IJNH

Research Article

Effectiveness of Therapeutic Education Program on Self Efficacy and Self Care Behavior among Patients with Type II Diabetes Mellitus at Selected Hospitals in Chennai

B. Tamilarasi, H. Catherine Baby Suhasini, R. Annesharon, G. Harisha, K. Madhumitha, T. Raghavi, V. N. Sundharam

Department of Mental Health Nursing, Madha College of Nursing, Affiliated to the Tamil Nadu Dr. MGR Medical University, Chennai, Tamil Nadu, India

Abstract

Background: Diabetes mellitus is a syndrome of disturbed energy metabolism, conventionally defined by the degree of hyperglycemia, resulting from an absolute or relative deficiency of insulin action.

Objectives: This study is to evaluate the effectiveness of the therapeutic education program on self-efficacy and self-care behavior among patients with type II diabetes mellitus at selected hospitals in Chennai.

Methods: A pre-experimental, one group pre-test and post-test research design was used, and 30 patients with type II diabetes mellitus who met inclusion criteria were selected using the purposive sampling technique. The level of self-efficacy and self-care behavior measured using the diabetes management self-efficacy scale and the summary of diabetes self-care activities, respectively. The post-test was done on 7th day using same tool after the therapeutic education program.

Results: Mean score for self-efficacy in the pre-test was 57.57 with a standard deviation of 10.36, and in the post-test it was 76.23 with a standard deviation of 16.97. The difference in self-efficacy between the pre-test and post-test levels was highly statistically significant ($P < 0.05$) at 4.93 for the paired t-value. In terms of self-care behavior, the pre-test mean score was 35.03 with a standard deviation of 6.56, and the post-test mean score was 62.47 with a standard deviation of 9.76. There was a very statistically significant difference ($P < 0.05$) between the pre-test and post-test levels of self-care behavior, as indicated by the paired {t} value of 12.33*.

Conclusion: Patients with type 2 diabetes mellitus benefit from therapeutic education programs in terms of self-care behavior and self-efficacy.

Keywords: Diabetes mellitus, self-care behavior, self-efficacy, therapeutic education program, type ii diabetes mellitus

Introduction

Diabetes mellitus is one of the receptive chronic pathologies that have been evolving worldwide till now. Management of diabetes mellitus can lead to varying physiological and psychological burdens for patients with diabetes and their families. This pathological condition has been recognized as a strange independent predictor of metabolic control among patients with diabetes.[1]

According to the World Health Organization (WHO), approximately 442 million adults are affected by diabetes mellitus, and the WHO estimates that this will increase by about 48% by the year 2045.[2]

More than 50% of Type II diabetes mellitus patients fail to follow the recommendations prescribed by their healthcare providers. Optimal management of diabetes requires that multiple complex behaviors (e.g., dietary adjustment and

Date of Submission: 25-09-2024
Date of Revision: 25-10-2024
Date of Acceptance: 10-11-2024

Access this article online
Website: http://innovationalpublishers.com/Journal/ijnh
ISSN No: 2454-4906
DOI: 10.31690/ijnh.2024.v010i04.006

Address for Correspondence:
B.Tamilarasi, Principal, Madha College of Nursing, Affiliated to The Taminadu Dr. MGR Medical University, Chennai, Tamilnadu, India.
E-mail: tamilperumal69@gmail.com

regular physical activity) be performed regularly. For this reason, therapeutic patient education is often implemented to help individuals with diabetes modify their self-management behaviors and lifestyles, and this improves their health status.[3]

Despite the extensive therapy options available for various stages of Type II diabetes mellitus, studies have indicated <50% of patients achieve the glycemic goals recommended by the American diabetes association and approximately two-thirds prematurely develop cardiovascular disease.

By 2045, international diabetes federation (IDF) projections show that in 8 adults, approximately 783 million will be living with diabetes, an increase of 46%.[4]

In India, the estimation in 2019 shows that there are 77 million people above the age of 18 suffering from diabetes (type II), and nearly 25 million are pre-diabetics. Indian Council of Medical Research (ICMR), which funded the study, estimates that India – the world's most populous country – has 101 million people, according to the IDF.[5]

In Asia, the prevalence of diabetes is high, and it has been estimated that 20% of the current global diabetic population resides in Southeast Asia. Indeed, the number of cases in India is likely to double in two decades, that is, from 39.9 million in 2007–69.9 million by 2025. The study done by the ICMR in the year 1970 reported a prevalence of 2.3% in urban areas, which had increased to 12–19% in the year 2000.[6]

Various measures to increase patient satisfaction and increase adherence in type II diabetes have been investigated. These include reducing the complexity of therapy with fixed-dose combination pills and less frequent dosing regimens and using medications that are associated with fewer adverse events (hypoglycemia or weight gain).[7]

Aims

A study to assess the effectiveness of therapeutic education program on self-efficacy and self-care behavior among patients with type II diabetes mellitus at selected hospitals in Chennai.

Objectives

1. To assess the pretest and post-test level of self-efficacy among patients with type II diabetes mellitus
2. To assess the pretest and post-test level of self-care behavior among patients with type II diabetes mellitus
3. To assess the effectiveness of the therapeutic education program among patients with type II diabetes mellitus
4. To determine the association between post-test level of self-efficacy and self-care behavior among patients with type II diabetes mellitus with their selected baseline variables.

Hypothesis

H1: There is a significant difference between pre-test and post-test self-efficacy and self-care behavior after receiving a therapeutic education program among patients with type II diabetes mellitus

H2: There is a significant relationship between post-test self-efficacy and self-care behavior among patient with type II diabetes mellitus with their selected demographic variables.

Materials and Methods

Quantitative research approach was adopted for the study and pre - an experimental one group pre-test post-test design was selected. The study was conducted in an Upgraded primary health center at Chennai. Totally 30 type II diabetes mellitus patients who fulfilled the inclusion criteria were selected using convenience sampling. The level of self-efficacy was obtained using diabetes management self-efficacy scale consisting of 20 self-reported questionnaires and the level of self-care behavior was obtained using summary of diabetes self-care activities consists of 11 self-reported questionnaire. Data collection was done after obtaining consent from the samples. The confidentiality of the data and finding were ensured by the subjects and the therapeutic education program comprises medication compliance, and blood sugar self-monitoring. Dietetics, physical activity and food care was given for 30 min followed with posttest was done using same scale on 7th day.

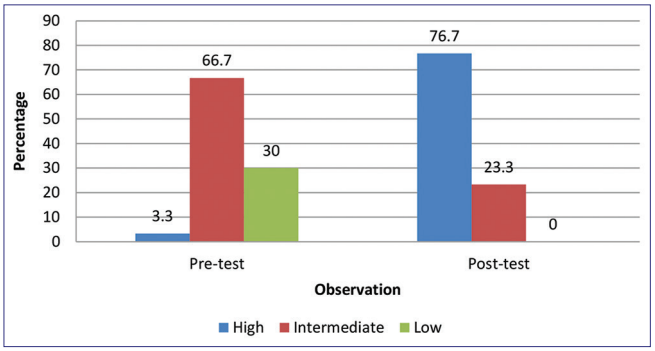

Figure 1: Percentage distribution of the pre-test and post-test level of self-efficacy among patients with type II diabetes mellitus

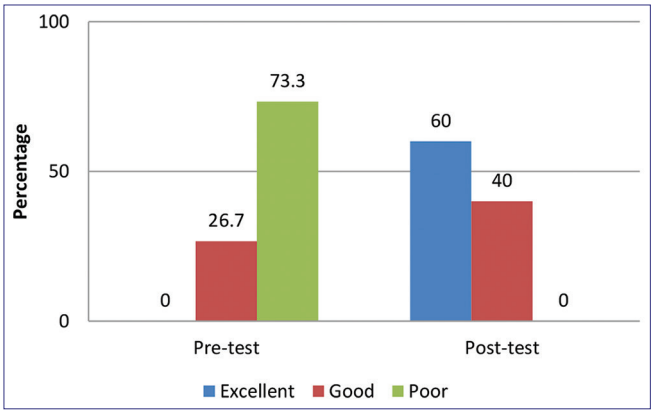

Figure 2: Percentage distribution of the pre-test and post-test level of self-care behavior among patients with type II diabetes mellitus

Results and Discussion

Descriptive and inferential statistics were used to analyze the data. The nearly half of the samples 14 (46.7%) were in the age group above 60 years, 9 (30.0%) were in the age group between 51 and 60 years and 7 (23.3%) were in the age group 41–50 years. Gender distribution showed most of the samples 19 (63.3%) were females and rest was males 11 (36.7%). Marital status highlighted that 24 (80.0%) of samples were married, while 6(20%) were divorced. Educationally, half of the samples 15 (50.0%) had primary education, 4 (13.3%) had HSC education, 4 (13.3%) were graduates and 7 (23.3%) were illiterate. Occupational diversity was observed, with 11 (36.7%) each for employees and homemakers, 6 (20.0%) were un-employees and only 2 (6.7%) were self-employee. In the aspect of type of job, a significant majority 20 (66.7%) were engaged in daily wage jobs, 7 (23.3%) in private Sector and 3 (10.0%) in Government Sector. Family support was reported by 8 (26.7%) of samples, emphasizing the potential impact of individual efforts in managing diabetes and 22 (73.3%) lacks family support. More than half of the samples 17 (56.7%) reported they never engaging in physical activities, 6 (20.0%) rarely, 4 (13.3%) often and 3 (10.0%) daily engaged in physical activities. All samples 30 (100.0%) reported a non-vegetarian dietary pattern. Nearly half of the samples 14 (46.7%) had a body mass index (BMI) in the range of 18.5–24.9 kg/m, 10 (33.3%) were below 18.5 kg/m and rest 6 (20.0%) had BMI above or equal to 30.0 kg/m. Majority of samples 28 (93.3%) reported no alcohol consumption and none 30 (100.0%) reported smoking. Duration of diabetes varied, with 14 (46.7%) diagnosed in the last 1–5 years, 8 (26.7%) had diabetes for 6–10 years, 5 (16.7%) had >10 years and only 3 (10.0%) had <1 year. Majority of samples 28 (93.3%) were on oral hypoglycemic agents as their diabetes treatment regimen and only 2 (6.7%) were with combined treatment regimen of oral hypoglycemic agents and insulin. One-third of the samples 10 (33.3%) reported the presence of diabetic complications. Comorbidities included hyperlipidemia 3 (10.0%), hypertension 10 (33.3%), cardiovascular disease 3 (10.0%), chronic kidney disease 1 (3.3%), and 13 (43.3%) reported none of the specified comorbidities.

The first objective was to assess the pre-test and post-test level of self-efficacy among patients with type II diabetes mellitus

In the pre-test level of self-efficacy, the majority of samples exhibited an intermediate level of self-efficacy with 20 (66.7%) and remaining 9 (30.0%) reported a low level of self-efficacy, while only 1 (3.3%) reported a high level of self-efficacy [Figure 1].

In post-test, after the Therapeutic Education Program, a notable shift in self-efficacy levels was observed. A substantial increase occurred in the number of samples reporting a high level of self-efficacy, rising to 23 (76.7%). Simultaneously, the percentage of samples with an intermediate level decreased to 7 (23.3%), marking a significant improvement in perceived self-efficacy. Notably, none of the participants reported a low level of self-efficacy in post-intervention, indicating a complete elimination of low self-efficacy cases.[8]

The second objective was to assess the pre-test and post-test levels of self-care behavior among patients with type II diabetes mellitus

In the pre-test assessment of self-care behavior, the majority of participants, 22 (73.3%), displayed poor self-care behavior, while 8 (26.7%) demonstrated good self-care behavior. Notably, none of the participants exhibited excellent self-care behavior prior to the Therapeutic Education Program [Figure 2].

However, in the post-test following the Therapeutic Education Program, a significant improvement in self-care behavior was observed. The percentage of participants with excellent self-care behavior rose dramatically to 18 (60.0%), indicating a substantial enhancement in adherence to recommended practices for blood sugar control. Furthermore, the proportion of participants with good self-care behavior increased to 12 (40.0%). Impressively, there were no participants remaining in the poor self-care behavior category after the intervention.[9]

The third objective was to assess the effectiveness of the therapeutic education program among patients with type II diabetes mellitus

The Table 1 shows, that in the pre-test, the mean self-efficacy score was 57.57 with a standard deviation of 10.36. Whereas in the post-test, after the Therapeutic Education Program, there was a substantial increase in the mean self-efficacy score to 76.23, with a standard deviation of 16.97. The paired t-test value of 4.93 with 29° of freedom, and the significance value was 0.000, indicating statistical significance at $P < 0.05$.

The Table 2 shows that, in the pre-test, the mean self-care behavior score was 35.03 with a standard deviation of 6.56. Whereas in the post-test, there was a substantial increase in the mean self-care behavior score to 62.47, along with a standard

Table 1: Comparison of mean score and standard deviation of pre-test and post-test level of self-efficacy among patients with type II diabetes mellitus (*n*=30)

S. No	Level of coping	Mean	Standard Deviation	Paired 't' test	Sig value
1	Pre-test	57.57	10.36	4.93*	0.000
2	Post-test	76.23	16.97		

*Significant at $P<0.05$

Table 2: Comparison of mean score and standard deviation of pre-test and post-test level of self-care behavior among patients with type II diabetes mellitus (++*n*=30)

S. No.	Level of coping	Mean	Standard deviation	Paired 't' test	Sig value
1	Pre-test	35.03	6.56	12.33*	0.000
2	Post-test	62.47	9.76		

*Significant at $P<0.05$

Table 3: Association between post-test level of self-efficacy with their selected demographic variables among patients with type II diabetes mellitus (*n*=30)

S. No.	Demographic characteristics	Level of self-efficacy		χ^2 value	df	Significant value
		High	Intermediate			
1	Age in years					
	41–50	5	2	1.074NS	2	0.585
	51–60	8	1			
	>60	10	4			
2	Gender					
	Male	9	2	0.258NS	1	0.612
	Female	14	5			
3	Marital status					
	Married	18	6	0.186NS	1	0.666
	Divorce	5	1			
4	Educational status					
	Primary	12	3	0.213NS	3	0.975
	HSC	3	1			
	Graduate	3	1			
	Illiterate	5	2			
5	Occupation					
	Employee/self-employee	12	1	4.936NS	2	0.085
	Un employee	5	1			
	Home maker	6	5			
6	Type of job					
	Private sector	6	1	0.519NS	2	0.771
	Govt sector	2	1			
	Daily wages	15	5			
7	Family support					
	Yes	6	2	0.017NS	1	0.896
	No	17	5			
8	Physical activities					
	Never	13	4	0.257NS	2	0.880
	Rarely	5	1			
	Often/daily	5	2			
9	BMI					
	<18.5 kg/m	7	3	1.224NS	2	0.542
	18.5–24.9 kg/m	12	2			
	>30.0 kg/m	4	2			
10	Alcohol status					
	Yes	1	1	0.852NS	1	0.356
	No	22	6			
11	Duration of disease					
	≤5 years	13	4	1.302NS	2	0.522
	6–10 years	7	1			
	>10 years	3	2			
12	Presence of diabetic complication					
	Yes	7	3	0.373NS	1	0.542
	No	16	4			
13	Comorbidities (*n*=29)					
	Hyperlipidemia	1	2	3.739NS	3	0.291
	Hypertension	8	2			
	CVD	2	1			
	None of the above	11	2			

NS: Not significant at $P<0.05$. *Significant at $P<0.05$. BMI: Body mass index

deviation of 9.76. The paired t-test value of 12.33 with 29°[10] of freedom, and the significance value was 0.000, indicating statistical significance at $P < 0.05$.

The fourth objective was to determine the association between post-test levels of self-efficacy and self-care behavior among patients with type II diabetes mellitus with their selected baseline variables

The finding from the Table 3 reveals that there is no significant association between the post-test level of self-efficacy among Type II diabetes mellitus Patients with selected demographic variables such as age in years, gender, marital status, educational status, occupation, type of job, family support, physical activities, BMI, alcohol status, duration of disease, presence of diabetic complication and comorbidities.

The finding from the Table 4 reveals that there was a significant association between the post-test level of self-care behavior among Type II diabetes mellitus Patients and occupation category. There was no significant association between the post-test level of self-care behavior among Type II diabetes mellitus

Table 4: Association between post-test level of self-care behavior with their selected demographic variables among patients with type II diabetes mellitus (*n*=30)

S. No.	Demographic characteristics	Level of self-care behavior		χ^2 value	df	Significant value
		Excellent	Good			
1	Age in years					
	41–50	4	3	0.238NS	2	0.888
	51–60	6	3			
	>60	8	6			
2	Gender					
	Male	6	5	0.215NS	1	0.643
	Female	12	7			
3	Marital status					
	Married	14	10	0.139NS	1	0.709
	Divorce	4	2			
4	Educational status					
	Primary	9	6	1.607NS	3	0.658
	HSC	3	1			
	Graduate	3	1			
	Illiterate	3	4			
5	Occupation					
	Employee/self-employee	10	3	7.822*	2	0.020
	Unemployed	5	1			
	Home maker	3	8			
6	Type of Job					
	Private sector	5	2	0.645NS	2	0.724
	Govt sector	2	1			
	Daily wages	11	9			
7	Family support					
	Yes	4	4	0.455NS	1	0.500
	No	14	8			
8	Physical activities					
	Never	10	7	0.343NS	3	0.952
	Rarely	4	2			
	Often	2	2			
	Daily	2	1			
9	BMI					
	<18.5 kg/m	5	5	0.635NS	2	0.728
	18.5–24.9 kg/m	9	5			
	>30.0 kg/m	4	2			
10	Alcohol status					
	Yes	1	1	0.089NS	1	0.765
	No	17	11			
11	Duration of disease					
	≤5 years	9	8	3.707NS	2	0.157
	6–10 years	7	1			
	>10 years	2	3			
12	Presence of diabetic complication					
	Yes	5	5	0.625NS	1	0.429
	No	13	7			
13	Comorbidities (*n*=29)					
	Hyperlipidemia	1	2	1.348NS	3	0.718
	Hypertension	7	3			
	CVD	2	1			
	None of the above	8	5			

NS: Not significant at $P<0.05$. *Significant at $P<0.05$

Patients with selected demographic variables such as age in years, gender, marital status, educational status, type of job, family support, physical activities, BMI, alcohol status, duration of disease, presence of diabetic complication and comorbidities.

Conclusion

The study findings conclude that the therapeutic education program's efficacy is positively influencing self-efficacy and self-care behavior among patients with type 2 diabetes mellitus.

Acknowledgment

NA.

Conflict of Interest

NA.

Funding

NA.

References

1. Ouedraogo M, Ouedraogo SM, Birba E, Drabo YJ. Complications of diabetes mellitus at the Yalgado Ouédraogo National Hospital Center. Black Afr Med 2000;47:254-6.
2. Ahmadieh H, Sawaya MT, Azar ST. Management and control of type 2 diabetes mellitus in Lebanon: Results from the International Diabetes Management Practices Study Wave 6. World J Diabetes 2019;10:234-68.
3. Gao J, Wang J, Zheng P, Haardörfer R, Kegler MC, Zhu Y, *et al*. Effects of self-care, self-efficacy, social support on glycemic control in adults with type 2 diabetes. BMC Fam Pract 2013;14:66.
4. Robichaud-Ekstrand S, Haccoun RR, Millette D. Une méthode pour faire valider la traduction d'une questionnaire [A method for validating a translated questionnaire]. Can J Nurs Res 1994;26:77-87. [French]
5. Caron J. A Guide for Cross-Cultural Validation of Measurement Instruments in Mental Health [Technical Report]; 1999.
6. Sturt J, Hearnshaw H, Wakelin M. Validity and reliability of the DMSES UK: A measure of self-efficacy for type 2 diabetes self-management. Prim Health Care Res Dev 2010;11:374-81.
7. Toobert DJ, Hampson SE, Glasgow RE. The summary of diabetes self-care activities measure: Results from 7 studies and a revised scale. Diabetes Care 2000;23:943-50.
8. Aljohani KA, Kendall GE, Snider PD. Psychometric evaluation of the summary of diabetes self-care activities-arabic (SDSCA-Arabic): Translation and analysis process. J Transcult Nurs 2014;27:65-72.
9. Wu SF. Effectiveness of Self-management for Persons with Type 2 Diabetes Following the Implementation of a Self-efficacy Enhancing Intervention Program in Taiwan. PhD thesis, Queensland University of Technology; 2007.
10. Sukkarieh-Haraty O, Howard E. Psychometric properties of the Arabic version of the summary of diabetes self-care activities instrument. Res Theory Nurs Pract 2016;30:60-9.

How to cite this article: Tamilarasi B, Suhasini HC, Annesharon R, Harisha G, Madhumitha K, Raghavi T, Sundharam VN. Effectiveness of Therapeutic Education Program on Self Efficacy and Self Care Behavior among Patients with Type II Diabetes Mellitus at Selected Hospitals in Chennai. Innov J Nurs Healthc. 2024;10(4):26-31.