Assessment of Patient Empowerment at National Institute of Diabetes

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ABSTRACT
Background: Healthcare structures around the globe are appropriately increasingly curious about heartening the role of subjects in their care and stretch to evolve them. **Aim**: This study aimed to assess patient empowerment at the National Institute of Diabetes and Endocrinology in the Internal Medicine and Surgery departments.
Methods: This was a descriptive study. 400 diabetic patients were included in this study that was conducted at the National Institute of Diabetes and Endocrinology, Cairo. Data were gathered using the self-control questionnaire including the patient enablement instrument, the control preferences scale, and the patient activation measure.
Results :Regarding patient activation, 69% of patients had high levels of activation, and only 14 % of them were low,50.5% actively preferred decision-making, 52% of them had low levels of enablement following clinician consultation, and only 20 % were moderate, 54.5% who had low levels of diabetic self-control and only (18.5 %) had high control of diabetes. **Conclusion**: This study found that almost two-thirds of the sample had a high degree of activation and that slightly more than half preferred to make medical decisions on their own or did so while taking the doctor's advice into account those were active, and slightly more than half of the studied sample were enabled and their score after clinical consultation was low and slightly more than half of the studied patients were lowself-control of diabetes.
Keywords: Assessment, Empowerment, Engagement, Diabetes.

INTRODUCTION

Healthcare structures possess enduring growing replacement, at which point the biomedical outlook has been flexible to the biopsychosocial outlook [1]. During the whole of the development, patients proper expected to a greater extent affected, not only in their management but in all healthcare plans [2]. Patient empowerment (PE) increases healthcare sustainability, which is the ability of healthcare systems to provide the full health and well-being of associations [3]. Healthcare sustainability is exposed, in several nations, by determinants in the way that growing skepticism and unhappiness by aging people, and scarcity of financial resources to overcome these challenges. Distribution of huge assets was required for the avoidance, help, carefulness, examination, and electronics that are essential to guarantee the persistent well-being of the culture [4].

Healthcare structures for the realm are suitable for progressively curious in restoring the function of subjects in their management. In the United Kingdom, PE has existed an equitable of following governments up profuse age, accompanying current pushes containing new systems of regional patient classes and help for better automatic-administration of incessant offering subjects a better expression and greater capacity in their interplay accompanying suppliers of healthcare [5]. So, healthcare structures contact is an increase to devote effort to some patients had the potential for reconstructing cost-influence and transmittal of carefulness [6].

One of the most common diseases brought on by metabolic problems is diabetes mellitus. This disease with multiple complications is not reversible in many cases and it is a major challenge that results in impairment in the production and function of insulin in the body [7]. Patients failing to control diabetes are going to two opportunities; greater inclined to carry problems than the accompanying agreeable metabolic mastery and the annual cost that raises briskly accompanying complications and comorbidities [8].

Significance of the study

The healthcare system is changing to tolerate the huge demand for healthcare services by applying new approaches to shift towards patient- center care instead of reliance on medical practitioners through using health information technology to enable healthcare providers to partner with the patient care regimes that optimize quality of care and health outcome [9].
Diabetic patients will have much awareness about their status of engagement in healthcare and self-control of their disease and help them to manage diabetes that needs a basic alteration from ailment-focused to patient-joining self-management. This means the empowerment of subjects and their engrossment in the direction of each position in the strength scheme, guaranteeing alive patient engrossment in

policymaking and co-designing of management duties to fitting their wants in a more excellent manner [10]. Empowerment alsoincreases patients' attention to self–management of diabetes, which leadsto maximizing their health and wellness. In addition to decreasing patients' dependence on healthcare services and improving their quality of life and patients hit a critical act in their care as they are an achievement in addition to 95% of their diabetes carefulness except for healing cities or at home [11]. As energetic powers, they can approach, proportion, and merge their money, giving their occurrences and tales, and excitedly upholding associates to attain their well-being-related aims [12].

Aim Of the Study
The study aimed to assess patient empowerment through:
1. Measuring the level of patients' engagement in their healthcare.
2. Assessing patients' preferences for involvement in decisions about their health.
3. Identifying enablement after a clinical consultation.
4. Identifying the patient's level of self-control.

This descriptive study was conducted at the National Institute of Diabetes and Endocrinology, Cairo, which is affiliated with the Ministry of Health and Population.
Subjects:
The study included all available diabetic patients of both genders in free medical and surgical units who agreed to take part in the study during the data collection period (N = 400 patients). Conscious and oriented patients aged more than 15 years old, and had both type I or type II diabetes were included. comatose patients who had complications from type 1 or type 2 diabetes, and had multiple diseases were excluded.
Ethical consent: Approval for the study was obtained from the Faculty of Nursing, Helwan University's Academic and Ethical Committee, and the Ethics Committee of the General Organization for Teaching Hospitals and Institutes (GOTHI) of the National Institute of Diabetes and Endocrinology. Every patient signed an informed written consent for the acceptance of participation in the study. This work has been carried out in accordance with the Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.
Tools for Data Collection:
Tool 1: Patient Activation Measure (PAM): It was developed by **Hibbard et al.** [13] and modified by the researcher based on a relevant literature review [14] for showing good psychometric properties in patients with diabetes mellitus. It consisted of two parts:

Part 1: Personal Data that included gender, age, education level, marital status, duration of disease, and type of diabetes.
Part 2: Component of Patient Activation Measure (PAM) that was designed to scope the position of patient engagement in their healthcare and evaluates patient information, skill, and assurance for self-administration. It consists of 13 items. Responses were determined on (3) points Likert scale varying from disagree (1), uncertainty (2), and agree (3).
Scoring system: The patient Activation Measure (PAM) scoring system ranged between (13- 39). It was calculated based on three levels:
- Low :(13-24) (0 % – <60%).
- Moderate: (>24- <30) (≥60% - < 75%).
- High:(>30-39)(≥75%-100%).

Tool 2: Control Preferences Scale (CPS): It was developed by **Degner et al.** [15] and used by **De las Cuevas et al.** [16] to weigh the extent of mastery that insane outpatients had accompanying moving disorders be going to adopt when preparing conclusions. It consists of five cards and each represents a various function in a situation accountable utilizing a report and a caricature. These parts are categorized from the individual preparing the situation conclusions, through the distinctive making the conclusions as one accompanying the doctor, to the specialist making the determinations. The CPS included cases in preparing an order of mated corresponding to supply their total priority order over the five cards and clarifies the case of choosing in the event of an error (first 2 choices not contiguous) after the first administration as Incorrect sequences are AC, CA, CE, EC To, From, AE, EA, BD, DB, BE, EB, repeat once the test and take correcT sequences as in the following table and determine the score.

Table (1): The Control Preferences Scale cards grouping and score

Description	Order of the cards	Score
Active – Active	AB or BA	1
Active – Collaborative	BC	2
Collaborative – Active	CB	3
Collaborative – Passive	CD	4
Passive – Collaborative	DC	5
Passive-Passive	DE or and ED	6

Table (1) clarified the grouping of five cards of the scale as (AB) and (BC) cards mean Active, (CB) and (CD) cards mean collaborative also (DC) and (DE) means passive.

Scoring system: six scores are grouped as calculated based on three levels:
- 1 and 2 = "Active".
- 3 and 4 = "collaborative".
- 5 and 6 = "Passive".

Tool 3: The Patient Enablement instrument (PEI): It was advanced by **Howie et al.** [17] and modified by the researcher based on relevant literature review [18] to be used at a specific time with no need to compare current responses to previous responses. It is used for evaluating enablement after clinical consultation.

Scoring system: The PEI scoring system ranged between (6- 18). It was calculated based on three levels:
- Low (6 - > 11) (0 % − > 60%).
- Moderate (< 11 - > 14) (>60% - > 75%).
- High (< 14 – 18) (>75%- 100%).

Tool 4: The self-control questionnaire- Brandon (SCQ-Brandon): It was developed by **Brandon et al.** [19] and modified by the researcher based on relevant literature review [20] to enhance the interpretability of self-management instruments and the scores they produce.

Scoring system: self-control questionnaire-Brandon (SCQ-Brandon) scoring system ranged between (16-48). It was calculated based on three levels:
- Low (16 - > 29) (0 % − > 60%).
- Moderate (< 29 -36) (>60% - 75%).
- High (< 36- 48) (>75%- 100%).

Procedure

An official letter seeking consent to conduct the study was issued from the dean of the faculty of nursing, at Helwan University to the administrator of the National Institute of Diabetes and Endocrinology to get his acceptance for carrying out the study, this letter included the aim of the study. Before the study began, each subject signed an informed consent form that was read and approved by the General Organization for Teaching Hospitals and Institutes' ethics committee (GOTHI).In addition, written approval was acquired from the ethics and research committee of the faculty of nursing, at Helwan University.

Informed consent was needed and acquired from each participating subject afterward illustrating the nature and aims of the study. Each sheet was coded and subjects' names did not appear on the sheets for namelessness and confidentiality. Subjects were free to retract from the study at whatever time. The actual fieldwork began on the first of August 2017 and was achieved by the end of February 2018 in 4 days/week of morning and afternoon shifts.

The researcher gathered data by himself by meeting each patient individually, describing the study's purpose, and how to complete the questionnaire. The researcher ensured that the study subject could choose to participate or not in the study and that their responses were confidential. The researcher was there to answer any questions throughout the process of filling out the form. The time needed from each subject to complete 1st tool (Patient Activation Measure (PAM) ranged from 2-4 minutes, 2nd tool Control Preferences Scale (CPS) ranged from 2-5 minutes, 3rd tool the Patient Enablement Instrument (PEI) ranged from 1-3 minutes, and Self Control Questionnaire-Brandon (SCQ-Brandon) ranged from 3-5 minutes.

The questionnaire sheet was given to the moderate and highly educated patients to fill out by themselves. while it was filled by the researcher for illiterate patients and then offered cards (The Control Preferences Scale) for indicating with their finger on cards to select two cards according to his/her preferences' role from paper that prefer more than that prefer less.

Data analysis

The collected data were coded, processed, and analyzed using SPSS (Statistical Package for Social Sciences) version 20 for Windows® (IBM SPSS Inc., Chicago, IL, USA). Categorical data were reported as numbers and percentages and compared using the Chi-square test. Continuous data were expressed as mean and Standard deviation (SD) numbers and percentages were used to present the data. With the help of Cronbach's alpha reliability coefficient, the questionnaire's reliability was evaluated.

A nonparametric way to assess rank correlation is the Spearman's rank coefficient of correlation (statistical dependence of ranking between two variables). Three values for the probability (P-value)) P-values ≤ 0.05 were deemed significant, those over 0.05 were deemed not significant, and those under 0.001 were deemed highly significant.

RESULTS

Table (2): Personal data of the studied diabetic patients (N=400).

Items	N	%
Age (years)		
15-30	104	26.0
30-50	124	31.0
more than 50	172	43.0
Mean ± SD	44.62±17.56	
Gender		
Male	143	35.8
Female	257	64.3
Education level		
Illiterate	147	36.8
Secondary school	108	27.0
University	145	36.3
Duration of disease (years)		
<15 y	176	44.0
≥15 y	224	56.0
Mean ± SD	14.09±5.88	
Marital status		
Married	217	54.3
Single	183	45.8
Type of D.M		
Type I	211	52.8
Type II	189	47.3

Table (2) Showed that females represented nearly two-thirds of the sample (64.3%) and males represented about one-third of the sample (35.7%). Nearly (43.0%) of the participants were over 50 years, while 26.0% were between the ages of 15 and 30 years.

Additionally, the percentage of illiterate participants was more or less equal to the percentage with a university education (36.8% and 36.3% respectively). Regarding the patients' marital status (54.3%) were married. Additionally, more than half of the studied patients (56.0%) had a disease for more than 15 years. Slightly above half of the sample (52.8%) had type I diabetes, while 47.2% had type II diabetes.

Patient Activation Levels
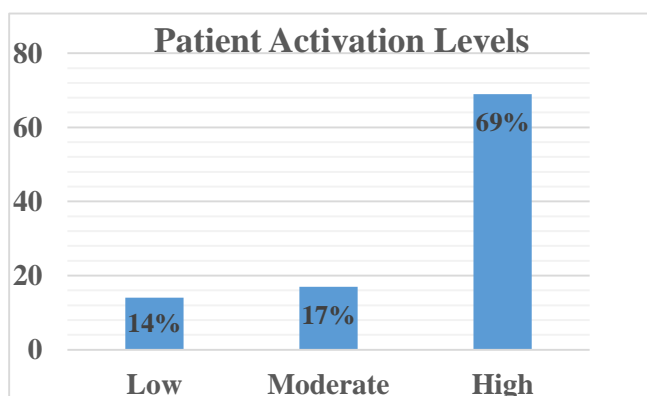
Figure (1): levels of patient activation among studied diabetic patients (N=400).

Figure (1) Showed that the majority (69%) of patients had a high activation level which indicated a high engagement in their healthcare through evaluating their assumptions, information, and assurance for engaging in an extent of health behaviors, whereas (17%) were moderate, and only (14 %) of them were low activated and engaged in their healthcare.

Table (3): Frequency and percentage distribution control preferences for involvement in decisions among studied diabetic patients (N =400).

| Items	Description	N	%
1. I prefer taking medical decisions by myself.	Active	202	50.5
2. I prefer taking the medical decision myself with consideration for the doctor's opinion.			
3. I prefer Sharing the medical decision with the doctor to choose the best.	Collaborative	198	49.5
4. I prefer that the doctor takes the medical decision with regard to my own opinion.			
5. I prefer that the doctor takes all medical decisions without referring to me.	Passive	0	0

Table (3) Clarified that slightly more than half of the studied sample (50.5%) favored to take medical decisions by themselves or take the medical decision with concern for the doctor's belief who were active according to the control preferences scale.

Meanwhile, slightly less than half of them (49.5%) preferred to share the medical decision with the doctor to choose the best or preferred that the doctor took the medical decision regarding their opinion those were collaborative according to the control preferences scale. furthermore, no one of them was passive by preferring doctors to take all medical decisions without referring to them.

Table (4): Frequency and percentage distribution of enablement among studied patients studied diabetic patients (N =400).

Items	Same or less		Better		Much better	
	N	%	N	%	N	%
Do you feel that you						
1. Able to cope with life.	122	30.5	227	56.8	51	12.8
2. Able to understand your illness.	88	22.0	184	46.0	128	32.0
3. Able to cope with your illness.	115	28.8	148	37.0	137	34.3
4. Able to keep yourself healthy.	94	23.5	172	43.0	134	33.5
5. Confident about your health.	82	20.5	168	42.0	150	37.6
6. Able to help yourself.	101	25.3	143	35.8	156	39.0
Total Mean score ±SD	2.06 ± 0.56					

Table (4) Revealed that more than one-third of the studied sample (39%) felt much better that they were able to help themselves after clinical consultation, while only (12.8%) of them felt that they were able to cope with their life. Moreover, for those who felt better after clinical consultation were slightly more than half of them (56.8%) scored that they were able to cope with their life, while only (35.8%) of them were able to help themselves. Additionally, those who felt the same or less (30.5%) reported that they were able to cope with their life, whereas (20.5%) of them were confident about their health. Additionally, the total mean score and SD of the sample's enablement was (2.06 ± 0.56).
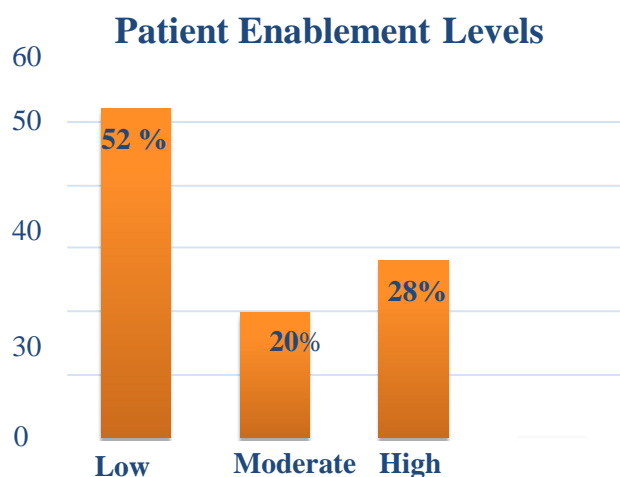
Figure (2): Levels of patient enablement among the studied sample (N=400).

Figure (2) Illustrated that slightly more than half (52 %) of the studied sample 'enablement and satisfaction scores after clinical consultation were low. Meanwhile, less than a third of the studied sample score (28%) were high, and only (20 %) of them were moderate enablement.
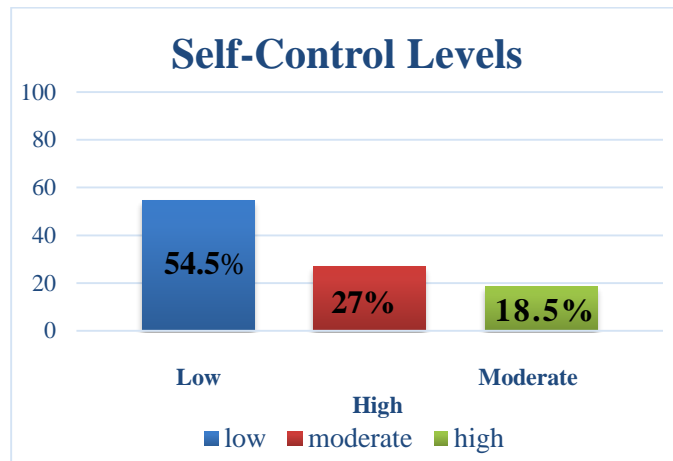
Figure (3): Levels of self-control among studied diabetic patients(N=400).

Figure (3) Depicted that, slightly more than half (54.5%) of the studied sample were low self-control of diabetes, whereas (27 %) of them were moderate control and only (18.5 %) of them were high control, that they were able to understand, copy and manage their illness.

Table (5): Pearson's correlation coefficient between patient activation measures, patient enablement, and self-control of studied diabetic patients (N=400)

Items		Patient Activation	Patient Enablement
Patient Activation	R		
	P value		
Patient Enablement	R	0.79**	
	P value	0.000	
Patient Self-control	R	0.71**	0.66
	P value	0.000	0.000**

Not significant at P > 0.05   *significant at P≤0.05 ** Highly significant at P≤0.001.

Table (5) Revealed that there was a strong positive correlation between patient activation, patient enablement, and self-control (r =0.79 and r =0.71) respectively. Additionally, there was a highly

significant relationship between patient activation, patient enablement, and self-control.

DISCUSSION

The present study findings of personal data clarified that the mean age of the studied patients was 44.62 ± 17.56. This result is congruent with the study done by **Hailu et al.** [21] who found the same result. While the study findings revealed that nearly two-thirds of the studied patients were female. This result is similar to a study that was done in sub-Saharan Africa who has found similarity in the results of **Mogueo et al.** [22].

Regarding the educational level of the studied patients, the study results revealed that slightly more than one-third of the studied patients were illiterate. This result is in the same line with the findings of **Van-Vugt et al.**[23] who found similarity in results. While, concerning the duration of experiencing diabetes, the study results showed that more than half of the studied patients had the disease for more than 15 years and were married. This result is in harmony with **Erku et al.** [24] study in Ethiopia who found the same result.

Concerning the type of diabetes, the study results showed that slightly above half of the studied patients had type I diabetes, while slightly less than half of them had type II diabetes. This result is supported by **Chmiel et al.** [25] in a study conducted in Switzerland.

The present study showed that around two-thirds of the studied patients had a high activation level which indicated a high engagement in their healthcare through determining their assumptions, information, and assurance for charming in a broad range of well-being presence. This result agrees with studies conducted by **Kato et al.** [26] which showed the same result. While this result conflicted with **Regeer et al.** [27] study that was conducted in the Netherlands who found less than half of the studied patients had a high activation level.

The findings of the current study showed that slightly more than half of the patients had chosen to make medical decisions on their own or with consideration of the physician's perception, those were active in accordance with the Control Preferences Scale, while no one of them was passive through preferring doctors to take all medical decisions without referring to them. These findings are on the same view as the studies reported by **Marton et al.** [28] which asserted the same results. While these findings contradicted the study of **Marahrens et al.** [29] study who mentioned that most patients preferred shared decision-making between ophthalmologists and patients, while few numbers of them preferred the autonomous style of patient-dominant decision-making.

The findings of the current study showed that, following clinical consultation, the enablement and satisfaction scores of the sample were slightly more than half of the study subjects were low. This result corroborates the idea of **Hansen et al.** [30] who mentioned the same result. While this result was inconsistent with **Tolvanen et al.** [18] in Finland who mentioned that more than half of the studied patients had a moderate level of enablement and satisfaction.

The current study revealed that less than one-third of the studied sample's enablement and satisfaction after clinical consultation were high. This result is on the same line with the study findings of **Farghaly et al.** [31] who mentioned the same result of slightly less than one-third of the sample was highly satisfied and enabled after clinical consultation. While these findings are inconsistent with the findings by **Desborough et al.**[32] who mentioned that more than two third of the studied sample were satisfied and enabled that depend on the time of consultation if the time of consultation increased led to increasing patient satisfaction as well as depend on patient autonomy and management of chronic disease

The study results depicted that, slightly more than half of the studied patients were low self-control of diabetes, whereas less than one-quarter of them were high self-control. These findings are supported by a study done by **Ahmadi et al.** [33] in Iran who found the same result. In contrast, the study conducted by **Zamani-Alavijeh et al.** [34] in Iran showed that more than half of the studied patients were moderate self-control of diabetes.

The study findings clarified the correlation between activation and enablement of the studied diabetic patients. The results illustrated that there was a positive correlation between patient activation scores and patient enablement scores of the studied patients. This result is similar to a study by **Sabo et al.** [35], which was conducted in the United States of America and found the same result. On the other side, this result was inconsistent with a study finding which was conducted by **Regeer et al.**[27] who found that there was no correlation between the level of the studied patient activation and the level of the studied patient enablement.

CONCLUSION

The study's findings led to the conclusion that roughly two-thirds of the patients were highly activated, and less than a quarter of them were low. In terms of patient preferences, slightly more than half of the sample under investigation preferred to make medical decisions on

their own or to do so while taking the doctor's advice into account those were active. In addition, slightly less than half of them preferred to share the medical decision with the doctor to choose the best or preferred that the doctor took the medical decision regarding their opinion those were collaborative and no one of them was passive through preferring doctors to take all medical decisions without referring to them.

Concerning patient enablement, slightly more than half of the studied sample's enablement after clinical consultation were low, less than one-third of the studied sample score were high, and only less than a quarter of them were moderate.

As regards the level of self-control, slightly more than half of the studied patients, self-control was low, whereas more than one-quarter of them were in moderate self-control of diabetes and less than one-quarter of them were in high self-control, who were able to understand, cope with and manage their illness.

RECOMMENDATION

Healthcare providers should :

- Help diabetic patients meet small daily goals to help patients feel progress in the right direction.
- Provide frequent training programs for healthcare providers about how to empower patients.
  Healthcare managers should:
- Creating a surrounding that guarantees the delivery of safe and superior patient care, extreme patient delight rates, and beneficial patient outcomes.
- Build an empowering environment to encourage the involvement of patients in health services' co-production to reduce the number of readmissions.
  Healthcare organizations should:
- Provide patients with a tool to approach knowledge, support, and resources to reinforce their well-being literacy.
- Integrate health literacy of empowerment into the organizational mission and operations.
  Further studies to :
- Explore the connection between patient empowerment and patient knowledge.

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