DOI: https://doi.org/10.53350/pjmhs22162975

ORIGINAL ARTICLE

Factors Causing Non-Adherence to Lifestyle Modification in type II Diabetes Patients: A Cross-Sectional Study

MANSOOR UL HAQUE[1], NAZIA HUSSAIN[2], KHUDA BUX[3], MUSHTAQUE AHMED[4], ASIF ALI THEBO[5], KHUSHBOO CHANDIO[6]
[1]*Assistant Professor Nursing, Global Institute of Medical and Health Sciences HyderabadPakistan*
[2]*Principal, College of Physiotherapy, Global Institute of Medical and Health Sciences Hyderabad Pakistan*
[3]*Assistant Professor Nursing, Global Institute of Medical and Health Sciences Hyderabad Pakistan*
[4]*Assistant Registrar Nursing, Pakistan Nursing Council Islamabad Pakistan*
[5,6]*Lecturer Nursing, Global Institute of Medical and Health Science Hyderabad Pakistan*
Corresponding author: Mansoor ul Haque, Email: mansoornohri@gmail.com

ABSTRACT

Aim: To determine the factors causing non-adherence to lifestyle modification in type II diabetes patients.
Study design: A cross-sectional study
Place and Duration: This study was conducted at Global Institute of Medical and Health Sciences Hyderabad Pakistan from June 2020 to June 2021
Methodology: The study included 374 individuals who were more than 20 years of age and had type II diabetes for more than 1 year. Different factors which might have an association with non-adherent behavior to lifestyle modification were assessed. The results were statistically analyzed using SPSS version 23.
Results: It was observed that 88% of patients were non-adherent towards diet, 25% were towards exercises, 70% towards foot care, 6% towards smoking, and 25% towards skipping the betel quid chewing even after being instructed by the health care workers.
Conclusion: Nonadherence towards lifestyle modification is quite challenging to achieve a healthy and stable lifestyle in diabetic patients. So such studies must be conducted on a larger scale to develop proper interventions.
Keywords: lifestyle modifications, Prevalence, Risk factors, Type 2 diabetes

INTRODUCTION

One of the rapidly emerging non-communicable diseases of public health concern is diabetes mellitus which is affecting a large population of developing countries. Diabetes is a complicated metabolic disorder that requires the modification and adaptation of a therapeutic lifestyle and good self-care management.[1] Special and keen attention is required towards patients' diet, continuous monitoring and recording of blood glucose levels are required, physical activity on a regular basis, medication, foot care, and keen observation of patients' health is necessary.[2] Adapting a healthy lifestyle reduces diabetes-associated mortality and morbidity but this adaptation is usually non-adherent. Non-adherence towards a healthy lifestyle is usually defined as the partial or complete deviation of patients from the approaches to the lifestyle or behavioral changes which can improve one's health status.[3] The non-adherent behavior is becoming more common and thereby increasing the disease burden on populations.

Different studies have been conducted in the past that focus on the non-adherent approach towards exercise and diet, and it has been concluded that this behavior is more commonly observed by patients having type 2 diabetes i.e. approximately 48-77% high.[4] This problem is usually multifaceted and quite complex in nature depending upon the involvement of many factors such as disease duration, health care providers and patients' relationship, age, perceptions and beliefs about health, and socioeconomic factors. Frequent exercise, a healthy diet, and a modification of a patient's lifestyle have a positive impact on the disease. Therefore it is required to plan and implement quite intensive interventions which can help patients in achieving long-term health benefits. In developing countries, there are usually very few studies are conducted to address these issues. This current study is designed to assess the non-adherent proportion and the factors associated with it in the population of Pakistan who have type 2 diabetes.

METHODOLOGY

The study included 374 patients having type 2 diabetes who were more than 20 years of age and had been diagnosed with type 2 diabetes at least for more than 1 year. Around 50% of patients belonged to the age of 41-60 years and 50% of patients were female. The sample size was calculated by n = z2pq/d2 (where, n = the required sample size; p = the prevalence of nonadherence to diet from previous study i.e., 63.5; q = 1-p and d = error (precision) i.e. 5%.

Exclusion criteria included patients having medical complications along with diabetes or were not able to answer the questions regarding their name, address, or complications about their disease. A pre-tested questionnaire was used to collect the data which included information regarding the socio-demographic status and comorbidities whereas the other part of the questionnaire included questions regarding the adherence of patients to self-management and lifestyle modification. To assess the patients' adherence to the lifestyle modification, a three-point scale was used including always, never, and sometimes.

All the biochemical data was recorded and the anthropometric measurements were recorded using appropriate tools, and an information sheet was used to record all the stuff. If patients adhered to the recommended dietary chart they were considered compliant, and if they did exercises regularly for more than 30 minutes per day then the exercises were considered adhered. If patientsfollowed the foot care practices as suggested by DAB, they were considered as adhered. Similarly, if patients hadn't performed regular testing of blood glucose levelsthey were considered as non-adhered and they were also considered as non-adhered if the patients had the habits of betel quid chewing and smoking. The data were statistically analyzed using SPSS version 23. Before the study, ethical approval had been taken from the local ethics committee of the institute, and informed written consent was obtained from all the respondents.

RESULTS

In the current study, it was observed that non-adherence towards the diet of patients was 88% whereas towards the exercise it was 25%. We observed that an overall percentage of non-adhered patients towards both exercise and diet was 89%. Almost 32% of patients didn't adhere to regular monitoring of blood glucose whereas 70% of individuals were non-adhered towards foot care practices. When betel quid chewing and smoking were considered, 6% and 25% of patients exhibited non-adherence. Upon asking the reason for non-adherence to glucose monitoring, the responses were that 81% of patients didn't consider it important, whereas 26.3% of patients didn't adhere to exercises because of being busy, 26.3% patients were being lazy, and 24.3% patients had other co-existing diseases as well.

By Chi-square test, it was found that an association existed between non-adherence of habitat and diet with a P-value of 0.032 whereas, between diabetes and educational status, the P-value obtained was 0.033. Similarly, between the occupation of the individuals and gender was found to be significantly associated as the obtained P-Value was 0.0001, whereas when betel quid chewing was considered, occupation and educational status was also significantly associated with it, and the obtained P-value was 0.006 and 0.024 respectively as indicated in Table number 1.

In the multivariate binary logistic regression analysis, it was observed that the patients who were high school passed were 3 times more likely to develop good adherence to diet when compared with other groups. Similarly, patients belonging to the urban and semi-urban households were also 3 times more likely to develop adherence where CI was 1.25-6.95 OR was 2.95, and P-value was 0.013. Non-adherence to diet also had a significant association with the non-educated class where OR was 2.79, P-value was 0.043, and CI was 1.03-7.54. It was also observed that unemployed patients were two times more likely to be non-adherent to the testing of blood glucose whencompared to other groups of occupations where CI was 1.021-5.743, P-value was 0.045, and OR was 2.422. Higher educational groups were 5 times more likely to quit smoking habits, and individuals belonging to business fields were more likely to quit smoking and betel quid chewing. A significant relationship was observed between uncontrolled fasting blood glucose and non-adherence to diet. It was observed that 72.9% of patients who were non-adhered to the diet had experienced uncontrolled fasting blood glucose levels, and more than half of patients i.e. 53.3% had experienced uncontrolled fasting blood glucose with a P-value of 0.009. The mean difference between levels of blood glucose didn't differ between adhered and non-adhered habits of glucose testing.

Table 1: Distribution of respondents and lifestyle modification and self-management

Parameters	N and % of non-adherent individuals
Diet	329 (88)
Exercise	92 (25)
Diet + Exercise	335 (89)
Foot care	263 (70)
Blood glucose monitoring	120 (32)
Smoking	24 (6)
Betel quid chewing	92 (25)

Table 2: Non-adherent factors with different variables

Parameters	Non-adherence to diet no. (%)	Non-adherence to exercise no. (%)	Non-adherence to regular blood test no. (%)	Non-adherence to foot care no. (%)	Non-adherence to quitting smoking no. (%)	Non-adherence to quitting betel quid chewing no. (%)
Female (n=217)	190 (87.6)	61 (28.1)	149 (68.7)	151 (69.6)	—	57 (26.3)
Male (n=157)	139 (88.5)	31 (19.7)	106 (67.5)	112 (71.3)	22 (14)	33 (21)
χ2/P	0.082/0.87	3.437/0.069	0.055/0.82	0.132/0.732	32.30/0.0001	1.37/0.271
Primary education (n=112)	105 (93.8)	30 (26.8)	34 (30.4)	76 (67.9)	7 (6.3)	37 (33)
Secondary education (n=174)	148 (85.1)	39 (22.4)	60 (34.5)	122 (70.1)	8 (4.6)	33 (19)
Graduate and above (n=88)	76 (86.4)	23 (26.1)	25 (28.4)	65 (73.9)	7 (8)	20 (22.7)
χ2/P	5.144/0.076	0.849/0.654	1.15/0.562	0.858/0.651	1.23/0.541	7.495/0.024
Urban (n=281)	250 (89)	74 (26.3)	93 (33.1)	205 (73)	19 (6.8)	66 (23.5)
Semi-urban (n=45)	42 (93.3)	7 (15.6)	13 (28.9)	27 (60)	1 (2.2)	7 (15.6)
Rural (n=48)	37 (77.1)	11 (22.9)	13 (27.1)	31 (64.6)	2 (4.2)	17 (35.4)
χ2/P	5.599/0.032	2.514/0.285	0.886/0.642	3.987/0.136	1.18/0.577	5.23/0.074
Didn't attend (n=91)	86 (94.5)	16 (17.6)	29 (31.9)	63 (69.2)	8 (8.8)	22 (24.2)
Attended diabetes educational classes (n=283)	243 (85.9)	76 (26.9)	90 (31.8)	200 (70.7)	14 (4.9)	68 (24)
χ2/P	4.85/0.027	3.192/0.092	0.0001/0.544	0.068/0.445	1.838/0.137	0.001/0.540
Family history of diabetes (**n=**282)	246 (87.2)	66 (23.4)	94 (33.3)	201 (71.3)	17 (6)	70 (24.8)
No family history (**n=**92)	83 (90.2)	26 (28.3)	25 (27.2)	62 (64.7)	5 (5.4)	20 (21.7)
χ2/**P**	0.583/0.580	0.882/0.403	1.213/0.304	0.50/0.51	0.044/1.0	0.361/0.326
Housewives (n=192)	171 (89.1)	53 (27.6)	60 (31.3)	134 (69.8)	0 (11.3)	53 (27.6)
On Service (n=94)	80 (85.1)	18 (19.1)	29 (30.9)	68 (72.3)	12 (12.8)	13 (13.8)
Unemployed (n=46)	39 (84.8)	10 (21.7)	18 (39.1)	34 (73.9)	1 (2.2)	8 (17.4)
Business (n=42)	39 (92.9)	11 (26.2)	12 (28.6)	27 (64.3)	9 (21.4)	16 (38.1)
χ2/P	2.33/0.506	2.70/0.44	1.407/0.704	1.227/0.747	39.10/0.0001	12.35/0.006

DISCUSSION

Staying adherent to lifestyle modification is a necessary step towards the prevention of diabetic complications and achieving optimal glycemic control.[5] In the current study, the majority of individuals i.e. 88% were non-adherent towards the diet which was similar to the other studies which also showed only a certain fraction of individuals i.e. 23% exhibited adherence to the diet.[6]We also observed that one-fourthof individuals didn't perform exercises on a regular basis. In the studies, the rate of adherence to the exercises varies between 48-66% respectively.[6] This was due to the fact that some individuals didn't feel that regular exercising was important or had co-existing diseases such as asthma or other cardiovascular diseases which had interfered with the exercises, and to eliminate that therapeutic lifestyles must be adopted according to every individual's personal requirement.

The reasons for non-adhering to the exercises were consistent with a similar study conducted in Kuwait. Non-adherence to foot care was observed in 70% of patients, similarly, 30% of respondents didn't adhere to the regular monitoring of blood glucose levels even after getting instructed by the healthcare providers. It was suggested that patients who had attended the educational classes regarding diabetes adhered to dietary instructions, quitting smoking habits, and regular exercising when compared to the individuals who never attended any such classes. These results were similar to the study conducted in Hungary.[7] We also observed that respondents having a high level of education

showed strict adherence towards the diet but the group which was more educated exhibited more smoking habits. Individuals who belonged to urban and semi-urban areas were more non-adherent towards dietary habits. Older age also restricted patients from staying adherent to the diet. Unemployed patients didn't adhere to blood glucose testing, we also observed that almost three-fourths of individuals were obese or overweight and the female proportion was higher than the males which could be due to the lack of awareness or information and they must be targeted for intervention.

CONCLUSION

It is important to have an education related to diabetes for self-care management and effective adherence to dietary habits. Patients must be empowered to identify and overcome their problems related to diabetes and for that large-scale studies must be conducted to incorporate these factors.

Conflict of interest: None
Funding source: None
Ethical approval: The study was ethically approved by the ethical review committee of the institute.

REFERENCES

1. Habib SH, Saha S. Burden of non-communicable disease: a global overview. Diabetes & Metabolic Syndrome: Clinical Research & Reviews. 2010 Jan 1; 4(1):41-7.
2. Cohn TA, Sernyak MJ. Metabolic monitoring for patients treated with antipsychotic medications. The Canadian Journal of Psychiatry. 2006 Jul; 51(8):492-501.
3. Mendes R, Martins S, Fernandes L. Adherence to medication, physical activity and diet in older adults with diabetes: its association with cognition, anxiety, and depression. Journal of Clinical Medicine Research. 2019 Aug; 11(8):583.
4. Zhang ZP, Premikha M, Luo M, Venkataraman K. Diabetes distress and peripheral neuropathy are associated with medication non-adherence in individuals with type 2 diabetes in primary care. Acta Diabetologica. 2021 Mar; 58(3):309-17.
5. Hussein Z, Taher SW, Singh HK, Swee WC. Diabetes care in Malaysia: problems, new models, and solutions. Annals of Global Health. 2015 Nov 1; 81(6):851-62.
6. Shultz JA, Sprague MA, Branen LJ, Lambeth S. A comparison of views of individuals with type 2 diabetes mellitus and diabetes educators about barriers to diet and exercise.J Health Commun 2001;6:99-115
7. Hankó B, Kázmér M, Kumli P, Hrágyel Z, Samu A, Vincze Z, et al. Self-reported medication and lifestyle adherence in Hungarian patients with Type 2 diabetes. Pharm World Sci 2007;29:58-66