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Health Promotion Behaviors and Association with Some Variables for Clients with Type II Diabetes Mellitus at Al-Hassan Diabetes and Endocrine Center

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ABSTRACT

Background: Those with Type 2 Diabetes Mellitus (T2DM) who participate in harmful behaviors are at an elevated risk for experiencing a range of adverse health outcomes. Methods :The study focused on clients diagnosed with T2DM at Al-Hassan Diabetes and endocrine Center (n = 315). A Health Promotion Behaviors HPLP-ll and Demographic Questionnaire was utilized, and regression logistical was employed to examine the connection that exists between health promotion behaviors and the identified demographic variables. Results: The average score for practices that promote health was found to be (129.57 ± 19.383) indicating the poor average level of healthy behaviors. A significant negative correlation was observed between health promotion behaviors and the variables of age, occupation, and monthly income. In contrast, a significant positive correlation was identified between health promotion behaviors and educational level among clients with T2DM, as indicated by the Pearson correlation coefficient. However, no significant relationships were found between marital status, residency, and health promotion behaviors. Conclusion: this study highlights that health promotion behaviors in individuals with Type 2 Diabetes Mellitus are influenced by age, occupation, monthly income, and educational level. A negative correlation was found with age, occupation, and income, while a positive correlation was observed with education. These findings suggest the need for tailored interventions based on demographic factors to improve diabetes management.

Keywords: Health promotion behaviors , Some Variables for Clients ,Type II Diabetes

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Introduction

The second type of diabetes (T2DM) is a long-term medical conditions that often develops over many years without noticeable clinical symptoms. It is the most prevalent form of diabetes worldwide, accounting for 85%–95% of diagnosed cases. Diabetes, along with other conditions related to excess, such as obesity and cardiovascular diseases, represents a significant public health concern in the 21st century [(1)]. Approximately 80% of long-term Diabetes and other diseases can be managed by altering one's lifestyle and adopting health-promoting practices, which are crucial for controlling and avoiding diseases and are the primary determinants of health[(2)]. On the other hand, the illness impacts the majority of body functions and is increasingly linked to problems with the liver, kidneys, and lipid profile. Thus, it is essential to treat diabetes as soon as possible in order to avoid more serious problems[(3)].While there are several types of diabetes, type 2 diabetes is thought to be the most common. Therefore, one of the most important steps in creating preventive measures and efficient therapies to slow the disease's progression is determining its contributing variables[(4)]. Given the increasing ageing trend in Iraq, it is imperative to look into self-health and how older people look after their own health[(5)]. A vital strategy for promoting global health is health promotion, which the WHO defines as empowering individuals to enhance their own health[(6)]. Health Promoting Lifestyle Behaviors have received a lot of attention lately. These behaviors and beliefs cover a wide range of health promotion issues to improve health and lower diseases [(7)].Relationships with others, taking responsibility for your health, development of faith, stress reduction, diet, and exercise are all aspects of health-promoting actions [(8)]. Health-promoting behaviors are crucial for promoting health and quality of life[(9)]. This behaviors include the study and application of strategies to help individuals align their values with the pursuit of optimal health. It focuses on enhancing motivation and facilitating sustainable lifestyle changes that support the achievement of ideal well-being through evidence-based interventions[(1)]. A patient's quality of life and health-promoting activities are greatly influenced by social and medical characteristics, such as age, gender, education level, marital status, and the length of time they have had DM[(10)]. Total health-promoting activities had a strong association with age, years of diabetes, education, place of employment, and household income [(11)].The previous studies suggests that patients should be educated about managing their diets; people with type II diabetes should receive a booklet that offers advice on managing their diets[(12)].Additionally, making

posters and incorporating them into a training program will help nursing staff members become more knowledgeable. Consequently, they in their role increase people's understanding of healthy practices[13].

Objective of the study

1-The study aimed to assess the health-promoting behaviors

2-To find out the relationship between health promotion behaviors with sociodemographic variables such as age, sex, educational level, and place of residence,…)

Methodology

The study of association was carried out on 315 Visitors with diabetes from (25 December 2024 to 28 February 2025). Appropriate clients with diabetes who were referred to the center were chosen using convenient sampling methods. The sample size was set to be 315 using the following formula : n=(z^2×pq)/d^2

The selection of participants that were eligible was based only on its accessibility and simplicity of use. Type 2 diabetes had to be diagnosed and confirmed by a professional, have been present for at least six months, be ready to take part in the study, and be free of mental and mental illnesses in order to be included. The samples were eliminated from the study if the questionnaires were not completed completely. Following approval and compliance with the ethical code, the participants were requested to sign a written consent form after being briefed on the study's objectives and the confidentiality of their data. In our research, the face to face method was used for data collection. To gather information, we employed two questionnaires. Age, sex, monthly income, marital status, education level, occupation, residents, chronic condition, information sources, and length of time with type 2 diabetes are among the client’s characteristics covered in the initial sociodemographic questionnaire.

The second survey was designed to evaluate the health-promoting behaviors of diabetic patients. The total reliability for this tool was 0.929. This questionnaire consists of 65 questions with 8 dimensions of spiritual growth (9 questions), responsibility for health (9 questions), Interpersonal relationships (8 questions), stress management (8 questions), physical activity (8questions), diet (9questions), and blood sugar control and diabetic foot care (7 questions). The response to each question was assessed using a four-point Likert scale, with scores ranging from 'Never = 1, Sometimes = 2, Often = 3, and Always = 4. The range of age from 65 to 130 is considered poor, while 130.1 to 195 is considered moderate, and 195.1 to 260 is considered good.

With the use of descriptive statistics and Pearson's correlation coefficient, the data gathered for this study were examined using SPSS 26 software. Dispersion, central indicators, and relative frequency distribution are examples of descriptive statistics. Demographic factors and the status of health-promoting behaviours were described using the mean value and SD. The association between sociodemographic characteristics and behaviours that promote health was ascertained using the correlation test.

The results

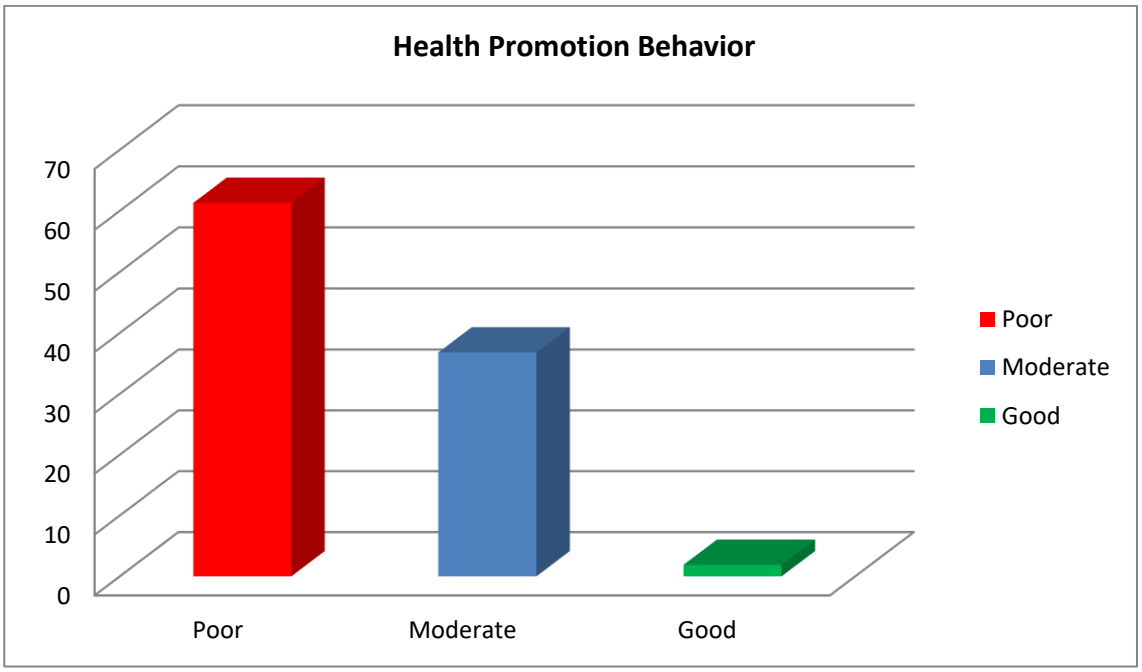
In this study, According to **(Table 1)** the findings indicate that average age for clients is 55.8± 9.9 years; the highest percentage of 39% that seen with age group of "50 – 59 year". , The sex of clients reveals that 71% of them are females while 30% are males that reflect females are dominant. The marital status refers that more most of clients are married (87%), 9.8% of them are widowed/widower, while only 1.9% are still unmarried. Regarding occupations, 65.4% of clients are housewives, 16.8% of them are unemployed, and only 10.5% are working as governmental employee. The level of education refers that higher proportion of clients are "doesn't read and write" followed by "primary school graduate" among 32.1%. The monthly income indicates that 81.6% of clients perceive "enough to some extent" monthly income, while 14% perceive "enough" monthly income. The residency reveals that 57.1% of clients reside in urban and 42.9% of them reside in rural.

Table 1: The participants' demographic variables (N=315)

List	Characteristics		f	%
1	**Age (year)** **M±SD= 55.8 ± 9.9**	20 – 29	2	.6
		30 – 39	12	3.8
		40 – 49	56	17.8
		50 – 59	123	39
		60 – 69	87	27.6
		70 +	35	11.1
		Total	***315***	***100***
2	**Sex**	Male	91	30
		Female	224	71
		Total	***315***	***100***

3	**Marital status**	Unmarried	6	1.9
		Married	274	87
		Separated	3	1
		Divorced	1	.3
		Widowed/er	31	9.8
		Total	***315***	***100***
4	**Occupation**	Housewife	206	65.4
		Employee	33	10.5
		Free works	23	7.3
		Retired	0	0
		Unemployed	53	16.8
		Total	***315***	***100***
5	**Level of education**	Doesn't read & write	102	32.4
		Read & write	31	9.8
		Primary school	101	32.1
		Intermediate school	35	11.1
		Secondary school	24	7.6
		Graduate	21	6.7
		Post graduate	1	.3
		Total	***315***	***100***
6	**Monthly income**	Enough	44	14
		Enough to some extent	257	81.6
		Not enough	14	4.4
		Total	***315***	***100***
7	**Residency**	Urban	180	57.1
		Rural	135	42.9
		Total	***315***	***100***

The current study findings found The mean score of health promoting behaviors was (M±SD= 129.57 ± 19.383) this depicted in the (**figure1)** below:



According to the figure 1**,**the mean scores of 3,193 participants (61.3%) were poor, 116 participants (36.8%) were moderate, and 6 participants (1.9%) were good. The most common health promoting behaviors were personnel relationships and diabetic foot control, while physical activity has the lowest score of health promoting behaviors.

Regarding the correlation The study highlights significant relationships between health promotion behaviors and various sociodemographic variables The study highlights significant relationships between health promotion behaviors and various sociodemographic variables, As mentioned in The following (**Table2)**

Table (2): Relationships Health Promotion Behaviors among Clients with their Sociodemographic Variables

Variables		Health Promotion Behaviors		
		Mean	SD	Relationship
Age (year)	20 – 29	151.50	23.335	r^s = -.235 P-value= .001 Sig= H.S
	30 – 39	130.25	12.672	
	40 – 49	131.79	15.905	
	50 – 59	133.33	21.972	
	60 – 69	126.44	18.921	
	70 +	119.09	11.348	
	Total	129.57	19.383	

Sex	Male	133.31	21.537	***r**= - .135* **P-value= .016** **Sig= S**
	Female	128.05	18.270	
	Total	129.57	19.383	
Marital status	Unmarried	138.50	36.259	***r**= .083* **P-value= .142** **Sig= N.S**
	Married	129.85	19.151	
	Separated	136.33	24.028	
	Divorced	130.00	.	
	Widowed/er	124.65	17.058	
	Total	129.57	19.383	
Occupation	Housewife	126.06	15.677	***r**= -.182* **P-value= .001** **Sig= H.S**
	Employee	151.91	31.471	
	Retired	133.13	19.698	
	Unemployed	127.74	12.321	
	Total	129.57	19.383	
Level of education	Not read & write	119.08	10.792	***r**= .623* **P-value= .001** **Sig= H.S**
	Read & write	119.42	9.695	
	Primary school	127.53	10.956	
	Intermediate school	138.09	14.347	
	Secondary school	148.71	20.758	
	Graduate	164.95	26.479	
	Post graduate	219.00	.	
	Total	129.57	19.383	
Monthly income	Enough	151.75	28.148	***r**= - .324* **P-value= .001** **Sig= H.S**
	Barely enough	126.05	14.944	
	Not enough	124.50	10.882	
	Total	129.57	19.383	
Residency	Urban	131.11	21.685	***r**= - . 085* **P-value= .133** **Sig= N.S**
	Rural	127.52	15.648	
	Total	129.57	19.383	

The study highlights significant relationships between health promotion behaviors and various sociodemographic variables as we can see in the **(Table2)** above . Age shows a significant negative correlation (r = -.235, p = .001), indicating that as age increases; health promotion behaviors tend to decrease. Sex also has a significant relationship (r = -.135, p = .016), with males demonstrating slightly higher health promotion behaviors than females. Occupation has a notable negative correlation (r = -.182, p = .001), suggesting that housewives are more likely to report lower health promotion behaviors compared to other occupations. Education level exhibits a significant positive correlation (r = .623, p = .001), with higher education levels corresponding to better health promotion

behaviors, especially for individuals with a graduate or post-graduate education. Monthly income also demonstrates a negative relationship ($r = -.324$, $p = .001$), with those reporting "enough" income engaging in better health promotion behaviors than those with insufficient income. However, marital status and residency show no significant relationships with health promotion behaviors, with p-values of .142 and .133, respectively.

Discussion

The prevalence of non-communicable diseases has grown to be a major public health problem, making health-promoting behaviors even more important for preventing and managing the impacts of disease. Numerous studies have demonstrated that leading a healthy life style lowers the likelihood of developing a number of chronic illnesses and lessens the negative impacts of disease(14).

The results of this study, which was carried out with the aim of determining the association between the health promotion behaviors and some variables for clients with T2DM at AL-Hassan diabetes and endocrine center, indicated that the average score of clients with T2DM was poor health promotion behaviors. About 193 (61.3%) of clients had Poor level . These results align with a study conducted at Hamadan University, where the total score of health-promoting behaviors was assessed as undesirable [15]. Similarly, the findings of Baraeti [16] support these results. Nonetheless, the findings about diabetes patients in Ahvaz revealed that the degree of health-promoting behaviors of patients at an acceptable level , other studies conducted by Mirzamyzadi et al., [17] ; shafiee et al., [1].Reported a moderate level of health promotion behaviors., this variation in health promotion behaviors between countries reflects the interaction of a range of economic, social, cultural, and legislative factors. In the present results the most common health promotion behaviors were in interpersonnel relashionship and foot diabetic control and the weakest health promoting behaviors belonged to physical activity. The findings agree with the outcomes of studies conducted in Isfahan and Ahvaz[2,14], The physical exercise had the worst performance. This implies that patients' sedentary lifestyles are a prevalent and significant issue. Patients with type 2 diabetes face significant challenges in managing their condition due to low motivation and a lack of awareness regarding the advantages of regular physical activity. Concerning for study by Tezcan was agreement with the current results. Who indicated that the most health promoting were personnel relashionship[10]. The findings of another study related to health promotion behaviors reported that the second highest score of health promoting behaviors belonged

to diabetic foot control that align with the our study[2]. The differences in health promotion behaviors among diabetes clients in various countries are influenced by factors such as cultural and social values, economic conditions, education and health awareness, healthcare systems, access to information, environmental factors, and government health policies. According to the current study's findings, age was negatively and significantly correlated with health promotion behaviours. Our findings, which were in line with those of Lee et al., demonstrated that health-promoting practices improved as age decreased.,[18]. In contrast The results incompatible with the study conducted by Javadzade et al., that demonstrated the improvement in health-promoting behaviors adherence status as people age, that showed the older people had better health promoting behaviors. Conversely, in other investigations, no significant connection was found between health promoting behaviors and age [19].Other results of the present study showed that those who had a higher source of income engaged in habits that promoted their health. These results consistent with the Javadzade et al study that reporting the people with fewer resources are less likely to engage in activities that promote their health [20]. Additionally, education had considerable positive relashionship with health promoting behaviors, so that client with high education have a good behaviors, which is align with other studies of Saber-Gafferi et al.,[21] ; Resis et al., [22].In the present study when health promoting behaviors were evaluated according to gender , the Health Promoting Lifestyle Profile overall rating for male clients, lend to be higher than female clients. Also, sex has a significant relashionship with health promoting behaviors align with the study on patients with heart disease found that the scores on the psychological development and physical exercise subscales, as well as the total HPLP-II scores, were greater in male participants compared to female participants [23].

The marital status and residency were found to show no significant relashionship with health promoting behaviors. Another researcher reported that marital status did not affect the health promoting behaviors[24].However, the result of study conducted in Turkey found When compared to unmarried people, married people showed higher ratings for behaviours that promote health [8] .That is inconsistent with our results. The differences in the study samples' cultural traits could be the cause of the observed discrepancy. Health-promoting practices were analyzed in relation to occupational status, there was a notable statistically negative correlation between the occupation and health promoting behaviors, suggesting that housewives are more likely to report lower health promotion behaviors compared to other occupations. Tol et al found that patients with DM who worked as officer

had a higher total health promoting behaviors score compared to other occupational groups and this parallel with our results[25]. Employee adhere to healthy behaviors because of a structured work environment that provides health promotion programs, and their adherence to company policies and regulations, awareness of the importance of health for productivity and promotions prompt them to adopt better habits, in addition to the influence of colleagues and support of the work environment. Companies also provide work life balance programs, which reduce stress and illness and reduce absenteeism, also the employees more activity than others.

The duration of diabetes mellitus, family history of DM and treatment type had no impact on practices that promote health In our research. Correspond with Tezcan et al., study, that reported the duration of diabetes mellitus, family history of DM had no significant relashionship with health promotion behaviors [8]. The source of information about diabetes care demonstrates a significant relationship Clients who rely on family as a source of information report lower health promotion behaviors compared to those who obtain information from social media or health institutions. In Saudi Arabia For adults with diabetes, medical professionals and television remain the main suppliers of health-related knowledge this correspond with our results[26].

The associated diseases or complications of diabetic mellitus, have no longer closely connected with health promotion behaviors. In reverse the results of study conducted in turkey reported that Individuals without any comorbid chronic conditions achieved greater scores on the instrument [8]. this research clearly demonstrates that health-promoting behaviors are significantly influenced by demographic variables and clinical characteristics of individuals. The findings showed a noticeable variation in health behavior patterns among different groups based on factors such as age, gender, education, and social status. Additionally, certain clinical characteristics, such as chronic diseases or family health history, play a crucial role in determining the extent to which individuals are motivated to adopt health-promoting behaviors aimed at prevention and treatment diabetes type II.

Conclusion: This study highlights how age, occupation, money, and education all affect health promotion behaviors in people with Type 2 Diabetes Mellitus. Higher education levels are linked to better health behaviors, while older age, lower income, and lower profession status are linked to worse health behaviors. Residence and marital status had no noticeable influence. These results imply that diabetes care may be enhanced by adaptable therapies depending on demographic characteristics.

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