Barriers of self-care behaviors in diabetic patient

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Abstract: self-care is one of the most important factors in controlling diabetes. After educating the patient on how to control the disease, there is no team treatment care as effective and efficient as self and family care. However, sometimes self-care is not possible due to certain barriers which inhibit the patient's role in controlling the sickness. So this study aims to identify what the barriers are and how they are associated with diabetes control. the sample includs 225 diabetic patients (Type II), selected randomly from the population. The collection instrumentsconsist of demographic and self-care questionnaires the latter of which contains 34 questions on barriers of self-care behaviors scaling from low (1) to high (5). At the beginning of the study all cases are tested for HbA_{1c}. To investigate the relationship of the obtained results and the studied variables Spearman Correlation is used. The finding show many barriers to self-care behavior including high costs, high work engagement, depressive effect of the treatment, forgetfulness, unawareness of the self-care program, having no tendency to the program, unawareness of blood glucose test interpretation and disbelieving self-care results.Among these factors high care costs(r=0/24) and depression(r=0/21) are strongly associated with higher HbA1c levels. It is concluded that helping the patient in self-care is one of the most important factors in succeeding to manage diabetes. Therefore, in addition to educating patients on self-care, the curing team should guide them on eliminating barriers and gaining better results. [Azam Mahmoodi, Mashallah Valikhani and Hajar Ghafarpour. **Barriers of self-care behaviors in diabetic patient.** *Life Sci J* 2013;10(6s):608-613] (ISSN:1097-8135). http://www.lifesciencesite.com. 96

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Introduction

Studies have indicated that self-care in diabetic patients leads to a better control of the blood glucose resulting in a better treatment (1-2).Despite of the very studies done on controlling diabetes many patients do not have enough control on their sickness (3-4). What causes this lack of control is the lack of self-care behaviors. The high spread of death and disabilities related to diabetes, the high costs of treatments and consequently imposing individual and social loads call for an urgent need for aiding diabetic patients to solve this problem (5-6). Self-care behaviors, medical treatments or both of them are influential on controlling diabetes (7-10). Doctors believe that self-care behaviors are effective in controlling diabetes and educating and motivating patients improve such behaviors (12). Not controlling patients'blood glucose is a result of paucity of the available information on the behavioral problems of patients, the presence of barriers on the right care behaviorsand the relationship between self-care behaviors and diabetes control (13-14). Factors contributing to the patients following treatments include personal ones such as the type of diabetes, time length of the illness, existence of other background diseases and other socio-psychological factors, the environmental effects containing the present barriers on following treatment diets, social sources and supports and economic factors. On the whole these factors are effective on four types of self-care treatments as medicine use, diet, exercise and blood glucose control. According to Glasgow's model on diabetes treatment, mental and physical health, and knowledge and information on diabetes are influential (15).

Improving the self-care behaviors is the first step in helping patients to control their disease and this emphasizes a better understanding of factors. Additionally, it calls for designing and

empowering related intervening factors related to self-care behaviors and helps for a better treatment of disease and reducing related side effects (16).

The positive effects and the potential negative side should be evaluated. Unwary analysis of the advantages minus barriers might happen when people evaluate the effect of the treatment as being too expensive, dangerous, time-consuming and displaced and hence do the action or abstain from it (17).

With the expansion of the knowledge on diabetes many patients have come to an understanding of self-care. However for performing such self-care behaviors they may encounter some obstacles. The present study aims at investigating the berries on self-care behaviors,considering the role of such factors on the augmentation of HbA_{1C}, so that with their removal one can help diabetic patients in a better controlling of their diabetes.

Method

The population under investigation includes type II diabetics who referred to Isfahan Clinics of diabetes amongst whom the sample is selected simply randomly and investigated. To determine sample size according to previous studies (18) and applying Kookran formula with d=0.5 and α= 0.05, 225 is decided upon.

Inclusion criterion

People having approved diabetes for at least two years, being able to read and write or have a family member who can read and write and being completely agreed in participating the study are included in this study.

Exclusion criterion

Those being old and obsolete, not being able to comprehend questions, being unable to comprehend questions or unaware of time and place and disagree in participating this study are excluded from the study.

Data collection instruments consisted of a demographic questionnaire including age, sex, education, time length of the disease, and the prescribed medicine; and a questionnaire investigating self-care behavior and their barriers for the diabetic patients, the latter containing 34 various questions on the activities performed by patients regarding self-care and their physical health conditions. All patients have filled an agreement form for the study.

To understand the process of disease control and relationship of self-care behavior with blood glucose control all participants had a test of HbA_{1c}.

Validity of questions was approved by the specialists and for investigating the reliability α-Cronbach was calculated as 0.85. The questionnaire was previously applied by Daly(2009) for the same purpose and is now evaluated by some adaptions, approved by the specialists. To establish scientific validity all the tests on HbA_{1c} were carried out by a specialist in laboratory.

Finally, data was analyzed using descriptive and analytic statistics. Barriers to self-care behavior were measured using a 0-5 scale; 1 indicating a low significance and 5 a high one. To investigate the relationship between the outcome and variables Spearman correlation is used, and T-test is applied to probe the significance of the difference in HbA_{1c}in self-care parameters.

Results

Participants were 225 diabetics type II 57.7% of who were female and the rest were male. The average age of the participants was 52.3 ± 18.60. The amount of Hb A_{1C} ranged from 5.2% to 13.8% and its average was 7.4% ± 2.14%. 45.7% of the sample used insulin and other edible medicines. The time length of the disease varied from 3 to 28 years and its average was 13.1 ± 7.6 years (table 1).

Variable	Class	Number (Percent)	HbA1c (mean±sd)
Age	25-50	32 (14.2)	7/6±2.20
	51-65	121 (53.8)	7/2±1.98
	66-90	102 (32)	6.8±2.58
Gender	Male	95 (57.7)	7.5±1.96
	Female	130 (42.3)	7.4±2.11
Marital status	Married	165 (73.7)	6.9±3.01
	Single	60 (26.3)	7.4±2.88
Time length of diabetes	5≥	105 (46.6)	6.6±3.13
	5<	120 (53.4)	7.3±2.4
Medicine used	insulin	103 (45.7)	6.8±2.74
	Tablet	122 (54.3)	7.1±1.94

Table 1.Demographic traits of the sample

Patients were investigated regarding the four categories of self-care behavior. 1. Conforming to medical prescriptions, 2. Conforming to diet, 3.Doing sport and exercise, 4.Doing blood glucose test.
Factors barring each behavior in the participants were determined by the questionnaire and their relationship with Hb A_{1C} probed.

A high percentage of the patients (90.2%) followed the medical treatments (including insulin injection, edible medicine or both). Regarding diet, blood glucose test and exercises the proportions are 62%, 75% and 35% respectively. Patients following the medicinal treatments and diet had the least Hb A_{1C} (6.95%); however there was a stronger relationship between diet and Hb A_{1C}(Table 2).

Self-care behaviors	**Conformity to self-care program**	**HbA_{1c} (mean ±sd)**	**Spearman correlation**	**p-value**
Medical treatment	%90.2	6.9±2.55	-0.28	0.001
Diet	%62	6.5±2.04	-0.32	0.003
Blood glucose control	%75	7.4±3.10	-0.16	0.005
Exercise	%35	7.1±1.87	-0.07	0.02

Table 2.Relationship between self-care behavior and HbA_{1c}

In investigating the barriers to self-care behaviors 8 factors were derived from the 34 questions of the questionnaire that were the high care cost, work engagement, the depressive effect of the treatment, forgetfulness, unawareness of the self-care program, having no tendency to the program, unawareness of blood glucose test interpretation and disbelieving in self-care results.
Then the relationship of each barrier to HbA_{1c} was determined. Results showed that first, high care costs and second, depression have the highest relationship with HbA_{1c} (table 3).

Barrier	Mean HbA_{1c} (%)	R	p-value
The care high costs	7.8	0.24	0.005
Work engagement	8.5	0.16	0.045
Depression interference with treatment	9.2	0.21	0.015
Forgetfulness	8.5	0.12	0.006
unawareness of the self-care program	7.4	0.15	0.002
having no tendency to the program	9.6	0.12	0.035
unawareness of blood glucose test interpretation	7.6	0.7	0.001
disbelieving self-care results	8.5	0.18	0.015

Discussion

The role of self-care in controlling blood glucose and reduction of HbA_{1c} has been approved of (19-22) and the purpose of the present study is evaluating barriers on self-care programs and their role on failing to control blood glucose.

Participants of this study had diabetes on average for 13 years. The time length of diabetes has an effect on the amount of HbA_{1c} (23). With an increase in the disease period the effects of the disease might show up (24) or getting more involved with the sickness and encountering more people having the same problem may cause disbelief in treatment and this leads to a weaker control of the sickness and an increase in HbA_{1c}. In the present study, too, HbA_{1c} had a significant relationship with the time length of the disease ($p< 0.01$). However getting acquainted with barriers and minimizing them is vital (25).

Succeeding self-care program depends on the behavior of the patient. Results of the study indicated that following diet and controlling the blood glucose are the behaviors that patients abstain. The main barriers are high costs and depression respectively. High costs of caring programs for those not affording them, whose number in not few,is an important factor in doing without the programs as some patients were grudging the high costs of a different diet, checkup, and blood glucose test. Depression from which many diabetics suffer (26) can be a result of high HbA_{1c} rather than a cause for it(26.27). In this study depression was an important barrier on self-care and had a significant relationship with the increase in HbA_{1c} hence treating depression can eliminate an important barrier. A significant relationship existed between diet and controlling blood glucose with a decrease in HbA_{1c}. Therefor removing obstacles of this field can lead to a better control of blood glucose.

Controlling diabetes calls for a knowledge and information on the treatment state and lack of such knowledge may reduce self-confidence in controlling the disease. Bodenheimer (2002) demonstrated in his study that accompanying patient's care with instructing self-care has an important aspect in the relationship of patient-doctor and nurse and is one of the first factors in planning patient's care (28).

Additionally self-belief on high ability of the patient has a more significant effect on controlling blood glucose than the other's effects. If the view point of the patient to the disease as an incurable and dangerous disease changes he/she has taken an important step in controlling the disease as the role of self-efficiency in controlling diabetes has demonstrated (29).

Conclusion

Results of the study have shown that there are barriers on performing self-care for diabeticswhich have relationship with the level of HbA_{1c}. It is essential to reduce such barriers and improve self-care behaviors. Hence, investigating the effective factors on the increase of patient's conformity to caring program can lead to achieving important steps in blood glucose control. One of the most important obstacles is the high cost of treatment and caring. Observers and therapeutic team can help patients on the

caring program, giving service by the related units, programming more efficiently, economizing, contrivingfor depression reduction and giving positive feedback to the patients for increasing their self-confidence.

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