

# Knowledge, Attitude and Practices Regarding Diabetes and its Complications among Health Care workers in Medical College of North India

Komal Gharsangi<sup>1\*</sup>, Pratibha Himral<sup>1</sup>, Vishwachander<sup>2</sup>, Rajesh Bhawani<sup>2</sup>

<sup>1</sup>Department of General Medicine and of Shri Lal Bahadur Shastri Govt Medical College Mandi, Himachal Pradesh, India

<sup>2</sup>Department of Preventive and Social Medicine and Head of Shri Lal Bahadur Shastri Govt Medical College Mandi, Himachal Pradesh, India

\*Corresponding author: Dr. Komal Gharsangi, Department of General Medicine and Assistant Professor of Shri Lal Bahadur Shastri Govt Medical College Mandi, Himachal Pradesh, India, E-mail: drshinny@gmail.com

---

## Abstract

General awareness about diabetes among patients is important for its management and prevention of its complications. Imparting such information to the people is the responsibility of health care workers among which nursing staff has a pivotal role. Hence it becomes important that the knowledge, attitude and practice among nursing staff regarding diabetes is assessed so that they can provide optimum care to the community. Diabetes was India's seventh biggest cause of early death in 2016. Diabetes increases the susceptibility for many life threatening infections as well, that is why tuberculosis is becoming highly prevalent in this group of patients. As the incidence and prevalence of diabetes is increasing, more people will require care from health professionals. Thus health care professionals like nurses in this case have responsibility to generate basic awareness about diabetes. It is important that the nurses should have right knowledge, attitude and practice of diabetes. Diabetes involves maintaining a healthy diet, regular physical exercise, a normal body weight, and avoiding use of tobacco. Diabetes may be treated with medications such as insulin sensitizers with or without insulin. The blood pressure and maintaining proper foot and eye care are important for people with the disease.

---

**Keywords:** Diabetes; Health care; Autoimmune; Blood glucose level; Medical care; Neonatal diabetes; Alstrom syndrome

## Introduction

Worldwide 425 million people have diabetes and 82 million are in the South East Asian Region itself and by 2045 this will rise to 151 million. There were over 72 million cases of diabetes in India in 2017. Around 47.3% of Indian diabetics are undiagnosed and do not know they have high blood glucose levels such that if left untreated, lead to complications like coronary artery disease, kidney failure, blindness. Diabetes was India's seventh biggest cause of early death in 2016. Diabetes increases the susceptibility for many life threatening infections as well, that is why tuberculosis is becoming highly prevalent in this group of patients. As the incidence and prevalence of diabetes is increasing, more people will require care from health professionals. Prevention and improving awareness about the disease plays very crucial role in managing these patients also reducing morbidity and mortality [1]. The quality of information they receive will depend on the knowledge and experience of the staff in diabetes care. Nurses are often the first point of contact for people seeking information on diabetes care, it would therefore seem necessary for all qualified staff to have sufficient knowledge to educate others appropriately [2]. In hospitals it is the responsibility of the staff nurses to administer insulin and to recognise potentially harmful reactions and impending hyperglycaemia or hypoglycaemia [3]. The number of hours spent in attending and taking care of patients is much more done by the nursing staff so it becomes important for them to be fully aware of the disease, symptomatology,

---

complications and treatment in the best way possible. Some studies have reported that hospital nurses are inadequately trained in diabetes management and particularly insulin therapy [4]. Studies have demonstrated a need for improvement in general diabetes knowledge among nurses in hospitals. This will enable nurses to convey accurate information to people with diabetes regarding their care after discharge. A multidisciplinary team consisting of a nurse, dietician, pharmacist, physician, and behaviorists is required for effective diabetes management [5]. A health care provider without proper training in diabetes, behavioural interventions, teaching, learning and counselling skills may not focus on patient's behaviour change and therefore clinical outcomes may not improve [6].

India being a poor country lacks proper facilities for embarking knowledge to patients and public who are mostly not well educated. Thus health care professionals like nurses in this case have responsibility to generate basic awareness about diabetes. It is important that the nurses should have right knowledge, attitude and practice of diabetes. A diagnostic tool like Knowledge, Attitude and Practice (KAP) questionnaire will help in understanding the beliefs, attitudes and behaviour of nurses towards diabetes. Study done among nurses in a tertiary hospital of Saudi Arabia found that there was significant gap between their perceived and actual knowledge [7]. An integrative review of 25 studies from developed and developing countries was done to synthesise nurses knowledge of diabetes and to identify factors that function as barriers and it demonstrated that there was a long standing knowledge deficit in many aspects of diabetes care [8].

The KAP survey has been conducted among general public or among patients of diabetes in India but very few survey conducted among the nursing health professionals. A study conducted among medical and nursing students regarding their knowledge, attitude and practice towards diabetic retinopathy showed that the practice knowledge needed improvement [9]. We did KAP survey on diabetes and its complications among the qualified and trained nurses working in a tertiary care medical college in Himachal Pradesh.

### ***Objectives***

Identify the knowledge gaps in the nurses, to stress the importance of accurate and adequate knowledge among the nurses and document the need of diabetes education among nurses.

## **Materials and Methods**

### ***Study area***

Shri Lal Bahadur Shastri Government Medical College, Mandi, Himachal Pradesh , India

### ***Study design***

A cross-sectional descriptive study to examine the knowledge, attitude and practice of diabetes mellitus among nurses.

### ***Study population***

Nurses working in various departments of Shri Lal Bahadur Shastri Government Medical College

- Inclusion Criteria: Nurses who were willing to participate after consent
- Exclusion Criteria: Nurses who were not willing to participate

### ***Tools***

A modified pre designed questionnaire was used in the study and recorded. It is an adapted questionnaire from Diabetes Knowledge Test by Sandra Scheiderich developed as per the objectives and variables of the study and based on the hospital practice guidelines

### ***Procedure***

The study was explained to the nursing staff in their language. After receiving their written consent to

---

participate in the study the questionnaire were filled.

We included all the nursing staff working in the different departments of the hospital. A modified pre designed questionnaire was prepared which had total of 25 questions and their response options of correct was given score of 1, incorrect score of 2 and that as “I do not know” taken as 3. Institutional ethical committee approved the study and issued the letter of approval to conduct the study.

### ***Statistical analysis***

Descriptive statistical analysis has been carried out in the study.

## **Results and Discussion**

A total of 102 nursing staff were enrolled from different departments of hospital. Demographic profile showed that most number of participants were of age 20 to 30 years (50%) followed by 30 to 40 years (33%). Most of the nursing staff (48%) had less than five years of experience followed by those with experience 10 to 15 years (21.6%). 67% had degree of general nursing and 16% were post basic BSc nursing. 36% of nursing staff was working in the medicine department followed by 17.6% in obstetric department. 75% of the participants did not have any close relative with diabetes.

### ***Knowledge regarding the etiology of diabetes***

In the study 61 (59.8%) participants knew that destruction of beta cells was the cause for Type 1 Diabetes while 40 (39.2%) gave incorrect answers. Similarly 79(77.5%) knew that reduced secretion and resistance to insulin was the cause for Type 2 diabetes while 22 (21.6%) gave incorrect answers (Table 1).

### ***Knowledge regarding the symptoms related to diabetes***

89.2% of participants knew the correct symptom of hyperglycemia (Figure 1) but only 52.9% could answer correctly the cause for hyperglycemia. Similarly only 58.8% had correct knowledge about symptom of hypoglycaemia (Figure 2) but 89.2% answered correctly the cause for hypoglycaemia.

On question about reason for a diabetic found to be unresponsive, 61.8% answered correctly due to low blood glucose (Figure3)

### ***Knowledge regarding complications of diabetes***

In the study 88.2% knew that diabetics were more prone for complications. Total 88 (86.3%) participants were aware that diabetes could lead to multisystem involvement like eyes, heart, kidneys, nervous system. On knowledge regarding effect of illness on insulin requirement 52.9% knew that illness increases the requirement of insulin while 16.7% did not know the answer.

### ***Knowledge regarding insulin***

Most of the participants (97.1%) knew that insulin was produced from pancreas. 92.2% knew the effect of insulin on glucose level in blood. 67.6% gave correct answer to the peak action of insulin and 61.8% gave correct answer regarding storage of insulin. Figure 4 shows the percentage knowledge on different types of insulin.

### ***Knowledge on management of diabetes***

It is essential to have good knowledge about the management of diabetes because this will further reduce the progression of its complications. Timely treatment with the appropriate therapy is extremely important. Regarding management of Type 1 diabetes only 56.9% said that insulin was necessary (Figure 5). while according to 64.7% participants diet and exercise were essential part of treatment of Type 2 diabetes (Figure 6). 66.7% of participants could not correctly illustrate, through the figure, sites for administration of insulin. 96.1% described the correct value of normal fasting glucose and 97.1% knew that HBA1c gave average of glucose over extended period of time.

Diabetes is an important health problem worldwide contributing to high mortality and morbidity in form of cardiovascular and other diabetes related health outcomes. Patients knowledge and management of diabetes depends a lot on the effectiveness of diabetes related care and education given to them.

Patient of diabetes have health care needs, problems related to risk of disease progression and its complications. Making patients self-aware about their disease is important way of managing the disease itself. Giving proper information to patients or their care givers will be possible only if the health professionals also have right knowledge about the disease.

Early diagnosis of diabetes is important but more important would be the proper adherence to medications, good follow up for controlling blood sugar levels so that the patient doesn't land up into complications.

There has been a rise in the number of patients getting admitted for uncontrolled blood glucose and its complications. It's equally important for the nursing staff to have appropriate knowledge regarding diabetes from basic pathology, symptoms, complication to basic management. Our study showed that nursing staff did have good knowledge regarding insulin which they come across frequently. .But study also saw that there was lack of adequate knowledge regarding the basic pathology in type 1 and 2 diabetes which was the reason behind poor knowledge on basic management of these patients.

Our participants also lacked knowledge on the symptoms of hypoglycaemia which itself is one of the life threatening complication in diabetic patients and that insulin requirement increases in illness. In bed side practices it is important to teach the patients regarding proper site and method of insulin administration for the future. In this study it was surprising to see that significant number of nursing staff did not have adequate knowledge on correct sites of insulin administration.

### **Conclusion**

Our study shows that there is significant gap between knowledge and practices. This gap needs to be taken care through well organised approach to make our nursing staff more acquainted with diabetes related issues. There is a critical role of diabetes education in improving the quality of diabetic care, self-management and to improve patient outcomes. It is important to improve the knowledge and clinical skills of the nursing staff so that we are able to achieve a healthier population in the future.

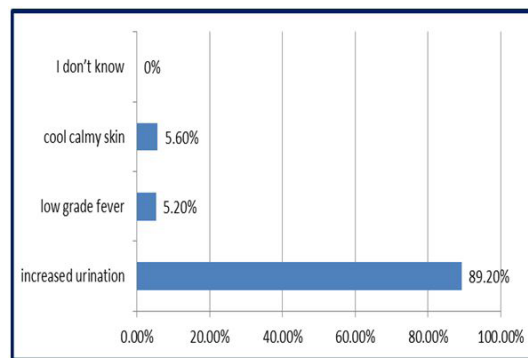
### **References**

1. Konduru SS, Ranjan A .Assessment of Diabetes Related Knowledge, Attitude and Practice among Diabetics and Non-diabetics using Self Prepared Questionnaire for Awareness of Health Promotion. *Indian Journal of Pharmacy Practice* 2017; 10: 1-07.
2. Park M .Diabetes education in Grampian: a study. *Nursing Standard* 1993; 8: 34-37.
3. Dunning T. Development of a nursing care manual to improve the knowledge of nurses caring for hospitalised patients with diabetes. *Journal of Continuing Nurse Education* 1995; 26: 261-266.
4. Clement S. Better glycaemic control in the hospital: beneficial and feasible. *Cleveland Clin J Med* 2007; 74: 111-120.
5. El-Deirawi KM, Zuraikat N .Registered nurses' actual and perceived knowledge of diabetes mellitus. *J Nurses Staff Devel* 2001;17: 5-11.

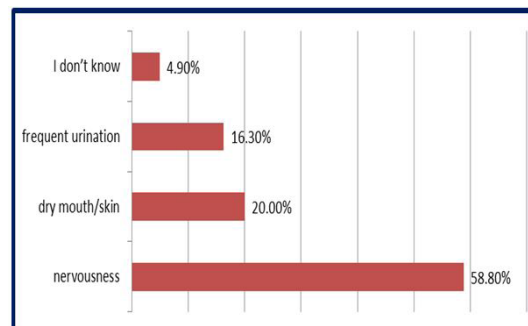
6. Baxley SG, Brown ST, Pokorny ME . Perceived competence and actual level of knowledge of diabetes mellitus among nurses.J Nurses Staff Devel 1997; 13: 93–98.
7. Alotaibi A, Gholizadeh L, AL-Ganmi A. Examining perceived and actual diabetes knowledge among nurses working in a tertiary hospital. Appl Nurs Res 2017; 35: 24-29.
8. Alotaibi A, Gholizadeh L, Al-Ganmi A. Diabetes knowledge of nurses in different countries: An integrative review. Nurse Educ Today.2016; 39: 32-49.
9. Panigrahi S, Sahu RK. Knowledge, Attitude and Practice Regarding Diabetic Retinopathy Among Medical And Nursing Students of A Tertiary Care Teaching Hospital of Odisha: A Cross Sectional Study. Journal of Dental and Medical Sciences 2017; 16: 01–07.

**Table 1:** Percentage of participants on knowledge of cause of Diabetes.

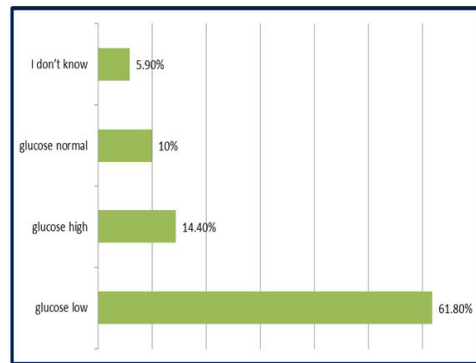
Diabetes	Characteristics	Percentage
Type 1 Diabetes	Obesity	10.20%
	Mostly genetic	29%
	Destruction of beta cells	59.80%
	Don't know	1%
Type 2 Diabetes	Mostly non genetic	9%
	Reduced secretion and resistance of insulin	77.50%
	Destruction of beta cells	12.60%
	Don't know	1%



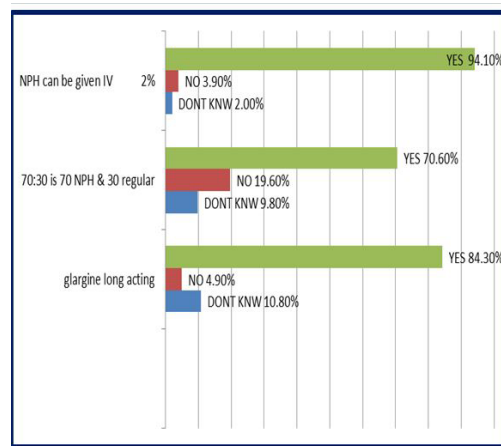
**Figure 1:** Percentage of knowledge on symptoms of hyperglycemia.



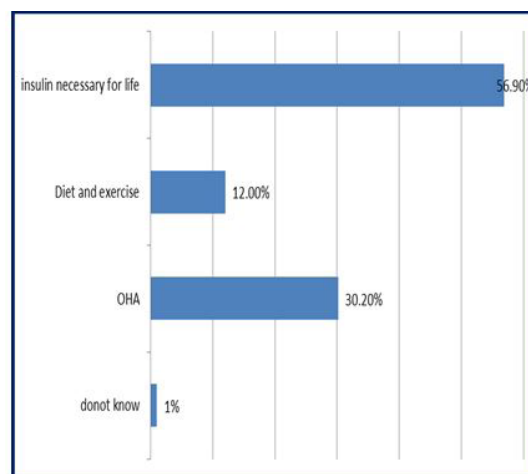
**Figure 2:** Percentage of knowledge on symptoms of hypo glycaemia.



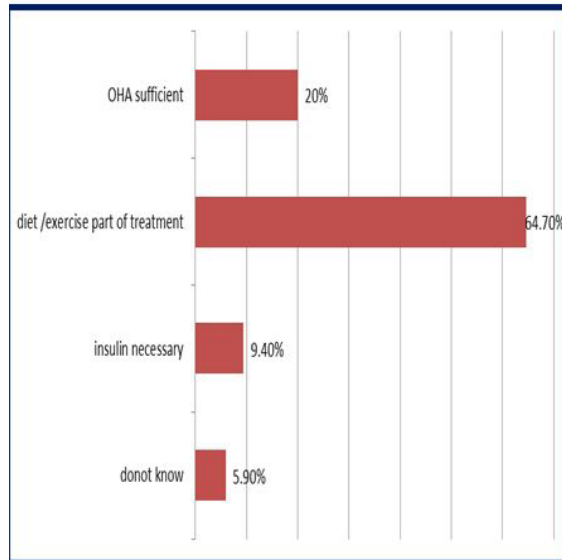
**Figure 3:** Percentage of knowledge on cause of unresponsiveness in diabetic patient.



**Figure 4:** Percentage of knowledge on different forms of insulin.



**Figure 5:** Percentage of knowledge on management of Type 1 diabetes.



**Figure 6:** Percentage of knowledge on management of Type 2 Diabetes.