

A Study to Evaluate the Effectiveness of Health-Care Package on Self-care Management and Prevention of Complications in Patients with Type-2 Diabetes Mellitus in Terms of the Knowledge and Practices in Diabetic Clinic of Selected Hospitals in Delhi

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Abstract

Introduction: The aim of this study were to prevent, control, and manage diabetes mellitus (DM) and its further consequences, it is essentially required that the diabetic patients should have adequate knowledge and adopt healthy lifestyle practices.

Objectives: The objectives of this study were to evaluate the effectiveness of the health-care package on self-care management and prevention of complications in type 2 DM patients in terms of the knowledge and practices.

Materials and Methods: The present study was conducted with evaluative research approach and non-randomized control group design at Safadarjung Hospital, Delhi. Sample was selected through non-probability purposive sampling technique and sample size consisted of 60. The tools for data collection included structured interview schedule and expressed practice questionnaire. The health-care package included – planned teaching program, self-care diary cum information booklet, diabetic identification card, diet chart, and pictorial/flash cards.

Results: There was a significant “t” value of 15.882, df (29), $P < 0.05$ and “t” value of 9.86, df (29), $P < 0.05$ for mean pre- and post-test, knowledge and practice scores of experimental group and, significant “t” value of 9.1, df (58), $P < 0.05$ and “t” value of 11.45, df (58), $P < 0.05$ for mean post-test, and knowledge and practice scores of experimental and control group. There was also found a positive correlation $r = 0.948$, $P < 0.05$ between post-test knowledge and practice scores of experimental group. Study findings also conclude significant association of post-test, knowledge scores with educational level ($\chi^2 = 16.533^*$, df=6, $P < 0.05$), per capita income ($\chi^2 = 10.093^*$, df=3, $P < 0.05$), practice scores with educational level ($\chi^2 = 17.2^*$, df=6, $P < 0.05$), and per capita income ($\chi^2 = 8.422^*$, df=3, $P < 0.05$) of type 2 diabetic patients.

Conclusion: The study findings revealed that health-care package was found to be effective in enhancing the knowledge and improving the practices of the type 2 diabetic patients.

Keywords: Health-care package, Knowledge and practice of patients with type 2 diabetes mellitus, Self-care management and prevention of complications, Type 2 diabetes mellitus

Date of Submission: 02-07-2022

Date of Revision: 15-07-2022

Date of Acceptance: 20-07-2022

Access this article online

Website: <http://innovationalpublishers.com/Journal/ijnr>

ISSN No: 2454-4906

DOI: 10.31690/ijnr.2022.v08i03.008

INTRODUCTION

World Diabetes Day is celebrated every year on November 14, to mark the birthday of Frederick Banting who, along with Charles Best, first conceived the idea which led to the discovery of insulin in 1922. It engages millions of people worldwide in diabetes advocacy and awareness. Diabetes education and prevention are the theme of World Diabetes Day for the period 2009–2013 (International Diabetes Federation).

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The different types of diabetes mellitus (DM) as adopted by the WHO (1999)^[1] include type 1 insulin-dependent DM (IDDM), type 2 non-IDDM, and gestational DM. Type 2 DM (T2DM) usually develops in adulthood and is related to obesity, lack of physical activity, and unhealthy diets. This is the more common type of diabetes (representing 90% of diabetic cases worldwide) and treatment may involve lifestyle changes and weight loss alone, or oral medications or even insulin injections.

According to the International Diabetic Federation (2011), there are over 300 million people with diabetes worldwide and this number is expected to grow to around 500 million in a generation. Low- and middle-income countries account for four out of five cases of diabetes. Most deaths and complications related to diabetes in low- and middle-income countries are in the economically productive age group (30–50 years). There are 50.8 million people with diabetes in India and 92.4 million in China. In India, 61.3 million people had diabetes. That figure is projected to rise to 101.2 million by 2030. In fact, India is ranked second in the world in diabetes prevalence, just behind China. The number of cases of diabetes worldwide in the year 2000 among adults (>20 years) was estimated to be 171 million and will rise to 366 million by 2030 (Wild *et al.* 2009).^[2] In terms of rank of countries for T2DM prevalence, China is second with 20.8 million people and India has the highest number (31.7 million) of people with T2DM [Table 1].

Garg (2013) stated that the prevalence of diabetes is increasing much faster in developing countries, but awareness and education about diabetes remain suboptimal. In India, the majority of patients with diabetes, even those on insulin, lack knowledge about self-care of diabetes including food, exercise, hygiene, self-monitoring of blood glucose, or proper insulin injection technique. Aggressive lifestyle changes including healthy diet and physical activity can prevent diabetes. Education campaigns at all levels of society to reverse the trends of westernization, to get rid of many cultural myths and misconceptions and to promote a healthier lifestyle are needed to stem the rising tide of diabetes. Education plays a significant role not only in the prevention of diabetes itself but also in preventing its complications. Healthy lifestyle should be promoted at every possible opportunity, but simply advising and educating people about diet and exercise are not enough.^[3]

Table 1: Top five countries for number of persons with diabetes mellitus

Rank	Country	People with T2DM* (In million)	
		Year 2000	Year 2030
1	India	31.7	79.4
2	China	20.8	42.3
3	USA	17.7	30.3
4	Indonesia	8.4	21.3
5	Japan	6.8	13.9

T2DM*: Type 2 diabetes mellitus, Source: Wild *et al.* 2009

Singh *et al.* (1998) conducted a cross-sectional survey in a resettlement colony of Chandigarh about knowledge and practices regarding diet, genital hygiene, care of foot, wound, complication of diabetes, and medication. This study has concluded that there is a need to reorient and motivate health personnel in educating diabetics about self-care.^[4]

Murugesan *et al.* (2007) conducted a study to find out the levels of awareness on diabetes in urban adult Indian population and to identify factors that influenced the awareness. In population aged ≥ 20 years ($n = 3681$, $M = 1769$, $F = 1912$), details regarding awareness about diabetes in relation with physical activity, healthy and unhealthy diet, causes, symptoms, prevention, complications, and measures to improve health were collected using a questionnaire. Findings of the study revealed that total score was significantly lower in women than in men; educational status was low in women. Higher education and professional or executive jobs were significantly associated with better awareness. Age had no influence. Knowledge regarding causes of diabetes, its prevention, and the methods to improve health was significantly low among the general population. Diabetic subjects had better knowledge about symptoms of diabetes and the preventive aspects. The study highlighted the urgent need for strategies to spread awareness about diabetes in the general population. Diabetic subjects also required better education on many aspects.^[5]

Vankudre *et al.* (2013) conducted a study to assess awareness regarding DM and factors affecting the awareness levels. Patients of a tertiary care hospital, with DM were included in the study. Awareness regarding diabetes was judged for knowledge, self-care practices, and complications using a self-administered questionnaire. Awareness regarding fasting and post prandial blood sugar, high fiber diet, foot-care, and ophthalmic complications was observed to be high. Moderate awareness was observed regarding DM being a lifestyle disorder, self-monitoring of sugar and renal, and cardiac and cerebral complications. Poor knowledge was observed regarding HbA1c. Females and unemployed individuals had significantly lower scores. Self-employed, higher education, family history of DM, and long duration of sickness had positive effect on the scores. Age, marital status, and BMI had no effect on the scores. The study recommended that awareness regarding all the aspects of DM needs to be increased for better control of the disease and its complications. Females and unemployed individuals need to be given special emphasis.^[6]

Higher level of education and literacy leads to greater awareness and is a prerequisite for acquiring various skills and better use of healthcare facilities. According to the census 2011, the literacy rate of Delhi is 86.21% and 90.94% and 68.85% in males and females, respectively.^[7]

Effective control of diabetes is worthwhile. Diabetes complications are preventable. Long and healthy life is possible despite diabetes. Education is a process of delivering

self-control to motivate self-care so that they can look after themselves without being dependent on trained health professionals and thereby reduce the complications and burden on family, society, and government (Madras Diabetes Research Foundations, 2004).^[8]

MATERIALS AND METHODS

The present study was conducted with evaluative research approach and non-randomized control group design. The independent variable was health-care package and dependent variables were as follows: Knowledge and practice scores of patients on self-care management and prevention of complications in T2DM. Population comprised patients with T2DM attending diabetic clinic of hospitals in Delhi. Non-probability purposive sampling technique was used to select sample based on inclusion criteria, that is, patients aged between 30 and 70 years of age, willing to participate, who can understand Hindi and English. The patients were conveniently assigned to experimental and control group. The sample size for main study consisted of 60 patients with T2DM, 30 in the experimental and 30 in control group. The experimental group was administered the health-care package on the same day after pre-test on day 1,2, and 3, whereas in the control group the health-care package was not administered and post-test was administered to both group on day 10, 11, and 12. Formal administrative permission was obtained from concerned authority to conduct pilot and main study from Safadarjung Hospital, Delhi. After establishing rapport, the purpose of the study was explained to the participants, informed consent was taken and confidentiality of their responses was assured. Try out of the tools were carried out on 15 samples at Safadarjung Hospital, Delhi in 2nd week of October 2013. Pilot study was conducted from October 7, 2013, to October 20, 2013, at Safadarjung Hospital, Delhi on 20 patients and findings of pilot study revealed feasibility and suitability to conduct the main study. The data for main study was collected from December 16, 2013, to January 4, 2014.

Data collection and measures

Based on the objectives and conceptual framework of the study, structured interview schedule and expressed practice questionnaire were used to collect data. The average time taken to complete structure interview schedule was 15–17 min and 5–6 min for expressed practice questionnaire. Both tools were given in Hindi and English language.

Structured interview schedule

It consists of two parts, one for sample characteristics and one for assessing knowledge of participants. (a) *Structured interview schedule for sample characteristics* – This part consisted of items to collect demographic information of participants such as – age, sex, educational status, occupation, marital status, per capita income, age of onset of disease, duration of illness, family history, previous knowledge about DM, and type of treatment receiving

for T2DM. (b) *Structured knowledge interview schedule* – This part consisted of items to assess the knowledge of patients regarding self-care management and prevention of complications in T2DM. The main areas covered are – concept of DM, predisposing factors, sign and symptoms of T2DM, diagnosis of T2DM, complications of T2DM, self-care management in T2DM, and prevention of complications in T2DM. Total numbers of items are 35, in which 25 items are multiple choice questions and 10 are true/false questions. Each correct answer was awarded a score of one point and every wrong answer was assigned a zero score. The possible range of score was from 0 to 35 with 35 as maximum score and 0 as minimum score.

Expressed practice questionnaire

The expressed practice questionnaire consisted of 20 practice items. The main areas covered were – diet, medication, exercise, skin care, foot care, self-monitoring of blood sugar, and prevention of complications. All the items were “YES/NO” type questions. Each correct practice was awarded with a score of one point and each incorrect item was scored zero. The possible range of score was from 0 to 20 with 20 as maximum score and 0 as minimum score.

Description of health-care package

The title of health-care package was, “The Health-Care Package on self-care management and prevention of complications in T2DM”. The health-care package covers the area like – concept of DM, predisposing factors, sign and symptoms, diagnosis, complications, prevention of complications, and self-care management in T2DM. The health-care package consisted of following elements – (i) planned teaching program using pictorial/flash cards and diabetic diet chart, (ii) self-care diary cum information booklet, and (iii) diabetic identification card.

Validity and reliability

Structured interview schedule and expressed practice questionnaire

Content validity of the structured knowledge interview schedule and expressed practice questionnaire was established by submitting them to nine experts in the field of endocrinology-2, community medicine-2, and Nursing faculty-2, who rated them on the basis of criteria checklist. The experts asked to give their opinion on the relevance of the items, clarity, and the appropriateness of content areas. Most of the experts agreed on all the items of the structured knowledge interview schedule and expressed practice questionnaire with some suggestions for modification of some of the items. The modifications were made as per the suggestions and the tools were finalized. The English tools were translated to Hindi and validated by giving to an expert in Hindi literature and retranslated into English to establish internal consistency. The tools were found to be valid for the study. Reliability of structured knowledge interview schedule and expressed practice questionnaire was established using KR-20 formula and it was found to be 0.92 and 0.81, respectively.

Health-care package

For the content validity of the health-care package a criteria, rating scale was prepared. It consisted of items with three responses for rating against each criterion like, “Fully met,” “Partially met,” and “Not met.” The health-care package with the criteria rating scale was submitted to nine experts for validating its content. Experts were requested to give their opinion and suggestions in context with the criterion rating scale prepared by the researcher. There was 100% agreement on content of the health-care package.

Statistical analysis

The data were analyzed using IBM SPSS version 21. The data were presented in the tables and figures using frequency, percentage, mean, median, standard deviation, *t*-test to compare the means, Chi-square test to find out association, and Karl Pearson coefficient of correlation to establish relationship among the variable were used to show the results of the study.

RESULTS

The major findings related to study were divided into following headings:

Description of sample characteristics

Maximum number of the subjects 28 (46.67%) were in the age group of 40–49 years and of them 14 (46.7%) were in the experimental and 14 (46.7%) were in the control group. Maximum number of the subjects 45 (75%) were male and of them 19 (63.3%) were in the experimental group and 26 (86.7%) were in the control group. Out of 60 subjects, 14 (23.33%) were graduate and of them 7 (23.3%) were in the experimental group and 7 (23.3%) were in the control group. Majority of the subjects 29 (48.33%) were in private job and of them 13 (43.3%) were in the experimental group and 16 (53.3%) were in the control group. As regard to per capita income, 26 (43.33%) subjects were in Rs. 2578–5155 per capita income group and of them 13 (43.33%) were in the experimental group and 13 (43.33%) were in the control group. Majority of the subjects 57 (95%) were married and of them 27 (90%) were in the experimental group and 30 (100%) were in the control group. Maximum number of the subjects 24 (40%) were diagnosed at 40–45 years of age and of them 10 (33.3%) were in the experimental group and 14 (46.7%) were in the control group. Maximum number of the subjects 25 (41.66%) were having disease from 5 to 10 years and of them 14 (46.7%) were in the experimental group and 11 (36.7%) were in the control group. Maximum number of the subjects 39 (65%) were having family history of DM and of them 20 (66.7%) were in the experimental group and 19 (63.3%) were in the control group. Maximum number of the subjects 54 (90%) were having previous information of DM and of them 25 (83.3%) were in the experimental group and 29 (96.7%) were in the control group. Maximum number of the subjects 38 (63.33%) were taking oral medicines and

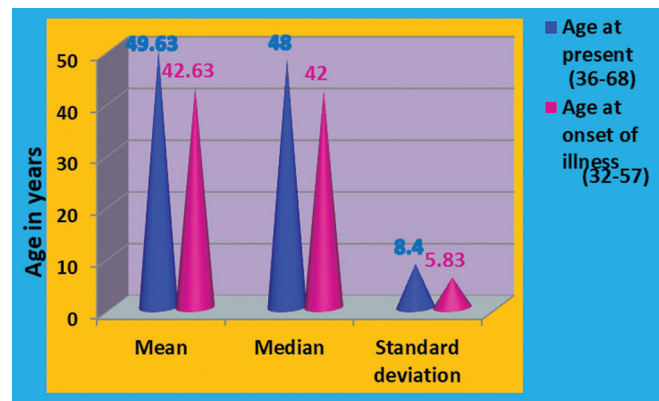


Figure 1: Mean, median, and standard deviation of age at onset of disease and present age of type 2 diabetic patients

of them 20 (66.7%) were in the experimental group and 18 (60%) were in the control group. Figure 1 shows that the range of age at present was 36–68 and at onset of illness were 32–57 of type 2 diabetic patients. The mean age at present was 49.63 and at onset of illness were 42.63. The median of age at present was 48 and at onset of illness were 42. The standard deviation of age at present was 8.4 and at onset of illness were 5.83.

Findings related to knowledge of patients with T2DM

The findings related to knowledge about T2DM among subjects are depicted below under respective tables.

As per Table 2, the range of obtained knowledge scores in pre-test by type-2 diabetic patients in the experimental group were 10–25 with a mean (18.27), median (19), and standard deviation (4.03) and in control group were 10–24 with a mean (17.6), median (17.5), and standard deviation (4.2), whereas range of obtained knowledge scores in post-test by experimental group was 21–33 with a mean (27.57), median (28), and standard deviation (3.57) and in control group were 11–25 with a mean (18.23), median (18), and standard deviation (4.3).

As per Table 3, the mean post-test knowledge scores (27.57) of experimental group were higher than their mean pre-test knowledge scores (18.27) with “*t*” value of 15.882 for df (29), which was statistically significant at 0.05 level of significance.

As per Table 4, the mean post-test knowledge scores (27.57) of experimental group were higher than mean post-test knowledge scores (18.23) of control group with “*t*” value of 9.1 for df (58), which were statistically significant at 0.05 level of significance, indicating that the health-care package was effective in enhancing the knowledge of type 2 diabetic patients.

Findings related to practices of patients with T2DM

The findings related to practice about T2DM among subjects are depicted below under respective tables.

Table 2: The range, mean, median, and standard deviation of pre-test and post-test knowledge scores of experimental and control group $n=60$

Knowledge test	Experimental group ($n=30$)				Control group ($n=30$)			
	Range	Mean	Median	SD	Range	Mean	Median	SD
Pre-test	10–25	18.27	19	4.03	10–24	17.6	17.5	4.2
Post-test	21–33	27.57	28	3.57	11–25	18.23	18	4.3

Maximum possible score=35

Table 3: Mean, mean difference (MD), standard deviation difference (SD_D), standard error of mean difference (SE_{MD}), and “t”-value of pre-test and post-test knowledge scores of patients with type 2 diabetes mellitus in the experimental group $n=30$

Knowledge test	Mean	MD	SD_D	SE_{MD}	“t” value
Pre-test	18.27	9.3	3.21	0.59	15.882*
Post test	27.57				

df (29)=2.04, $P<0.05$ *significant at 0.05 level of significance**Table 4: Mean, mean difference (MD), standard deviation difference (SD_D), standard error of mean difference (SE_{MD}), and “t”-value of post-test knowledge scores of patients with type 2 diabetes mellitus in the experimental and control group $n=60$**

Group	Knowledge test	Mean	MD	SE_{MD}	“t” value
Experimental ($n=30$)	Post-test	27.5667	9.33	1.03	9.1*
Control ($n=30$)	Post-test	18.2333			

df (58) = 2.00, $P<0.05$ *significant at 0.05 level of significance**Table 5: The range, mean, median, and standard deviation of pre-test and post-test practice scores of type 2 diabetic patients in the experimental and control group $n=60$**

Practice test	Experimental group ($n=30$)				Control group ($n=30$)			
	Range	Mean	Median	SD	Range	Mean	Median	SD
Pre-test	7–17	11.47	11	2.5	8–15	10.83	10.5	1.72
Post-test	13–19	16.57	16.5	1.68	9–17	11.43	11	1.79

Maximum possible score=20

As per Table 5, the range of obtained practice scores in pre-test by type 2 diabetic patients in the experimental group was 7–17 with a mean (11.47), median (11), and standard deviation (2.5) and in control group were 8–15 with a mean (10.83), median (10.5), and standard deviation (1.72), whereas range of obtained practice scores in post-test by type-2 diabetic patients in the experimental group were 13–19 with a mean (16.57), median (16.5), and standard deviation (1.68) and by control group was 9–17 with a mean (11.43), median (11), and standard deviation (1.79).

As per Table 6, the mean post-test practice scores (16.57) of experimental group were higher than their mean pre-test practice scores (11.47) with “t” value of 9.86 for df (29), which was statistically significant at 0.05 level of significance.

As per Table 7, the mean post-test practice scores (16.57) of type 2 diabetic patients in experimental group were higher than the mean post-test practice scores (11.43) of control group with “t” value of 11.45 for df (58), which was statistically significant at 0.05 level of significance, indicating that the health-care package was effective in improving the practices of type 2 diabetic patients.

Findings related to relationship between post-test knowledge and practice scores

As shown in Table 8, there was a positive correlation (0.948) between post-test knowledge and practice scores of type 2 diabetic patients in the experimental group, which was found to be statistically significant at 0.05 level of significance, which shows that increase in the knowledge also leads to the improvement in practices or vice-versa.

Findings related to association between post-test knowledge scores and selected factors

As per Table 9, the Chi-square value to seek association between knowledge scores and selected factors such as age, occupation, duration of illness, and family history of type 2 diabetic patients was not found to be statistically significant at 0.05 level of significance indicates that the knowledge was not dependent on those factors, and of educational level ($\chi^2 = 16.533^*$, df = 6, $P < 0.05$), and per capita income ($\chi^2 = 10.093^*$, df = 3, $P < 0.05$) was found to be statistically significant at 0.05 level of significance, which indicates that knowledge was dependent on education and per capita income.

Table 6: Mean, mean difference (MD), standard deviation difference (SD_D), standard error of mean difference (SE_{MD}), and “t”-value of pre-test and post-test practice scores of experimental group *n*=30

Practice test	Mean	MD	SD _D	SE _{MD}	“t” value
Pre-test	11.47	5.1	2.83	0.52	9.86*
Post-test	16.57				

df (29)=2.04, *P*<0.05 *significant at 0.05 level of significance**Table 7: Mean, mean difference (MD), standard deviation difference (SD_D), standard error of mean difference (SE_{MD}), and “t”-value of post-test practice scores of type 2 diabetic patients in the experimental and control group. *n*=60**

Group	Practice test	Mean	MD	SE _{MD}	“t” value
Experimental (<i>n</i> =30)	Post-test	16.5667	5.13	0.45	11.45*
Control (<i>n</i> =30)	Post-test	11.4333			

df (58)=2.00, *P*<0.05 *significant at 0.05 level of significance**Table 8: Karl Pearson coefficient of correlation between post-test knowledge scores and post-test practice scores of type 2 diabetic patients in the experimental group. *n*=30**

Group	Variables	Mean	SD	“r” value
Experimental group	Post-test knowledge scores	27.5667	3.56886	0.948*
	Post-test Practice scores	16.5667	1.67504	

df (28)=0.374 at 0.05 level of significance. *Significant at 0.05 level

Findings related to association between post-test practice scores and selected factors

As per Table 10, the Chi-square value to seek association between practice scores and selected factors such as age, occupation, duration of illness, and family history of type 2 diabetic patients was not found to be statistically significant at 0.05 level of significance indicates that the practice was not dependent on those factors, and of educational level ($\chi^2 = 17.2^*$, df = 6, *P* < 0.05) and per capita income ($\chi^2 = 8.422^*$, df = 3, *P* < 0.05) was found to be statistically significant at 0.05 level of significance, which indicates that practice was dependent on education and per capita income.

DISCUSSION

In the present study, evaluation of the health-care package was done in terms of the knowledge and practice scores of type 2 diabetic patients on self-care management and prevention of complications in T2DM. The health-care package consisted of planned teaching program, self-care diary cum information booklet, diabetic identification card, pictorial/flash cards, and diet chart. The findings of the present study revealed that health-care package was effective in increasing the knowledge and improving the practices of type 2 diabetic patients on self-care

Table 9: Chi-square value showing association between post-test knowledge scores and selected factors of patients with type 2 diabetes mellitus in the experimental group *n*=30

Sample characteristics	Knowledge scores		Chi-square value	Df
	Above median	Below median		
Age in years			1.143 ^{NS}	3
30–39 years	1	0		
40–49 years	7	7		
50–59 years	3	4		
60–70 years	4	4		
Occupation			8.264 ^{NS}	4
Unemployed	1	6		
Private job	8	5		
Government job	3	1		
Own business	1	3		
Any other (specify)	2	0		
Education			16.533*	6
No formal education	1	2		
Primary school	0	5		
Middle school	0	2		
Secondary school	3	3		
Senior Secondary school	2	3		
Graduate	7	0		
Post-graduate	2	0		
Per capita income			10.093*	3
Rs. 5156 and above	8	1		
Rs. 2578–5155	6	7		
Rs. 1547–2577	1	6		
Rs. 773–1546	0	1		
Below Rs. 773	-	-		
Duration of illness			2.286 ^{NS}	3
Newly diagnosed	-	-		
<5 year	5	5		
5–10 year	6	8		
10–15 year	2	0		
15–20 year	2	2		
<20 year	-	-		
Family history			0.6 ^{NS}	1
Present	11	9		
Not-present	4	6		

df (1) $\chi^2=3.841$, df (2) $\chi^2=5.99$, df (3) $\chi^2=7.815$, df (4) $\chi^2=9.488$, df (5) $\chi^2=11.070$, df (6) $\chi^2=12.592$ *Significant at 0.05 level of significance, ^{NS}Not Significant

management and prevention of complications in T2DM. The effectiveness of planned teaching program in increasing the knowledge and improving the practices in DM was supported by Asha (1997),^[9] Jaisy (2004),^[10] Anjalatchi (2009),^[11] Abdo and Mohamed (2010),^[12] Silva *et al.* (2011),^[13] and Bhushanam *et al.* (2013).^[14] The findings related to use of self-care diary and information booklet in increasing knowledge and improving practices in DM was supported by Smithmol (2009),^[15] Nair (2000),^[16] and Given *et al.* (2013).^[17] The study findings related to use of diabetic identification card through literature and non-literature search was not found. There was a positive relationship between the mean post-test knowledge scores and the mean post-test practice scores, suggesting that increase in knowledge also leads to improvement in practices. This finding of the study was consistent with study carried out by Asha (1997).^[9]

Table 10: Chi-square value showing association between post-test practice scores and selected factors of patients with type 2 diabetes mellitus in experimental group $n=30$

Sample characteristics	Practice scores		Chi-square value	Df
	Above median	Below median		
Age in years			1.143 ^{NS}	3
30–39 years	1	0		
40–49 years	7	7		
50–59 years	3	4		
60–70 years	4	4		
Occupation			8.264 ^{NS}	4
Unemployed	1	6		
Private job	8	5		
Government job	3	1		
Own business	1	3		
Any other (specify)	2	0		
Education			17.2*	6
No formal education	1	2		
Primary school	0	5		
Middle school	0	2		
Secondary school	2	4		
Senior Secondary school	3	2		
Graduate	7	0		
Post-graduate	2	0		
Per capita income			8.422*	3
Rs. 5156 and above	8	1		
Rs. 2578–5155	5	8		
Rs. 1547–2577	2	5		
Rs. 773–1546	0	1		
Below Rs. 773	-	-		
Duration of illness			2.286 ^{NS}	3
Newly diagnosed	-	-		
<5 year	5	5		
5–10 year	6	8		
10–15 year	2	0		
15–20 year	2	2		
<20 year	-	-		
Family history			0.00 ^{NS}	1
Present	10	10		
Not-present	5	5		

df (1) $\chi^2=3.841$, df (2) $\chi^2=5.99$, df (3) $\chi^2=7.815$, df (4) $\chi^2=9.488$, df (5) $\chi^2=11.070$, df (6) $\chi^2=12.592$ *Significant at 0.05 level of significance, ^{NS}Not Significant

CONCLUSION

On the basis of the present study, the following conclusions were drawn – the study highlighted adequate gain in the knowledge of type 2 diabetic patients on self-care management and prevention of complications in T2DM. The study highlighted improvement in the practices of type 2 diabetic patients regarding self-care management and prevention of complications in T2DM. There was a significant relationship between the mean post-test, knowledge scores, and post-test practice scores of type-2 diabetic patients on self-care management and prevention of complications in T2DM. There was a significant association between the knowledge and practices of type 2 diabetic patients, and education level and per capita income, of type 2 diabetic patients on self-care management and prevention of complications in T2DM. The health-care package on self-care management and prevention

of complications in T2DM was found to be effective in enhancing the knowledge and improving the practices of the type 2 diabetic patients.

ACKNOWLEDGMENT

I acknowledge my guides and faculty of RAK College of Nursing, New Delhi for their cooperation in the smooth conduction of the study.

CONFLICTS OF INTEREST

The author declares no conflicts of interest.

SUPPORTIVE FOUNDATIONS

It was a non-funded project.

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How to cite this article: Kharol DV, KharolM. A Study to Evaluate the Effectiveness of Health-Care Package on Self-care Management and Prevention of Complications in Patients with Type-2 Diabetes Mellitus in Terms of the Knowledge and Practices in Diabetic Clinic of Selected Hospitals in Delhi. *Int J Nur Res.* 2022;8(3):115-122.