



# A Cross Sectional Study of Knowledge of Diabetes among Care Givers of Diabetic Patient Attending OPD in Tertiary Care Teaching Hospital of Southern Rajasthan, India

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## ABSTRACT

**Introduction:** Diabetes Mellitus is a one of the most challenging public health problem of 21st century. It currently affects over 463 million people worldwide and this figure is likely to 700 million by 2045. Care-givers carry the responsibility for demanding daily care, support and supervision. This study was conducted among care givers of diabetic patients for assessment of knowledge of diabetes.

**Methodology:** This study was institution based cross sectional study conducted on Adult (age > 18 Years) care givers of diabetic patient who attending OPD in SRG hospital a tertiary care teaching hospital of Jhalawar, Rajasthan. Simple Random Allocation sampling method was used followed by interview of 147 participants.

**Results:** Knowledge of Diabetes among Care givers was average in > 1/3<sup>rd</sup> (38.1%) followed by either good (31.3%) or poor (30.6%). In present study proportion of good knowledge was high among urban residents 35.7% compare to rural dwellers (4.8%). There was significant association found between education and occupation of caregiver knowledge about Diabetes. Statistically non-significant association was observed between Religion, type of family and marital status of caregivers and their knowledge of diabetes.

**Conclusion:** Present study revealed only 31.3% study participants had good knowledge about diabetes. Knowledge about diabetes was significantly higher in urban area (35.7%), with more educated individuals and professionals by occupation.

**Key word:** Knowledge, Diabetes, Care Givers, Diabetic Patient, attending OPD

## INTRODUCTION

Diabetes Mellitus (DM) is a one of the most challenging public health problems in 21<sup>st</sup> century<sup>1</sup>. It currently affects over 463 million people worldwide and this figure is likely to 700 million by 2045<sup>2</sup>. Genetic predisposition combined with life style changes, associated with urbanization and globalization, contribute to this rapid rise of diabetes in India. Moreover, type 2 diabetes in the Indian population appears to occur at least a decade earlier compared to Europeans. This means that, in the next 10 – 20 years, productivity of

the youth of our country could be seriously affected<sup>3</sup>. It is important to know about the awareness level of a disease condition in a population, which plays a vital role in future development, early detection and prevention of disease. Prevention is important because the burden of the diabetes and its complications on health care and its economic implications are enormous, especially for a developing country like India<sup>4</sup>.

Primary caregivers may be members of the immediate or extended family, foster family and other guardians. Caregivers carry the responsibility for deman-

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ding daily care, support and supervision<sup>5</sup>. To manage diabetes, people are required to adhere to a myriad of treatment recommendations, including dietary modifications, adherence to medication, routine physical activity or exercise and monitoring of glucose levels<sup>6</sup>.

Many diabetic patients deviate from regular follow-up plan because of non availability of family members (caregivers) to accompany them<sup>7</sup>. Most of diabetic patients are cared at home with family members and friends providing the bulk of the care. This situation has lead to reorientation of health care systems in the developed countries from hospitals and nursing in situations to the domiciliary care arrangements that the chronically disabled prefer and use<sup>8</sup>. Dietary habits of diabetics are influenced by the dietary behaviour of the family. Availability of a family or a caregiver helps a diabetic in many ways: adherence to behavioural changes, emotional support, alleviation of depression, and strict compliance to medication regimen<sup>9</sup>. Knowledge of disease and its complication with attitude towards disease and diabetic patient are important factors which determine ultimate care of patients and prevention of complications and mortality. Country is now passing through a crucial phase in diabetes. Our study is focused to find these challenges and gaps. Hence this research was planned to assess the knowledge about diabetes among caregivers of diabetic patient attending OPD at a tertiary care teaching hospital in southern Rajasthan, India.

## OBJECTIVE

This study was conducted to assess knowledge about diabetes among caregivers of diabetic patient and its association with their socio-demographic profile.

## METHODOLOGY

A cross sectional study was conducted among the caregivers of a diabetic patient in the OPD of SRG Hospital, a tertiary care teaching hospital in southern Rajasthan. The study was initiated after obtaining ethical approval from institutional ethical committee in January 2021 to march 2021.

**Sample size:** The sample size for the study was calculated based on the reference study on knowledge about diabetes mellitus Andhra Pradesh. The intuition based study done by Srimath Sridhar<sup>4</sup> et al Bhimavaram, Andhra Pradesh showed a 9% good knowledge about diabetes among the Study group. Using the formula  $n = t^2 \times P \times (1-P) / e^2$ , the sample size was calculated to be 126 and with a precision of 15% of knowledge and it was rounded off and taken as 147.

**Selection criteria:** study participants included adults (age > 18 years) men and women who were caregivers of a diabetic patient and who had given consent for inclusion in the study. Those who declined to participate did not give written consent to be included in the study and were <18 years of age were not included in the study.

**Data Collection:** study participants were selected by a simple random allocation sampling method by coin. A pre-tested, semi-structured questionnaire was used for data collection that was build based on literature review and was reviewed and validated by 5 arbitrators and modified accordingly. The questionnaire has 2 parts: Part I - questions about the participants' socio-demographic characteristics such as age, gender, religion and education status, type of family, marital status and socioeconomic status. Part II - questions among caregivers about knowledge about causes, risk factors, symptoms, complications, blood glucose thresholds, diet, hypoglycaemia, and diabetes medications.

**Informed consent:** We explained our purpose of study to all individual participants in local language and then written and informed consent was obtained from each participant for being included in the study before starting interview

**Data analysis:** All data was entered in MS-Excel: 2007. Data were analyzed via SPSS 23.0 (Trail version) and the Chi square statistical test was used in the data analysis. P value less than 0.05 were considered significant. To assess the knowledge in our study we gave 1 mark for correct answer and 0 mark for wrong answer. Then marks were totalled and divided in to three categories. If the percentage falls between 0-33.3% it means that the participant had poor knowledge about diabetes and if the percentage falls between 33.4%-66.7% then it means average and 66.7% who had good knowledge about Diabetes<sup>10</sup>.

## RESULTS

The present institutional based cross-sectional study was carried out on (147) care givers of diabetic patient and Participated in the study of whom 110(74.83%) were males and 37 (25.17%) females.

Table 1 shows the Distribution of Knowledge about Diabetes in Care givers of Diabetes Patient., more than one third (38.1 %) care givers had average knowledge, while knowledge of diabetes among less than one third care givers was either good (31.3 %) or poor (30.6%).

As per table 2 results urban care givers have good or average knowledge (75.4%) compare to 33.4% rural residents. There was significant association between residence of caregiver and their Knowledge about Diabetes ( $p < 0.05$ ). There is no significant association found between gender of caregivers and their knowledge about diabetes ( $p > 0.05$ ).

**Table 1: Distribution of Knowledge of Diabetes among Care givers of Diabetes Patient**

Knowledge about Diabetes	Frequency (%)
Poor	45 (30.6)
Average	56 (38.1)
Good	46 (31.3)
Total	147 (100)

**Table 2: Distribution of Knowledge about Diabetes According to various socio-demographic variables**

Socio-demo-graphic variables	Knowledge about Diabetes			Total (n=147)(%)	Chi sq	P value		
	Poor (0-33.3%) (n=45)(%)	Average (33.4%-66.7%) (n=56)(%)	Good (66.7%) (n=46)(%)					
<b>Residence</b>								
Rural	14 (66.7)	6 (28.6)	1 (4.8)	21 (100.0)	16.498	<0.0001*		
Urban	31 (24.6)	50 (39.7)	45 (35.7)	126 (100.0)				
<b>Gender</b>								
Female	14 (37.8)	12 (32.4)	11 (29.7)	37 (100)	1.298	0.523		
Male	31 (28.2)	44 (40.0)	35 (31.8)	110 (100)				
<b>Occupation</b>								
Unemployed	27 (40.9)	22 (33.3)	17 (25.8)	66 (100)	-			
Unskilled	10 (62.5)	5 (31.3)	1 (6.3)	16 (100)				
Semi skilled	1 (8.3)	9 (75.0)	2 (16.7)	12 (100)				
Skilled	7 (17.9)	15 (38.5)	17 (43.6)	39 (100)				
Professional	0 (0.0)	5 (35.7)	9 (64.3)	14 (100)				
<b>Education</b>								
Illiterate	14 (73.7)	5 (26.3)	0	19 (100)	-			
Primary	8 (66.7)	4 (33.3)	0	12 (100)				
Middle	7 (43.8)	8 (50.0)	1 (6.3)	16 (100)				
Secondary School	9 (45.0)	10 (50.0)	1 (5.0)	20 (100)				
Senior Secondary	3 (21.4)	5 (35.7)	6 (42.9)	14 (100)				
Graduate	4 (7.7)	23 (44.2)	25 (48.1)	52 (100)				
Post Graduate	0	1 (7.1)	13 (92.9)	14 (100)				
<b>Religion</b>								
Christian	0	0	1 (100)	1 (100)			-	
Hindu	30 (27.8)	44 (40.7)	34 (31.5)	108 (100)				
Jain	0	1 (33.3)	2 (66.7)	3 (100)				
Muslim	15 (44.1)	11 (32.4)	8 (23.5)	34 (100)				
Sikh	0	0	1 (100)	1 (100)				
<b>Marital Status</b>								
Unmarried	6 (23.1)	9 (34.6)	11 (42.3)	26 (100)	1.911	0.385		
Married	39 (32.2)	47 (38.8)	35 (28.9)	121 (100)				
<b>Type of Family</b>								
Nuclear	19 (31.7)	18 (30.0)	23 (38.3)	60 (100.0)	4.369	0.358		
Joint	17 (27.0)	29 (46.0)	17 (27.0)	63 (100.0)				
Three Generation	9 (37.5)	9 (37.5)	6 (25.0)	24 (100.0)				

Occupation of caregiver and their Knowledge about Diabetes and according to table professional workers (64.4%) and skilled (43.6%) have good knowledge compare to unskilled or unemployed. Post graduate caregivers have higher proportion of good knowledge 92.9% and it was observed that knowledge increased with increase of education of care givers (reduction in good knowledge from 48.1%, 42.9%, 12.6%, 6.3%, 5.0%, 0.0% to 0.0% among who have education from graduate, senior secondary, middle school, primary level to illiterate respectively).

Majority of participants were Hindu followed by Muslims. Study participant belonging to Jain, Hindu and Muslim have higher knowledge about diabetes 66.7%, 31.5%, 23.5% respectively. Majority of participants had good knowledge they belonged to unmarried group (42.3%). No significant association found between Marital Status of caregivers and their knowledge about diabetes ( $p > 0.05$ ).

No significant association was found between type of family of caregivers and their knowledge about diabetes ( $p > 0.05$ ). Most of the participants who had well knowledge about diabetes belonged to nuclear family (38.3%), followed by 27% and 25% joint family and three generation respectively.

## DISCUSSION

Diabetes is an important cause of morbidity and mortality all over the world. Because of lack of awareness about diabetes, most patients with diabetes suffer from its complications and premature death. The present study of Knowledge about Diabetes in Care givers of Diabetes Patient found 30.6% (45) of the participants had poor knowledge, 38.1 % (56) care givers had average knowledge and 31.3 % (46) study participants were good knowledge about diabetes. The present study of Knowledge about Diabetes in Care givers of Diabetes Patient found 31.3 % (46) had good knowledge about diabetes that was comparable to the rates obtained by Puepet et al 30.2% (2007)<sup>11</sup> M. Valenzuela et al 39.8 % (2015)<sup>12</sup> and High knowledge was obtained by William m et al 50.7 % (2010)<sup>13</sup>.

Present study depicted the proportion of good knowledge among urban area was 35.7% and among the rural was 4.8%. Knowledge about diabetes in the urban area was more when compared with the rural area, which was found to be statistically significant (chi square 16.498 and  $p < 0.0001$ ) that was comparable to rate obtained by Deepa M et al (2016)<sup>14</sup>. Present study observed that proportion of knowledge among professional workers (64.4%) and skilled (43.6%)

have good knowledge followed by 25.8%, 6.3% and 16.7% among who have occupation Unemployed, Semi-skilled and unskilled. We understand that as occupation grow in the higher reaches; people's knowledge levels about diabetes also increase. The present study was somewhat comparable with the comparison rates obtained by Mehrotra et al (2000)<sup>15</sup>, which were higher among professional workers, followed by unskilled, skilled and semi-skilled, respectively. Mehrotra et al (2000), the study was conducted in the general participant's knowledge about diabetes. Present study depicted that proportion of knowledge among post graduate caregiver have higher proportion of good knowledge 92.9% followed by reduction in good knowledge from 48.1%, 42.9%, 12.6%, 6.3%, 5.0%, 0.0% to 0.0% among who have education from graduate, senior secondary, middle school, primary level to illiterate respectively. Along with increasing the level of education among the people, the knowledge level of the people about diabetes was also found to increase in this study was comparable to the rates obtained by Gezie GN et al (2015)<sup>16</sup>. But Gezie GN et al conducted their study on diabetic patients. Over all, the result of the study indicates, it is essential that the health managers and authorities to take proper steps to increase the knowledge among the population regarding causes, symptoms, dietary modifications, routine physical activity or exercise, and monitoring of blood glucose levels, alternative treatment practices and management of diabetes and its complication in order to build our community healthier and prosperous.

## CONCLUSION

Present study revealed only one third study participants was having good knowledge about diabetes. It was significantly higher in urban area compared with the rural area. No significant association found with gender, type of family and marital status of caregivers and their knowledge about diabetes.

## RECOMMENDATION

Simple steps such as awareness will increase the knowledge of Diabetes among care givers. There is need of programmes to enhance knowledge on various aspects including self-care for the diabetics. IEC/BCC should be developed particularly in rural areas/among less educated/unemployed or unskilled persons in terms of campaigns on diabetes. More consideration needs to be given to caregivers' special relationship to the patient, such as considering caregivers' health knowledge in the development of health-education programs so they can provide better care.

Target based information must be provided to the care-givers of diabetics. Training should be conducted to improve the caregivers knowledge to provide

better service them during events like hypoglycaemia and its treatment, for which the patients is majorly depend upon.

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