

Contribution of Health Consciousness in Controlling Blood Glucose Level among Diabetes Patients

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Abstract: *Diabetes is a metabolic cum vascular disorder, which needs behavioral alterations and adaptation to control over the disease and health consciousness has been linked with improved self-care. The purpose of the present study is to find the correlation between health consciousness and glycemic level among type 2 diabetic patients. A correlational study was conducted with a sample size of 200 type-2 diabetes mellitus patients aged between 30 – 60 years, with no co-morbidity in the OPD of Rajiv Gandhi Centre of Diabetes and Endocrinology, JNMC, Aligarh. Individual interviews were performed to collect information through a 12 item five point likert type health consciousness scale and glycemic level was measured by glycosylated hemoglobin. The regression model showed 14% contribution of health consciousness in predicting glycemic control. Correlation coefficients revealed inverse relationship of predictor and criterion variable ($r = -.402$, $p < .01$). It was concluded from the results that health consciousness positively affect the glycemic control among patients through engaging in variety of self-care behaviors.*

Key words: *Diabetes Mellitus, Health consciousness, Glycemic level, HbA1c.*

I: Introduction:

Health Consciousness and Diabetes Management: Health consciousness should be understood as a psychological state which predicts a variety of related variables (e.g., health attitudes and behaviors) in maintaining health, rather than actual specific behaviors (Becker M.H. et al, 1977). Health conscious people are aware and concerned about their wellness and are motivated to improve and maintain their health, and quality of life. To prevent ill health they are engaging in healthy behaviors (eating balanced diet, exercising, quit smoking, blood glucose monitoring) and being self-conscious regarding health (Huston and Finke, 2003).

From the studies to date it was revealed that health conscious people are engage in incorporating healthy behaviors in their day to day life, like compliance to recommended diet, exercise more often, learn more about health information, consult a doctor for any medical condition, which results in better health outcomes and live healthy lifestyles. Divine and colleagues also noted that people who enjoy healthy lifestyles tend to prefer to exercise more often and eat white meat, fruits, and vegetables, while avoiding red meat, snack chips, and soft drinks (Divine and Lepisto, 2005; Magnusson et al., 2003).

Therefore, health consciousness is considered as a combination of self-health awareness that is personal responsibility for self-health behavior, and health motivation. Health consciousness in other words refers to complete mental alignment towards the health, being comprised of self-health awareness, personal responsibility and health motivation. It is also comprised of opposition to certain health risk issues like smoking, chewing tobacco, unhealthy diet (Huston and Finke, 2003).

II. Objective:

To find the relationship between health consciousness and glycemic control among type 2 diabetic patients.

III. Methodology

3.1. Locale

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

3.2. Sample size and Sampling Method

Diabetic patients aged between 30- 60 years with minimum six months diagnosed duration of type-2 diabetes, with no comorbidity and willing to participate in the study were selected through convenience sampling method. The sample size was as many patients available in six months period in OPDs. Only 200 sample subjects were available, to whom the purpose of the study was clearly mentioned.

3.3. Interview cum schedule

Schedule consists of general information and health consciousness scale. Health consciousness consists of twelve items that require a response on five- point likert- type scale from strongly agree to strongly disagree what the statement said. This scale was developed by the investigator with the help of the expert opinion. Tested and retested of the scale was done to check the reliability and validity of the scale and was modified accordingly for the purpose of the study. This scale assesses consciousness in 5 areas that is: four questions of self-health consciousness, two questions each from diet, exercise, medication and knowledge regarding health. Scores were calculated by summing up all the items and negative items were reversely coded. Scoring ranges from 12 to 60. The Cronbach's alpha coefficient of .87 was obtained for the scale. 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.

3.4. Statistical Analysis

Demographic data were expressed as percentage and frequencies or mean and standard deviation. Pearson correlation matrix was used to analyze the relationship between study variable and a covariate. Stepwise regression model was used to find the contribution of health consciousness in controlling glycemc 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.

IV. Results

Demographic information

Among the total 200 patients, 101 (50.5%) patients were males and 99 (49.5%) were females. Regarding age groups, 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. Socioeconomic status was grouped according to the Kuppaswamy socioeconomic classification (2014) and the data obtained showed that most of the subjects were from upper middle class (101), 49 (24.5%) were from lower middle, only 21 (10.5%) were from upper class and 6 (3%) belonged to lower SES.

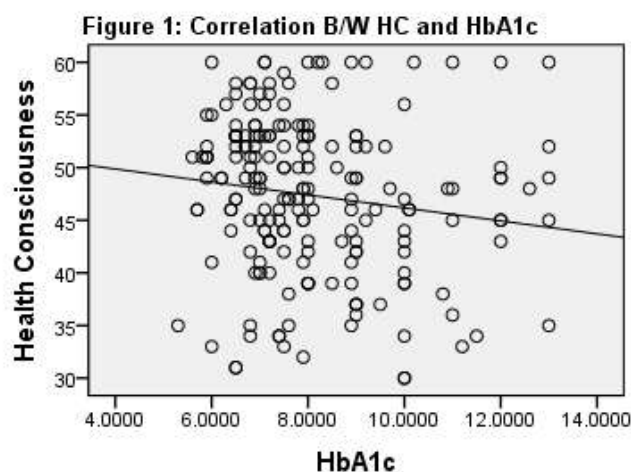
Table 4.1: Distribution of patients on health consciousness and their mean HbA1c level

Health consciousness	% of patients	Mean HbA1c (SD)
Low Health consciousness	32%	8.3 (1.57)
High Health consciousness	68%	7.5 (1.78)

Table 4.1 shows the distribution of patients according to level of their health consciousness. The level of health consciousness was grouped according to the scores obtained on health consciousness scale. Values above the median value on the scores of the scale was considered as high health conscious while less than that value was considered as low health consciousness. The results obtained revealed that 68% patients were highly health conscious and their mean HbA1c was 7.5%. According to International Diabetes Federation HbA1c values from 7.2% to 8% are in acceptable range and values above 8% means poorer glycemc control (IDF, 2015). Among total sample, 32% patient fell in the low health consciousness category and they had a mean HbA1c of $8.3\% \pm 1.57$.

Table 4.2: Relationship between health consciousness and glycemc level

Health Consciousness	Glycosylated Hemoglobin (HbA1c)	
	Correlation (r)	Regression (R)
	-.402**	$\Delta R^2 = .140$ F change=44.596*** F=24.789***



The values in table 4.2 showed the relationship between glycosylated hemoglobin and health consciousness (fig.1). The Pearson Correlation Coefficients showed the significant relationship between the predictor and criterion variable ($r = -.402$, $p < .01$). In regression model, after controlling for demographic variables, health consciousness was entered. It accounts for 14% of variance ($\Delta R^2 = .140$, F Change= 44.596, $p < .001$) in predicting glycemc control. The data revealed that health conscious people complied more with the provided diabetic regimen and as a result they achieved good glycemc control.

V. Discussion

The results of the present findings revealed 14% of contribution of HC in predicting HbA1c. The relationship between health consciousness and glycemc control is not well supported in the literature because there has been little evidence till date showing any direct relationship between them. But there are some researches which showed indirect relation of health consciousness in controlling blood glucose

level. One of them is Dutta series of health consciousness who considered HC as an important predictor of individuals' health information-related activities. Health consciousness has been found to be associated with attitudes and behavior which affects health through modification in diet to achieve desirable outcomes. High health consciousness people tend to learn more health information even beyond that provided by the doctor and incorporate it in their future behavior (Dutta, 2004b; Dutta, 2005; Dutta, 2006; Dutta, 2007). This study also revealed that health conscious people engaged in incorporating healthy behaviors in their day to day life, like following recommended diet, exercising more often, learn more about health information, consulting a doctor for any medical condition, and live healthy lifestyles. Furthermore, Newsom and colleagues (2005) also noted the same that health conscious people are aware and concerned about their wellness and are motivated to improve and maintain their health, and quality of life to prevent ill health by engaging in healthy behaviors and being self-conscious regarding health. Intervention in lifestyle, especially in diet and physical activity, has many evidences from cross-sectional and longitudinal studies that it has beneficial effects on risk factors for diabetes and associated cardiovascular diseases (Arne A., 2001; Mcevoy et al., 2012). Studies also suggested the beneficial effects of diet and exercise on reduce insulin resistance and better glycemic level (Guerci et al., 2003; Howteerakul et al., 2007). High health conscious patients consumed diet low in fat and high in protein and complex carbohydrates, with a low glycemic index and this contributes to the maintenance of weight and prevention of obesity in normal weight patients and optimal HbA1c level among diabetic patients (Mcevoy et al., 2012). To prevent hyperglycemia and its associated complications combination of increasing daily physical activity level along with healthy eating habits are recommended. For instance, studies stated that high health conscious people tend to enjoy healthy lifestyles by doing exercise more often, eating white meat, fruits and vegetables, while avoiding red meat and other fatty foods (Divine and Lepisto, 2005). Studies also suggested that patients who did not adhere to the recommendation by the doctor or health care providers consciously had higher HbA1c level than those who complied with the regimen (Afnan and Robert, 2013; Hiroki et al., 2017).

VI. Conclusion

The present findings replicate the previous research and add data to the limited literature on health consciousness. It was revealed that high health conscious patients were more engaged in risk reduction attitudes by following health interventions like compliance to the diabetic treatment regimen, which includes lifestyle modification along with diet to achieve favorable outcomes in terms of glycemic control. Therefore, health consciousness is an attitude and a behavior which makes an individual engaged in self-care activities, and in gaining knowledge regarding health and disease conditions and they inculcate that knowledge in positively modifying their daily living and quality of life.

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