Knowledge and Expressed Practices Regarding Self Care Management of Diabetes Mellitus among Younger and Older Adults with Type-II Diabetes Mellitus in Government Hospital Gurugram, Haryana, India

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Abstract: _Background: Self-care in diabetes has been defined as an evolutionary process of development of knowledge or awareness by learning to survive with the complex nature of the diabetes in a social context. Diabetes self-care activities are behaviors undertaken by people with or at risk of diabetes in order to successfully manage the disease on their own. The aim of the study was to assess and compare the knowledge and expressed practices regarding self-care management of diabetes mellitus among younger and older adults with type-II diabetes mellitus in selected hospital of Gurugram with a view to develop an educational booklet. Methodology: A quantitative non – experimental comparative design was used to collect data from 100 samples with Type-II Diabetes Mellitus in Civil Hospital, Gurugram, Haryana using convenience sampling technique. The subjects were grouped in younger adults (50 samples) and older adults (50 samples). A self-structured knowledge questionnaire and expressed practice checklist was developed for data collection. The collected data was analyzed by using descriptive statistics. Information booklet was prepared on various aspects of self-care management of Type-II Diabetes Mellitus and was distributed among the study subjects at the end of the study Results: The data was analyzed using descriptive and inferential statistics. Results: Younger adults had overall mean score of knowledge as 10.22 ± 1.54 whereas older adults had overall Mean score of 9.18 ± 2.43. Hence, younger adults had more knowledge than older adults which was statistically significant at 0.05 level of significance. The overall Mean score of practice of younger adults was 16.40 ± 2.76 whereas the overall Mean score of older adults was 17.26 ± 2.30. Hence, older adults showed more effective expressed practices than younger adults which was also found statistically significant at 0.05 level of significance. There was significant correlation between knowledge and practices of older adults whereas it was not found significant among younger adults. Conclusion: Though the knowledge of Type-II Diabetes Mellitus among older adults is lower than the younger adults but older adults showed more effective expressed practices than younger adults._

Keywords: Knowledge; Practice; Type II Diabetes Mellitus; Young Adults; Old Adults; Self care management

1. Introduction

Diabetes mellitus (DM) is a chronic progressive metabolic disorder characterized by hyperglycemia mainly due to absolute (Type 1 DM) or relative (Type 2 DM) deficiency of insulin hormone. According to WHO report, India today heads the world with over 32 million diabetic patients and this number is projected to increase to 79.4 million by the year 2030 [1]. There is also a corresponding increasing in the diabetic related complication for example diabetic neuropathy, diabetic retinopathy, and diabetic nephropathy [2]. Diabetes self-care requires the patient to make many dietary and lifestyle modifications supplemented with the supportive role of healthcare staff for maintaining a higher level of self-confidence leading to a successful behavior change. These proposed measures can be useful for both clinicians and educators treating individual patients and for researchers evaluating new approaches to care. Because the vast majority of day-to-day care in diabetes is handled by patients and / or families, there is an important need for reliable and valid measures for self-management of Diabetes.

There are seven essential self-care behaviors in people with diabetes which predict good outcomes. These are healthy eating, being physically active, monitoring of blood sugar, compliant with medications, good problem-solving skills, healthy coping skills and risk-reduction behaviors. All these seven behaviors have been found to be positively correlated with good glycemic control, reduction of complications and improvement in quality of life [3].

2. Need of the study

One of the biggest challenges for health care providers today is addressing the needs and demands of individuals with chronic illnesses like diabetes. Studies have reported that strict metabolic control can delay or prevent the progression of complications associated with Diabetes. The need of diabetic patients is not only limited to adequate glycemic control but also correspond with preventing complications; disability limitation and rehabilitation. Some of the Indian studies revealed very poor adherence to treatment regimen due to poor attitude towards the disease

and poor health literacy among the general public. The introduction of home blood glucose monitors and widespread use of glycosylated hemoglobin as an indicator of metabolic control has contributed to self-care in diabetes and thus has shifted more responsibility to the patient[2]. The role of the health professional is crucial to make patient understand their blood glucose fluctuations with an appropriate self-care action. Self-care management of Diabetes Mellitus is an important aspect in the care of patients with Type II Diabetes Mellitus. As good knowledge and practices of self-care management can prevent further complications such as organ failure, neuropathy, nephropathy, heart attack, stroke, shock etc, so it very important for the patients to learn about self-care management of Diabetes. It is seen in the previous studies that patients with Diabetes Mellitus may have knowledge about some aspects like how to inject insulin injection, dietary control but not about all the aspects like foot care. [3]. Also, the researchers feel that there may difference in self-care management of Diabetes Mellitus in younger and older adults because of difference in their age, knowledge, experience, duration of diabetes mellitus, fear of death, risk taking behavior etc. Although there are many research studies that assess the knowledge and self-care practices of Diabetes Mellitus patients but there is a dearth of studies that assess the self-care practices and knowledge about self-care management of Diabetes Mellitus in younger and older adults. Hence, Researchers felt the need to explore this area and compare knowledge and practices of self-care management of Type II Diabetes Mellitus among younger and older adults.

3. Review of Literature

Missiriya S. conducted a study to assess the effectiveness of demonstration on self-care management among Clients with diabetes mellitus. The self-care management includes practice of regular blood sugar level monitoring and self-administration of insulin injection among client with diabetes mellitus. In quasi experimental research design one group pre and post-test design was used. Totally 75 Clients with diabetes mellitus were selected by using purposive sampling method. Assessing the level of knowledge on self-blood glucose monitoring and self-insulin injection administration among clients with diabetes mellitus in pretest, 87% and 93% had inadequate knowledge respectively and it was reduced to 12% and 8% in post-test. Regarding the demonstration of self-blood sugar monitoring and self-insulin injection administration practice 97% and 98% had poor practice in pretest and it was reduced to 22% and 27% in post-test respectively. The study concluded that there is effectiveness of demonstration on self-care management among Clients with diabetes mellitus. [4].

A study at Nigeria assessed the knowledge of self-care among type 2 diabetes patients in two states of Nigeria. The study was aimed to assess the knowledge of self-care practices, as well as factors responsible for such knowledge. Descriptive, cross sectional survey research design was employed. The Diabetes Self-care Knowledge was used in evaluating knowledge of self-care practices. Total of 303

patients the majority of the study sample (79.5%) had more overall knowledge level about self-care. Self-care knowledge was associated with level of education (p<0.001), monthly income (p<0.001) and duration of diabetes (p=0.008). The study concluded that diabetes self-care knowledge was generally high among the population studied [5].

A study determined the level of knowledge and practice of foot care among patients with chronic diabetic foot ulcers. Individuals having diagnosed diabetic foot ulcers (n=110) were selected from National Hospital of Sri Lanka (NHSL) for this descriptive cross-sectional study Regarding foot care knowledge, the mean score was 8.37, 75.5% had scored above mean and 52.7% were aware of all principles of foot care. Regarding foot care practices, the mean score was 4.55, 47.3% participants had scored below mean and 22.7% did not practice any foot care principle and hence scored 0. A Statistically significant difference exists between the foot care knowledge and practice scores (p<0.001, z= -8.151). The study concluded that sample demonstrate a satisfactory knowledge on diabetic foot disease; however, their practices of preventive techniques were unsatisfactory. [6].

4. Statement of Problem

"A comparative study to assess the knowledge and expressed practices regarding self-care management of diabetes mellitus among younger and older adults with type-II diabetes mellitus in government hospital of Gurugram, Haryana with a view to develop an educational booklet."

Objectives
- To assess and compare the knowledge and expressed practices regarding self-care management of Diabetes Mellitus among younger and older adults with Type- II Diabetes Mellitus.
- To develop an educational booklet on self-care management of Type-II Diabetes Mellitus with a view to increase knowledge among adults with Type-II Diabetes Mellitus regarding the self-care management of diabetes mellitus
- To find out the correlation of knowledge and practices of self-care management of Type-II Diabetes Mellitus among younger and older adults.

Operational Definition
- **Knowledge**- Refers to the information or awareness of younger adult and older adults acquired through the experience or education regarding self-care management of Type 2 Diabetes Mellitus as assessed by structured questionnaire.
- **Practice**-It refers to the actions performed or adopted by the younger and older adults regarding self-care management of Type-II Diabetes Mellitus as assessed by expressed checklist.
- **Type-II Diabetes Mellitus** - In this study, it refers to Blood Sugar >140mg/dl or higher, sustained for more than a year and diagnosed by a physician.
- **Young Adult**-Adult of age 18-50 years.
- **Older Adult-** Adult age above 51 years.

- **Self Care Management** - It refers to the application of self-care practices (blood glucose monitoring, foot care, dietary modification,, exercise, drug compliance, prevention of complications) by younger and older adults to keep blood glucose level under control as well as to cope with type II Diabetes Mellitus as expressed by the younger and older adults and assessed by the checklist.

5. Research Methodology

- **Research Approach**- Quantitative Research Approach
- **Research Design** - Comparative Research Design
- **Setting of the Study-** Diabetic OPDs and Wards of Civil Hospital, Gurugram
- **Target Population-** The target population for this study all adults with Type-II Diabetes Mellitus.
- **Sample and Sampling Techniques-** The samples selected for this study are the younger and older adults with Type-II Diabetes Mellitus fulfilling inclusion criteria. Non-probability convenience sampling was used to collect the data.
- **Sample Size-** The sample size for the present study consists of 100 residents of Mahipalpur (Delhi NCR).
- **Development of the Tool-** Structured knowledge and practice checklist was developed after the review of literature and with the consultation of guide and co-guide. Content validity done by giving the tool to seven medical and nursing experts. The reliability co-efficient for the structured knowledge questionnaire was calculated by using the Karl Pearson. The reliability co-efficient was found to be 0.7, thus was found to be reliable.

5. Results and Analysis

Table 5.1: Demographic profile of Residents of Delhi NCRN-100

Variable		Younger Adults (N= 50)	Older Adults (N= 50)
AGE		Mean (Range)	Mean (Range)
		38.4 (25-49)	64.5 (51- 86)
		f (%)	f (%)
Gender	Male	25 (50)	24 (48)
	Female	25 (50)	26 (52)
Education	Primary	11 (22)	19 (38)
	Secondary	21 (42)	18 (36)
	Graduate	10 (20)	6 (12)
	Postgraduate & Above	4 (8)	4 (8)
	Illiterate	4 (8)	4 (8)
Occupation	Government job	2 (4)	4 (8)
	Private job	28 (56)	14 (28)
	Own business	10 (20)	17 (34)
	Skilled	0	2 (4)
	Housewife	8 (16)	11 (22)
	Student	0	0
	Retired	2 (4)	2 (4)
Monthly family income (Rs):	<5000	5 (10)	8 (16)
	5001- 10000	20 (40)	9 (18)
	10001- 15000	10 (20)	6 (12)
	15001- 20000	0	10 (20)
	>20001	15 (30)	17 (34)
Type of family	Nuclear	22 (44)	17 (34)

	Joint	19 (38)	19 (38)
	Extended	9 (18)	14 (28)
Duration of Diabetes diagnosed (years)	<5	22 (44)	9 (18)
	6-10	24 (48)	35 (70)
	11-15	4 (8)	4 (8)
	16 and above	0	2 (4)
Medication for diabetes Mellitus	Oral hypoglycemic drugs	30 (60)	14 (28)
	Insulin	5 (10)	19 (38)
	Both	15 (30)	17 (34)
Complications of Diabetes Mellitus:	Heart diseases	9 (18)	10 (20)
	Nerve diseases	8 (16)	21 (42)
	Brain diseases	0	3 (6)
	Kidney diseases	11 (22)	13 (26)
	Eye diseases	8 (16)	24 (48)

Table 5.2: Comparison of Mean scores and standard deviation of knowledge among older and younger adults N=100

Groups	Mean ± S.D	Test value	df	P value
Older adults (N=50)	9.2 ± 2.4	2.62	98	0.009**
Younger adults (N=50)	10.3 ± 1.6			

Maximum Score- 15
*Statistically Significant at 0.05 level of significance

Table 5. 2 shows that younger adults were having more knowledge with a mean score of 10.2 ± 1.54 than older adults with a mean score of 9.18 ± 2.43 which was found statistically significant at 0.05 level of significance**.**

Table 5.3: Frequency and percentage distribution of level of knowledge regarding self-care management of Type-II Diabetes Mellitus among younger and older adults, N= 100

Level of Knowledge	Range of Scores	Younger Adults (N= 50) f (%)	Older Adults (N= 50) f (%)
Poor knowledge	0-5	0	3 (6)
Moderately Adequate Knowledge	6-10	32 (64)	15 (30)
Adequate Knowledge	11-15	18 (36)	32 (64)
TOTAL		100%	100%

Maximum Score-15

Table 5.3 shows that 64% of the older adults were having adequate knowledge while 36% of the younger adults were having adequate knowledge. But no younger adult had inadequate knowledge whereas 6 % of the older adults had inadequate knowledge.

Table 5.4: Comparison of Mean and standard deviation of practices among older and younger adults, N=100

Groups	Mean ± S.D	Test value	Df	P value
Older adults (N=50)	17.3 ± 2.3	1.69	98	0.045*
Younger adults (N=50)	16.4 ± 2.8			

**Statistically Significant at 0.05 level of significance Maximum Score=20

Table 5. 4 shows that older adults were having more effective practices with a mean score of 17.26 ± 2.3 than younger adults with a Mean Score of 16.4 ± 2.75 which was found statistically significant at 0.05 level of significance.

Table 5.5: Frequency and percentage distribution of level of expressed practices regarding self-care management of Type-II Diabetes Mellitus among younger and older adults, N=100

Expressed Practices (Range)	Younger Adults (N= 50) f (%)	Older Adults (N= 50) f (%)
Ineffective practices (0-10)	0	0
Effective practices (11-20)	50 (100)	50 (100)

Maximum Score-20

Table 5.5 shows that both older and younger adults had effective practices (100%), although the mean score of practices was more for older adults.

Table 5.6: Co-relation between knowledge and practices of older adults, N=50

		Practices of older adults
Knowledge of older adults	Pearson Correlation	.426**
	Sig. (2-tailed)	.002

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5.6 revealed that there was significant correlation between knowledge and practices of older adults.

Table 5.7: Co-relation between knowledge and practices of younger adults, N=50

		Practices of younger adults
Knowledge of Younger adults	Pearson Correlation	-.175
	Sig. (2-tailed)	.225

Table 5.7 revealed that there was no significant correlation between knowledge and practices of younger adults.
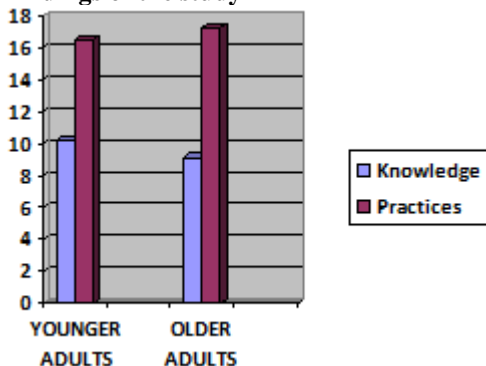
6. Discussion

Major findings of the study

Figure 1: Bar graph showing comparison of mean scores of knowledge and practice among younger and older adults with type-II Diabetes Mellitus

Figure 1 shows that younger adults were having more knowledge with mean score of 10.2 ± 1.54 than older adults with a mean score of 9.18. It also shows that older adults were having more effective practice with a mean score of 17.26 than younger adults with a mean score of 16.4 ± 2.76.

Present study shows that, the finding of the knowledge score regarding self-care management among younger and older adults with Type-II Diabetes Mellitus were able to answer the questions to a good extent. The research analysis shows that out of the 100 samples of the younger adults (50 samples) and the older adults (50 samples), 64% of the older adults were having adequate knowledge, 30% of the older adults were having Moderately adequate knowledge and 6%

of the older adults were having Inadequate knowledge. While 64% of the younger adults were having Moderately adequate knowledge, 36% of the younger adults were having adequate knowledge and no one was having the inadequate knowledge. The mean score of knowledge for younger adults was more as compared to older adults which can be attributed to the fact that younger adults have more access to internet and browsing facilities and also to their educational status. Above results were supported by a study conducted by Dinesh PV, Kulkarni AG, Gangadhar NK to assess the knowledge regarding Self-Care among the patients with Type II Diabetes. Out of 400 respondents, only 24% of the respondents had an overall good knowledge regarding diabetes and mean composite knowledge score was better in the 30–49 years age group (younger the age group, better the knowledge) [7].

The finding of the expressed practice score of the samples regarding self-care management among younger and older adults with Type-II Diabetes Mellitus was that both older and younger adults have effective practices, though the mean score of practices were more for older adults. This can be attributed to the years of experience and duration of diabetes older adults have as compared to younger adults.

The above results are in congruence with the study done by G. Mohammed AA, Hasan Al-Aaragi AN, Merzah MA to assess the knowledge and practice regarding self-care management on diabetic mellitus. Out of 50 patients 52% of diabetics had moderately adequate knowledge and 68% of the samples had average practice [8].

7. Conclusion

This study concludes that the younger adults had more knowledge than Older adults but Older adults shown more effective expressed Practices than Younger adults. The information booklet helped the people to improve their knowledge regarding the self-care management of Type-II Diabetes Mellitus. This will ultimately help the people to adopt effective practices in their daily living.

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Author Profile

Ms.Gurleen Kaur has completed her B.Sc.Nursing from Amity College of Nursing, Amity University Haryana, India and awarded with first division. She is always a keen learner and want to achieve sound skills, practices and virtuous experience as a Nurse by serving, working and studying in the department of Public health. She recently got admission as a Mental Health Nurse in Seneca College, Toronto, Canada and she crave for the learning opportunities to enhance her professional development.

Ms. Amandeep Kaur is working as Assistant Professor, Amity College of Nursing, Amity University, Gurgaon. She did M.SC NURSING [(Medical- Surgical Health Nursing (Neurosciences)] from All India Institute of Medical Sciences, New Delhi and B.Sc NURSING from National Institute Of Nursing Education, PGIMER, Chandigarh. She got distinction in research and statistics both during her UG and PG. With 7 years of total teaching experience in nursing, she has special interest in conducting research regarding cardio-neuro disorders, trauma nursing, palliative care and adolescent health. She is a life time member of TNAI and Society of Indian Neuro Nurses. Also a certified BLS-ACLS provider and Basic First Aid trainer. She is invited as resource person in various conferences at Army base hospital, Delhi 2019, guest speaker in NSICON 2018, panelist in Delhi Neurological Association CON 2020 to name a few. Attended many national and international conferences, seminars, workshop, she is actively involved in organizing various national levels workshops and conferences. She has guided many UG and PG students in their research work and has four research papers in international journals in her credit.

Ms. Kusum Roy is working as Tutor in Amity College of Nursing, Amity University, Gurgaon. She did M.SC NURSING [(Medical- Surgical Health Nursing (Cardiothoracic)] from Jamia Hamdard university, New Delhi and B.Sc NURSING from VMMC and Safdarjung hospital, New Delhi. She has 2 years of clinical and 3.5 years of teaching experience. She has special interest in conducting research on cardiovascular disorders, Stress ad coping, Palliative care, Geriatric health, adolescent health and quality improvement in healthcare and nursing education. She has total four research paper in in international journals in her credit.