

Social Support: A Correlate of Glycemic Control among Type 2 Diabetic Patients

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Abstract

Diabetes is a progressive disease, which needs behavioral modification to control over the disease and social support has been linked with improved self-management behavior. The purpose of the present study is to find the correlation between perceived social support and glycemic level among type 2 diabetic patients. A cross-sectional study was conducted with a representative sample of 200 type 2 diabetes patients between 30 - 60 years of age, with no co-morbidity in OPD of Rajiv Gandhi Centre of Diabetes and Endocrinology, JNMC, Aligarh. Individual interviews were performed to gather information through Diabetes Family Behavior Checklist (Schafer, McCaul and Glasgow, 1986)-a 16 item five-point Likert type scale and glycemic level was measured by glycosylated hemoglobin. The Pearson correlation coefficient showed that social support related to diet ($r = 0.215, p < 0.01$), blood glucose testing ($r = 0.167, p < 0.05$), medication ($r = 0.141, p < 0.05$) and diabetes self-care ($r = 0.216, p < 0.01$) was significantly correlated with glycemic level. It was concluded from the results that social support not itself directly but through compliance to recommended regimens positively related to the glycemic level of the patients.

Keywords: Diabetes; Social Support; Glycemic Level; HbA1c

Introduction

Social support is the perception and actuality that one is cared for, and perceived social support is actually help/ support offered by the provider in times of need of the recipient [1]. These supportive resources can be emotional (e.g. nurturance, love affection), tangible (e.g. financial assistance), informational (e.g. advice, guidance), or companionship (e.g. sense of belonging) and intangible (e.g. personal advice). The different type of social support has different pattern of relationship with health [2] which enhances the prospects for recovery among ill people [3]. It is also related to better diabetes control through better compliance [4]. Moreover, social support has an impact on health by directly affecting health habits while low support is associated with low self-care [5]. People with high levels of social support are typically more complied with their medical regimens [6] and they are more likely to use health services, especially when the support network is positively inclined toward those services.

For managing chronic illnesses like diabetes, social support is needed, especially practical and emotional support [7] which has been linked with improved self-management behavior [6,8], improved disease control, and lower mortality risk [9]. In this context, practical social support included preparing diabetic diets, help in self-care behaviors, giving or reminding of medicine on time, and emotional support includes motivation for exercising/ physical activities, praising for following regimen that patients perceive [5,10].

Research suggested that family behaviors are particularly important in chronic illnesses that require ongoing, active self-management, because it often involves changes in daily life routines for the management of the disease, such as changes in diet, physical activity, and regular self-monitoring of blood glucose, blood pressure etc. These disease-related routines whether ongoing (for life

or on the daily basis requires family adaptation, and patients only able to maintain these routines if they could have effective family motivation and cope better with disease-related stress [11]. These behavioral patterns evolve over time and can last many decades [11]. Among patients with diabetes mellitus, social support has been associated with improvements in glycemic control, regimen adherence, and emotional functioning. Meta-analytical reviews of 29 studies examine the relationship between social support and self-management of a chronic medical condition and the result was found positive among diabetic patients [8].

Objective

To find the correlation between social support and glycemic level measured by glycosylated Hemoglobin (HbA1c) among type 2 diabetic patients.

Methodology

Locale: Rajiv Gandhi Centre for Diabetes and Endocrinology, Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh.

Sample and Sampling Method

A subset of 200 type 2 diabetic patients aged 30 - 60 years with minimum six months disease duration history, no- comorbidity and willing to participate in the study were selected through purposive sampling method.

Interview cum schedule

Schedule consists of general information and social support questionnaire - "Diabetes Family Behavior Checklist" [12] to assess the frequency of both supportive and non-supportive family interactions in the context of a diabetes regimen. Specifically, this 16 items scale examines social support related to five areas of diabetes management, including blood glucose testing (three items), diet (three items), exercise (three items), medication (two

items), and issues related to general compliance to the regimen (five items). This scale requires patients to identify their primary support provider (e.g. child, spouse, or life partner) and indicate how often the person helps the patient with the implementation of self-management activities. A five point likert-type scale, ranging from 1 (never) to 5 (at least once a day) is used to rate individual responses. Scores were calculated by summing up all the items scores. Negative items were reversely coded. Higher scores indicate supportive family behaviors while lower score is for non-supportive behaviors. An alpha coefficient ranging from 0.72 to 0.80 for negative and positive social support items, respectively. Glycosylated Hemoglobin was used as an index for glycemic level. HbA1c data were obtained from the patient record file. The most recent value of HbA1c was recorded for analysis. It was graded high, optimal and low according to the range provided by International Diabetes Federation.

Statistical Analysis

Descriptive statistics were used to summarize the data. Pearson correlation coefficients were used to find the correlation between social support and glycemic level. Throughout all analyses performed, a confidence interval of 95% and a p-value of 0.05 were used to determine statistical significance. SPSS version 20 was used for the analysis.

Results

Demographic information

The sample comprised of 200 patients, out of total 101 (50.5%) patients were males and 99 (49.5%) were females. Regarding age, 44 (22%) patients were in early (30 - 40 years), 72 (36%) in middle (40 - 50 years) and 84 patients (42%) were in late (50 - 60 years) age years.

The values in table 1 showed that most of the patients (108) got support daily for their self-care from the significant people around (Wife, Husband, Children, Parents) and their mean HbA1c level was 7.3% which is quite less from mean glycosylated hemoglobin of those patients who either never (8.6%) or sometimes (8% - 8.2%) got support for the diabetes related self-care activities. Only 9 people reported that they never praised by the people around in home for following recommended diet with mean HbA1c of 8.7%. Most of the patients (138) were supported for following dietary regimen daily (at least once a day) and their mean glycosylated hemoglobin was 7.6%. The patients who were reminded to take medicine on time daily (145) by the significant people had lesser HbA1c level (7%) as compared to those who ‘several times a week’, ‘once a week’ or ‘once a month’ got support for taking medicine and they had HbA1c level of 8.2%, 8.5% and 8.7% respectively.

Questions:	Support for following diabetes self-care schedule	Praise for following diet	Help to take medicine on time	Encourage to participate in physical activities	Argue about diabetes related activities
Responses	Frequency of patients (Mean HbA1c in percentage ± Standard deviation)				
Never	23 (8.6± 2.6)	9(8.7± 3.61)	13(8.8± 1.68)	54(7.8± 1.38)	182(7.5± 0.89)
Once a month	10 (8.6± 1.9)	9 (8.2± 2.29)	6(8.7± 2.06)	19(8.2± 2.64)	6(8 ± 1.02)
Once a week	32 (8.2± 1.82)	13(8.5± 2.06)	67(8.5± 1.61)	14(7.3± 1.53)	4(7.5 ± 0.61)
Several times a week	27 (8.0± 1.96)	31(8± 2.41)	28(8.2± 0.46)	29(7.9± 1.76)	4(10.6 ± 0.98)
At least once a day	108 (7.3± 1.02)	138(7.6± 1.26)	145(7± 2.6)	84(8.4± 2.60)	4(9.3± 2.53)

Table 1: Distribution of patients on social support and their mean HbA1c level.

The values obtained on ‘encouraging to participate in physical activities’ showed that the patients (N = 84) who were positively supported by their loved ones at least once a day for following exercise had mean HbA1c level of 8.4%. And the patients who were motivated once or several times a week had mean HbA1c of 7.3% and 7.9% respectively. The result suggested that patients who were non-compliant to exercise regimen were encouraged for doing recommended physical activity by their respected family members on the daily basis.

Negative social support (argue about diabetes self-care activities) had depraved impact on glycosylated hemoglobin, only 4 patients reported that they were argued by significant people for following diabetic regimen and they had poor glycemic control revealed by their high HbA1c level (9.3%) according to International Diabetes Federation [13] (2015) criteria. Around 182 people informed that they had never been discouraged by their family members for following diabetic treatment regimen and it favorably affected their HbA1c level (7.6%) as shown from obtained results. HbA1c values from 7.2% to 8% are in acceptable range of glycemic control but not ideal [13].

Pearson’s product moment correlation coefficient (Table 2) between social support to diet, exercise, glucose testing, medication regimen and general diabetes self-care activities, and glycemic

level showed that diet (r = 0.215, p < 0.01), blood glucose testing (r = 0.167, p < 0.05), medication (r = 0.141, p < 0.05) and support related to diabetes self-care (r = 0.216, p < 0.01) was significantly positively correlated with glycemic level. It indicated that higher the perceived social support from the significant people to follow these regimens greater will be control over the blood glucose level.

Social support	Diet	Exercise	Glucose testing	Medication	Diabetes self-care
Glycemic level	.215**	-.024	.167*	.141*	.216**

Table 2: Coefficients of correlation between social support and glycemic level.

Correlation is significant at the 0.05* and 0.01** level (2-tailed).

Discussion

The results suggested that perceived Social support is needed to revise the lifestyle of the diabetic patients including self-care behavior, compliance to diet, exercise, glucose testing and medication regimen, which has been linked with improved glycemic level and lower morbidity and mortality risk [10]. Among patients with diabetes mellitus, social support involving cooperation, acceptance, and endorsement of the patient has been associated with improve-

ments in glycemic control (nearer to optimal glycosylated hemoglobin measures), regimen adherence and emotional functioning⁵. Research has also shown that social support from family specifically from the spouse had a positive effect in controlling blood glucose and lowering HbA1c [14].

Social support directly does not automatically change the blood glucose level, but by engaging patients more in self-care activities. Research has also shown that social support has implications for change in health behavior and medical regimen compliance when patients have practical support available to them suggesting strong patient-family relationship [6]. Strong family bonding has the significant positive effect on treatment compliance among type 2 diabetes patients additionally family conflict has a negative impact on it. Similarly, sabotaging and wrong helping behaviors create conflict and potentially stop patients to follow a plan like nagging about following diet, exercise or with any managerial part of disease control [15]. Knowing which specific family behaviors are linked with better or worse management of a chronic illness could help practitioners better understand specific ways families can increase their effective support. Studies documented that People with high levels of family cohesions guidance are typically three times better complier to their medical regimens and they are more likely to use health services, especially when the support is positively inclined toward those services than those who do not have close families and family structural support (that is marriage and living status of the patients) [16].

Conclusion

It was concluded that social support has statistically significant correlations with diabetes management through better compliance to the recommended regimen and high self-care behavior (taking medication on time, comply with diet, self-monitoring blood glucose etc.) than those with insufficient support. Results showed that patients with higher perceived social support had lesser HbA1c level as compare to those with family conflicts or negative support. It is proved that approval and acceptance of the patient regimen from the family not only enhance the self-care activities but also emotional functioning and quality of life.

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