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”A Study to Assess the Effectiveness of Self-Instructional Module (SIM) Regarding Home Care Among Patients With Diabetes Mellitus In Selected Hospital At Kota (Rajasthan)”

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Abstract: *An evaluatory approach with one group pre-test, post-test design was used for study and the study was conducted at Divisional Railway Hospital, Kota. The sample consisted of 50 patients with diabetes. The sample was selected using convenient sampling technique. Tool and Self Instructional Module (SIM) were validated by experts. SIM was administered on the same day after the pre-test and the post-test was conducted on 7th day using the same tool.*

The mean post-test knowledge score (x_2 = 48.98) was higher than the mean pre-test knowledge score (x_1 = 35.78). The computed't' value (t_{49} = 12.6, $p<0.05$) showed a significant difference suggesting that self-instructional module was effective in increasing the knowledge on home care for patients with diabetes. Chi-square was computed to find out the association between post-test knowledge with selected variables. Association was found between educational status, occupation & exposure to mass media with post-test knowledge scores.

Keywords: *Self-instructional module; effectiveness; home care; knowledge level.*

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I. Introduction

Diabetes mellitus is one of the most important non-communicable diseases. It is a major public health problem that is approaching epidemic proportions globally. In both developed and developing nations especially type -2 diabetes. Type 1 diabetes is characterized by a lack of insulin production in the body (without daily administration of insulin). Type 2 diabetes results from the body's in effective use of insulin. Type 2 diabetes comprises 90% of people with diabetes around the world, and is largely the result of excess body weight and physical inactivity. This type of diabetes was seen only in adults but it is now also occurring in obese children. Gestational diabetes is hyperglycemia which is first recognized during pregnancy. Gestational diabetes is most often diagnosed through prenatal screening, rather than reported symptoms.**(WHO Fact Sheet 2012)** According to International Diabetes Federation's (IDF) India is home to over 61 million diabetic patients — an increase from 50.8 million last year. By 2030, India's diabetes burden is expected to cross the 100 million. The country is also the largest contributor to regional mortality with 983,000 deaths caused due to diabetes this year. IDF's fifth diabetes atlas has released the staggering figures. IDF says India's prevalence of diabetes among 20-79 year olds is 9.2%. India is only second to China, which has 90 million diabetics (2011) that will increase to about 130 million by 2030. IDF says, "New figures indicate the number of people living with diabetes is expected to rise from 366 million this year to 552 million by 2030, if no action is taken. This equates to approximately three new cases every 10 seconds or almost 10 million per year." This year, South Asia accounted for 71.4 million diabetics. This number is expected to increase to 120.9 million by 2030. The Atlas said, "Four in every five diabetics are between 40 and 59 years.**(Dr. P Tomer, 2011)**

II. Research elaborations

Problem Statement

”A study to assess the effectiveness of self-instructional module (SIM) regarding home care among patients with diabetes mellitus in selected hospital at Kota (Rajasthan)”

Objectives

1. To evaluate the effectiveness of Self Instructional Module in terms of gain in knowledge score.
2. To assess the association between post-test knowledge and selected demographic variables.

Hypothesis

H_1: The mean post-test knowledge score of patients with diabetes regarding home care will be significantly higher than their mean pre-test knowledge score.

H_2: There will be no significant difference between the area-wise pre-test and post-test knowledge score on home care of patients with diabetes at 0.05 levels.

H_3: There will be significant association between knowledge and selected variables such as age, sex, educational status, duration of illness, and exposure to mass media at 0.05 levels.

III. Materials And Methods

Population: Patient with diabetes mellitus.
Sample: Patients with diabetes mellitus in Divisional Railway Hospital Kota (Raj).
Sample Size: 50 OPD & IPD patients with diabetes mellitus in Divisional Railway Hospital Kota (Rajasthan).
Setting: Divisional Railway Hospital Kota(Rajasthan).
Conceptual Framework:

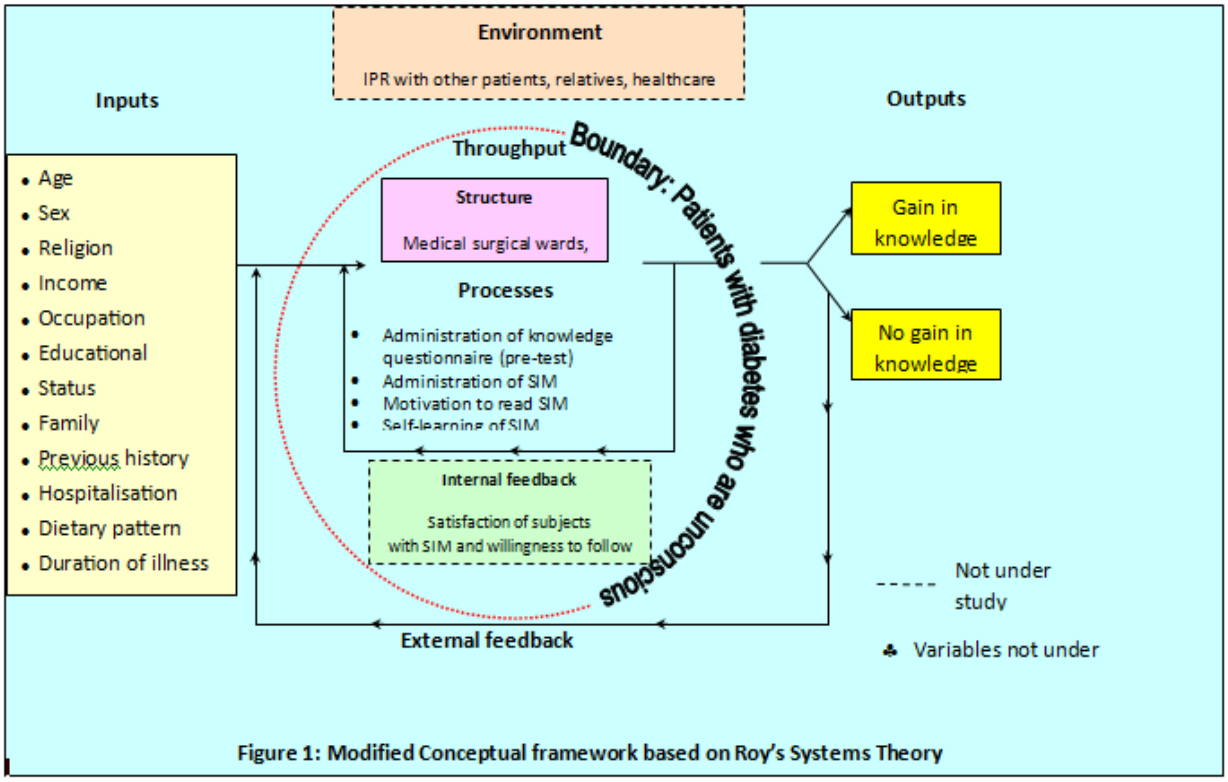

Figure 1: Modified Conceptual framework based on Roy's Systems Theory

Variables under study

1. **Independent variables:** In this study the independent variable is the self-instructional module regarding home care for patients with diabetes.
2. **Dependent variables:** In this study the dependent variable is knowledge of patients with diabetes regarding home care.
3. **Extraneous variables:** In this study the extraneous variables are age, sex, educational status, duration of illness and exposure to mass media.

Description of the final tools

Part I – Baseline Performa: Sample characteristics consisted of 07 items such as age, sex, educational status, marital status, Occupation, Monthly income & Exposure to mass media. The subjects placed a tick mark (✓) against the column provided.

Part II – Clinical Performa : It consisted of 11 items related to dietary habits; exercise habits; age of acquiring illness; accessibility to hospital; family history of diabetes; previous hospitalisation; need of assistance to take care of them; use of sharp instruments during work/at home; testing of urine sugar at home; carrying a diabetes card while travelling and use of foot wear inside the house. The subject placed a tick mark (✓) against the column provided.

Part III – Structured Knowledge Questionnaire on Assessment of Knowledge regarding Home Care for Patient with Diabetes.

The items were developed as to cover 9 different areas, namely, meaning of diabetes mellitus; causes of diabetes mellitus; signs and symptoms of diabetes mellitus; drugs; diet; exercises; foot care; complications and follow-up. Out of 30 items 25 had multiple choice questions of which ten items had only one correct answer and other 15 had more than one correct answer; five questions were true/false items.
Interpretation of Scores: Total obtainable score was 72. And the score was categorized as follows:

- Very good ≥ 55
- Good 44-54
- Average 30-43
- Below average ≤ 29

IV. Results

The data obtained in this study was planned to be analysed by both descriptive and inferential statistics.The data will be entered in master sheet and will be analysed under various sections.

Table 1: Frequency and Percentage Distribution of Subjects according to Sample Characteristics
N = 50

	Variable		Frequency (f)	Percentage (%)
1	Age (in years)			
	a.	Up to 40 years	6	12
	b.	41 – 50 years	22	44
	c.	51 – 60 years	18	36
	d.	Above 60 years	4	8
2	Gender			
	a.	Female	10	20
	b.	Male	40	80
3	Educational status			
	a.	Illiterate	5	10
	b.	Primary	23	46
	c.	Secondary	14	28
	d.	Graduate	8	16
4	Marital Status			
	a.	Single	2	4
	b.	Married	48	98
	c.	Widowed	-	-
	d.	Divorced	-	-
5	Occupation			
	a.	Unemployed	2	4
	b.	Labourer/Coolie	20	40
	c.	Technical	20	40
	d.	Professional	8	16
6	Monthly Income			
	a.	Below 10,000	2	4
	b.	10,001 – 20,000	15	30
	c.	20,001 – 30,000	25	50
	d.	Above 30,000	8	16
7	Exposure to Mass Media			
	a.	Newspaper/ Magazines/Books	34	68
	b.	Film/TV/Radio Programmes	40	80
	c.	Internet(Email,Website,Blogs,Mobile)	31	62
	d.	Any other, specify.....	-	-

Table 2: Frequency and Percentage Distribution of Subjects According to their Clinical Performa
N = 50

	Variable		Frequency (f)	Percentage (%)
1	**Dietary habits**			
	a	Vegetarian	9	18
	b	Non-vegetarian	41	82
2	**Exercise**			
	a	Regular	10	20
	b	Occasional	5	10
	c	Nil	35	70
3	**Age of acquiring diabetes**			
	a	Up to 40 years	15	30
	a	41 – 50 years	19	38
	c	51 – 60 years	8	16

	d	Above 60 years	8	16
4	**Easy accessibility to hospital**			
	a	Yes	17	34
	b	No	33	66
5	**Family history of diabetes**			
	a	Yes	16	32
	b	No	34	68
6	**On Insulin therapy**			
	a	Yes	38	76
	b	No	12	24
7	**Insulin injecting by self or others**			
	a	Self	21	42
	b	Others	29	58
8	**Use sharp equipment during your work/at home**			
	a	Yes	22	44
	b	No	28	56
9	**Testing urine for sugar at home regularly**			
	a	Yes	3	6
	b	No	47	94
10	**Use of diabetic bracelet while travelling**			
	a	Yes	-	-
	b	No	50	100
11	**Use of footwear inside the house**			
	a	Yes	2	4
	b	No	48	96

Table 3: Frequency and Percentage Distribution of Subjects According to their Pre-test and Post-test Knowledge Score N = 50

Knowledge Score	Pre-test			Post-test		
	f	%	cf	f	%	cf
25-28	5	10	5	-	-	-
29-32	5	10	10	-	-	-
33-36	20	40	30	-	-	-
37-40	14	28	44	4	8	4
41-44	6	12	50	5	10	9
45-48	-	-	-	16	32	25
49-52	-	-	-	12	24	37
53-56	-	-	-	8	16	45
57-60	-	-	-	4	8	49
61-64	-	-	-	1	2	50

Total score = 72

The data in Table 3 indicates that 40% of subjects' knowledge score ranged from 33-36 in pre-test and 32% & 24% of subjects' knowledge score between 45-48 and 49-52.

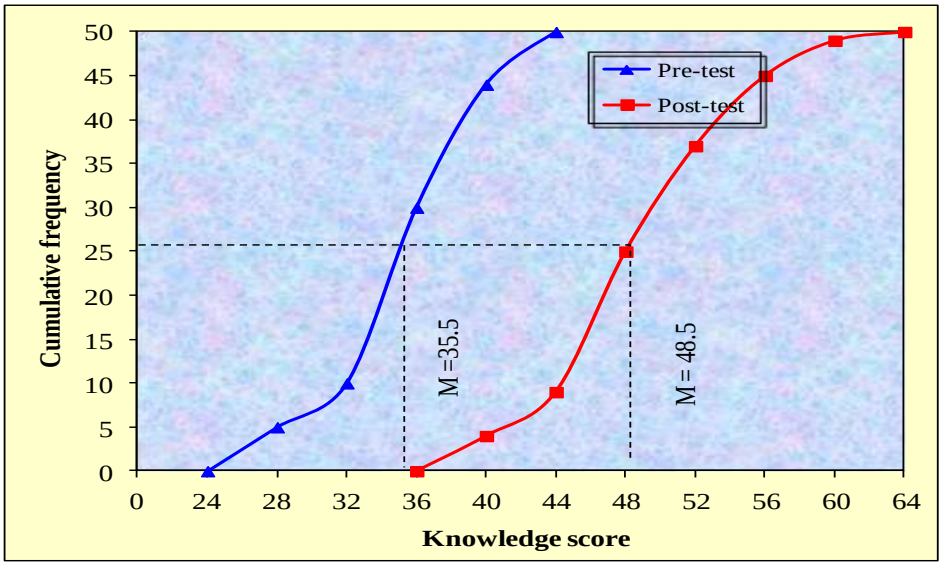

Figure 2: Ogive Representing Pre-Test And Post-Test Knowledge Score Of Patients With Diabetes.

Cumulative frequency curves (ogive) of pre-test and post-test knowledge scores of patients with diabetes are given in Figure 2. The post-test ogive lies to the right of the pre-test ogive showing that the post-test knowledge scores were consistently higher than the pre-test knowledge scores. Difference in the achievement between pre and post-test knowledge scores is shown by the distance separating the two cumulative frequency curves, which is at the 50th percentile and ranges from 35.5-48.5 which indicates that most of the patients with diabetes obtained more score in post-test than in pre-test.

Further, the score of pre-test and post-test were arbitrarily graded and data is presented in Table 4 and Figure 3.

Table 4: Distribution of Subjects according to their Grading of Pre-test and Post-test Knowledge Level

N = 50

Knowledge level grading	Score	Pre-test		Post-test	
		Frequency	Percentage	Frequency	Percentage
Very good	≥ 55	-	-	6	12
Good	44-54	1	2	37	74
Average	30-43	43	86	7	14
Below average	≤ 29	6	12	-	-

Maximum score = 72

The data in Table 4 and Figure 3 show that the pre-test knowledge of majority (86%) of the patients with diabetes on home care was average whereas the post-test knowledge of (74%) of the subjects was good.

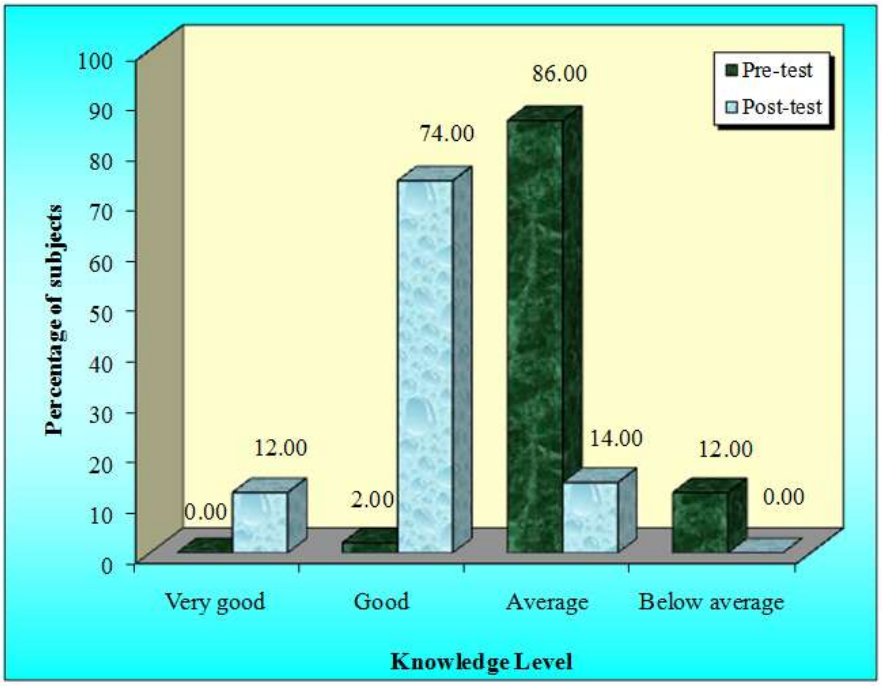

Figure 3: Bar Diagram Showing the Distribution of percentage of Subjects According to their Grading of Pre-test and Post-test Knowledge Score

Table 5: Mean, Mean Difference, Standard Deviation Difference and't' value of pre-test and Post-test Knowledge Score

N = 50

Variable	Mean pre-test	Mean Post-test	Mean difference	SD difference	't' value
Knowledge score	35.78	48.98	13.74	3.61	26.90*

t_{49} = 2.021, p<0.05 * significant

Data in Table 5 show that the mean post-test knowledge score (x_2 = 48.98) was higher than the mean pre-test knowledge score (x_1 = 35.78). The computed't' value (t_{49} =26. 90, p<0.05) is greater than the table value at 0.05 level (t_{49} =2.021). Hence the null hypothesis (H_1) was rejected and the research hypothesis was accepted and it is inferred that there is significant difference between the mean pre-test and mean post-test knowledge scores.

V. Conclusion

The main purpose of this study was to assess the knowledge of patients with diabetes regarding home care. Patients with diabetes are more prone to multiple complications. Prompt education regarding home care will help them to prevent and manage such complications. Majority of the patients with diabetes had average knowledge regarding home care before the administration of self instructional module. Introduction of self instructional module helped them to gain more knowledge which is indicated in post test knowledge scores.

- The mean percentage actual gain was maximum in the area of "Diet & Drugs" and minimum in the area of "Meaning of Diabetes Mellitus".
- The findings of the study revealed that there was no association between knowledge level of patients and selected variables like Age & Sex.
- There was significant association between knowledge and Educational Status, Occupation & Exposures to mass media.

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