huge impact on diabetic patients (Mitra et al., 2008) and its impact on diabetes and its exacerbation has been widely emphasized in recent years (Lloyd et al., 2005). Some studies have reported that stress is a major cause in lack of control of diabetes and its progress. Also, empirical studies on diabetic patients have shown that stress can increase blood sugar and HbA1C levels through various mechanisms (Saaristo et al., 2010).

Several factors are influential on stress management for diabetic patients, improving of which can reduce stress level in diabetic patients and control their blood sugar level. One of these factors is the general self-efficacy. Self-efficacy is one’s subjective belief in one’s abilities towards successful performing of life affairs and achieving one’s goals and desires. Self-efficacy is an influential factor for patients in choosing and adopting appropriate behaviors towards control of their disease. Moreover, self-efficacy is regarded as an important factor in diabetic patient’s adherence to the medication treatment. Recent studies have shown the relationship between self-efficacy and adherence to the treatment in patients with diabetes. In fact, self-efficacy functions as a mediator between patients with diabetes and their adherence to the treatment (Adam and Folds, 2014). In this regard, Kanbara et al. (2008) examined the impact of efficacy in diabetic patients. The results obtained in their study revealed that diabetic patients with higher rates of self-efficacy had much lower stress (Kanbara et al., 2008).

Social support is considered as another psycho-social factor that has huge impact on human health. Social support includes all the support provided by family, friends, neighbors and other people for the patient. Social support also has multiple domains including consultation and education, emotional and practical contributions and assistance as well as feeling of empathy (Koetsenrijs et al., 2015). In addition, social support can also be used as a personal and subjective concept of receiving other’s help as well as support networks in eliminating conscious and unconscious needs (Chew et al., 2015). Studies conducted on diabetic patients have shown that social support and empowering process in patients result in the emergence of self-care behaviors and improvement of their management (Chen et al., 2015). Accordingly, the results of the study by Fukunishi et al. (1998) suggested that social support in patients with diabetes enables them to reduce their stress and cope with stressful events of their lives, as well as to control blood sugar levels and manage the disease (Fukunishi et al., 1998). In addition, it has been shown that social support causes improved glycemic control, increased blood HDL level and reduced BMI and diabetic patient’s hospitalization period (Khodaeva et al., 2016).

According to the evidence mentioned above, the main hypothesis of this study states that there exists a significant, inverse relationship between general self-efficacy, perceived social support and stress among patients with diabetes. Therefore, this study was conducted on patients with type 2 diabetes who were admitted to the diabetes clinic of Dezful Ganjavian Hospital in 2016.

**MATERIALS AND METHODS**

This cross-sectional study was carried out on 218 patients admitted to the diabetes clinic of Ganjavian Hospital in the city of Dezful, Southern Iran, in 2016. At first, patients who met the inclusion criteria were selected using the convenient sampling method. The participants then were asked to complete the informed consent form and had the option to decline participation. The inclusion criteria included having active diabetes cases in the diabetes clinic with at least 6 months experience of developing the disease and also, not having any other chronic diseases.

Questionnaires were used in this study for the purpose of collecting the data. The questionnaires included the demographic information questionnaire along with the perceived stress, general self-efficacy and perceived social support standard scales which were completed during the interview with the patients. It took almost 15 min to complete each questionnaire.

To measure stress in diabetic patients, the Cohen’s perceived stress 14-item scale was used which assesses stress level within the past month with higher scores indicating more stress in the patient (Alipour et al., 2014). To assess the patient’s general self-efficacy, the Schwartz’s general self-efficacy scale was used which is a 10-item measure. Higher scores in this scale are indicative of higher self-efficacy in patients (Saeed et al., 2011). Moreover, Zeeman’s perceived social support scale was used to measure the degree of support the patient has received as well as support the patient may receive from others with regard to their disease status. In this scale, obtaining higher scores indicate a favorable situation regarding the intended variable (Lakzaei et al., 2015). It should be also mentioned that all the items in the questionnaires were scored using 5-point Likert Scales.

The study data were analyzed using the SPSS Statistical Software Version 21. Descriptive statistical tests were used to measure central tendencies. The mean
difference and correlation coefficient between the variables under the study were also measured using the independent t-test, one-way ANOVA and Pearson correlation test. In all the tests, \( \alpha = 0.05 \) was considered as the level of significance.

RESULTS AND DISCUSSION

In this study, 218 diabetic patients who were admitted to the diabetes clinic of Dezful Ganjavian Hospital participated of whom 38.8% were males and 61.2% were females. Moreover, among the participants, 84.9% were married, 4.1% were single and 11% were widowed. The mean age of the participants was 53.69 and their age range was 22-93 years. Further details are presented in Table 1.

According to the results, the mean stress, perceived general self-efficacy and perceived social support were 27.99±7.68, 23.38±7.22 and 27.43±9.71, respectively. According to the results of the independent t-test shown in Table 2, women had significantly lower self-efficacy and social support than men \( (p<0.05) \). However, no significant difference was observed for stress in terms of gender \( (p>0.05) \).

Furthermore, the Pearson correlation test was used to examine the relationship between stress with self-efficacy and social support. The findings showed a significant negative correlation between stress with self-efficacy and social support. In other words, by increasing the patient’s perceived social support and their general self-efficacy, their stress levels were significantly \( (p<0.05) \) reduced (Table 3).

Regarding the predictors of stress management in diabetic patients, the linear regression analysis through using the enter method indicated that the studied variables can overall explain 45% of the stress. Among these variables, the general self-efficacy and perceived social support variables were identified as main predictors of stress and indicated significant correlation with it. As showing in Table 4 by increasing the mean of these two variables, the patient’s level of stress was reduced \( (R = 0.45, p<0.05) \).

This study aimed to investigate the relationship between stress with general self-efficacy and perceived social support in patients with type 2 diabetes. According to the results obtained in the study, the levels of stress, general self-efficacy and perceived social support among the diabetic patients were in the moderate and almost acceptable range. The important point to note in this regard is that self-efficacy and perceived social support in the patients resulted in the reduced stress level in them. Therefore, patients with diabetes can decrease their stress levels and manage their disease by enhancing self-efficacy and receiving further social support from family, friends and other social groups.

The study revealed that stress levels were similar in both the males and females; however, the males were reported to have higher self-efficacy and social support as compared to the females. In the study carried out by Hosseini et al. (2012), it was demonstrated that the level of perceived social support was higher in men than in women which was consistent with the results obtained in this study (Hosseini et al., 2012). However, Villegas et al. (2014), the level of social support was reported to be
higher in women than in men (Villegas et al., 2014). Despite these findings, the study conducted by Chew et al. (2015) showed no significant difference in terms of the level of perceived social support between the genders (Chew et al., 2015). In the study by Sarvghad et al. (2011), the self-efficacy mean was reported to be higher in men than in women (Sarvghad et al., 2011). Yet another study conducted by Kanbara et al. (2008) revealed no significant differences between the genders regarding social support and self-efficacy (Kanbara et al., 2008). Despite the superiority of the level of self-efficacy and perceived social support in men than in women observed in the current study, other factors also seem to be influential on stress levels among men. Addressing social roles, responsibilities and economic tasks is decisive in stress management among men which needs further investigation.

On the effect of social support and self-efficacy, the findings indicated that, by each unit increment in the patient’s general self-efficacy and social support levels, their stress level is reduced to 0.393 and 0.392, respectively. Therefore, these two factors along with other factors can be considered as basic strategies to manage stress and improve self-care behavior in patients with diabetes. According to the results, these two factors are regarded as powerful predictors in determining patient’s stress level. As a result, these two factors should be addressed in health education interventions to manage and control the diabetes (Kanbara et al., 2008). The findings of this study suggest that improving perceptions of the support received has a significant impact on reducing stress. Improved material, emotional, instrumental and informational support can help individuals cope with stress and this positive assessment could result in improved quality of life for them. The results of this study are confirmed by previous research. For example, the role of social support as an important factor in reducing stress was supported by Salah Abdullab et al. (2015). People receiving more social support have reduced stress levels 26. Baek et al. (2014) also showed that social support reduces stress in diabetic patients (Baek et al., 2014).

According to the responses, perceived social support was the most powerful predictor of stress in diabetic patients. In this respect, Ferdinando Giazzo also reported that family support is the most powerful determinant of adherence to treatment and self-care behaviors in patients with diabetes. In studies carried out by different researchers in different parts of the world, the effect of self-efficacy and perceived social support on stress management and disease control for diabetic patients is shown. For instance, Gao et al. (2013) claimed that there is a direct positive relationship between self-efficacy and social support with glycemic control in patients with type 2 diabetes so that individuals with higher self-efficacy and social support would better control glycemic 28. In another study, An-Hsuan Chih et al. (2010) also indicated that diabetic patients with higher self-efficacy are more capable to manage their disease 29. Bogar et al. (2011) found that the belief in the effectiveness of treatment and receiving appropriate social support are effective in carrying out diabetes self-management activities (Boogar et al., 2011). Hassanzadeh et al. (2012) examined patients with diabetes and reported that social support has a positive relationship with seeking social support and accountability 31. These are consistent with the results obtained by Alipour et al. (2012), Mishal et al. (2010) and Jalilian et al. (2013) (Alipour et al., 2014; Mishal et al., 2014; Jalilian et al., 2013).

CONCLUSION

There is a direct relationship between the enhancement of perceived social support and self-efficacy and stress reduction in patients with diabetes. Designing appropriate intervention programs through using strategies to increase confidence and social support from others would result in promoted self-care behaviors and stress management in patients with type-2 diabetes.

LIMITATIONS

Since, self-report data were collected, individual’s actual performance may not be measured. In addition, economic factors are not considered in the study. Another limitation of this study is associated with the stress questionnaire which may represent the patient’s stress level lower than the actual level due to not being localized.

RECOMMENDATION

Hence, it is recommended that a questionnaire tailored to Iranian culture and conditions is used for similar future studies.

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