# Assess the Knowledge and Practice regarding Self-administration of Insulin among Patients with Type -2 Diabetes Mellitus admitted in Medical ward at a Tertiary Care Hospital

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## Abstract

Diabetes mellitus is a chronic disease in which the body's inability to produce insulin is decreased, resulting in impaired carbohydrate metabolism can leads to elevated glucose in the blood. Among the types of the Diabetes mellitus Type 2 diabetes mellitus, which is much more common, occurs when the body cannot produce enough insulin or the insulin is not working efficiently enough. Insulin is more important therapy for type 2 diabetes when blood glucose levels cannot be controlled by diet, weight loss, exercise, and oral medications. Most of the people are still visiting the physicians twice monthly and on maintenance drugs only. Hence a study was conducted to determine the level of knowledge and Practice regarding Self-administration of Insulin among patients with Type -2 Diabetes Mellitus. The objectives of this study were to assess the Knowledge and Practice Regarding Self-administration of insulin among the diabetes patient admitted in a Medical ward , to find out the association between knowledge and Practice with their selected socio-demographic variables and to find out association between knowledge and practice regarding self-administration of insulin. A non-experimental descriptive design was adopted and the study was conducted in medical ward , Sri Ramachandra Hospital, Chennai, Tamilnadu. 40 Type-2 diabetes patients on self-administration on insulin were selected for the study by using convenient sampling technique. The result suggests that there is an inadequate level of knowledge and the poor level of practice among Type-2 diabetes patients. There is a significant association between the level of knowledge and practice with the selected demographic variables among the Type-2 diabetes patient. Hence the Nurses play an vital role in building their knowledge and understanding the importance of prevention of complications of regarding self-administration of insulin. This can be facilitated by motivating the nurses to provide outpatient based education programme to improve their health.

***Keywords****: Knowledge, Practice, Type-2 Diabetes mellitus and self administration*

## Introduction

One of the greatest challenges faced by the modern world is Diabetes mellitus. Diabetes mellitus is a chronic disease and a growing challenge in India with estimated 8.7% diabetic population in the age group of 20 and 70 years. **Type 2 diabetes** is the most common type of diabetes, accounting for around 90% of all diabetes cases. Diabetes currently affects more than 62 million Indians, which is more than 7.1% of the adult population. Tamil Nadu had the highest death rate from diabetes among Indian. Most people who are newly diagnosed with type 2 diabetes begin initial treatment with a combination of diet, exercise, and insulin therapy. Intensive insulin therapy is essential in the maintenance of strict glycemic control among insulin requiring patients with diabetes.

Comprehensive and awareness regarding diabetes mellitus is a necessary criterion for individuals and communities to take action for control of the disease condition. The major pharmacological intervention for

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diabetes included the administration of oral hypoglycemic agents and injectable insulin therapy. Insulin therapy requires crucial coordination and understanding of both the individual with diabetes and those responsible for diabetic care. Insulin therapy should be individualized to confirm to the patient's lifestyle and body metabolism. Along with therapy, changes and modifications need to be implemented. Information and education regarding diabetes mellitus and its treatment provides improvement in knowledge, attitude and skill which consequently leads to better control of the disease. The objectives of this study were to assess the Knowledge and Practice Regarding Self-administration of insulin among the diabetic patient admitted in a Medical ward , to find out the association between knowledge and Practice with their selected socio-demographic variables and to find out association between knowledge and practice regarding self-administration of insulin.

## Methodology

The research design chosen for this study was non-experimental descriptive design. The settings of the study were Medical ward of Sri Ramachandra Hospital, Chennai. Population of the study included is patients with Type -2 Diabetes Mellitus on self administration of insulin. The samples selected for the study were both male and female patients admitted in the medical ward. The sample size was 40 and the sampling technique used was convenience sampling technique. Inclusion criteria included patients with Type -2 Diabetes Mellitus on self administration of insulin , patients who belongs to the age of 18 to 60 years, who could understand Tamil or English and willing to participate. Exclusion criteria were those who were developed complications for insulin, not willing to participate, or suffering from any chronic illness or disability.

Description of tool SECTION A: Demographic variables of the patients with Type -2 Diabetes Mellitus on self administration of insulin consist of age, education, locality, occupation, income, marital status, type of family, number of children, family history of diabetes mellitus, duration of diabetes mellitus ,duration of treatment and duration of insulin etc. SECTION B: Semi structured questionnaire prepared by the investigator consisting 10 practices questionnaire regarding self-administration if insulin and **questions** on knowledge consisting15 questions regarding self-administration of insulin. The tool was validated by the experts of Department of Medical surgical Nursing. The tool has got the following categories the questions related to the 8 questionnaire consists of Knowledge regarding Storage of Insulin, 4 questionnaire consists of Techniques of Insulin Administration and 3 questionnaire consists of Complication of Insulin Therapy and 10 questionnaire consists of Practice Regarding Self Administration of Insulin. Each knowledge and practice statement has got score for the right answer has 1 and 0 for wrong answer. The scoring has been interpreted as the score of 75 % as adequate knowledge and good practice. Data collection procedure the study was conducted for a period of 4 weeks. Permission to conduct the study was obtained through proper channel.

Patients with diabetes mellitus who met the inclusion criteria and those with the history of diabetes mellitus for more than 6months were selected for this study. Using the tool, the data were collected from the patient to find out their knowledge and practice regarding Type -2 Diabetes Mellitus on self administration of insulin. The data were collected through structured interview method and data was analyzed with descriptive and inferential statistics.

## Results

The major findings of the study are depicted below in tables and graphs.

**Table 1: Frequency and percentage distribution of the demographic variables among patients with. Type -2 Diabetes Mellitus on self administration of insulin (n=40).**

| S. No | Demographic variables | Frequency | Percentage (%) |
|---|---|---|---|
| 1. | Age in years | | |
| | 18-30 | 3 | 8 |
| | 31-45 | 7 | 17 |
| | 46-60 | 12 | 30 |
| | >60 | 18 | 45 |
| 2. | Sex | | |
| | Male | 12 | 30 |
| | Female | 28 | 70 |
| 3. | Education | | |
| | Illiterate | 5 | 13 |
| | Primary | 7 | 17 |
| | High school | 20 | 50 |
| | Graduate | 8 | 20 |
| 4. | Occupation | | |
| | Employed | 22 | 55 |
| | Unemployed | 18 | 45 |
| 5. | Monthly income in Rupees | | |
| | <5,000 | 7 | 18 |
| | 5,001 to 10,000 | 12 | 30 |
| | 10,001 to 15,000 | 13 | 32 |
| | >15,001 | 8 | 20 |
| 6. | Type of Family | | |
| | Nuclear | 33 | 83 |
| | Joint | 7 | 17 |
| 7. | Place of living | | |
| | Rural | 18 | 45 |
| | Urban | 12 | 30 |
| | Semi-urban | 10 | 25 |
| 8. | History of co morbid illness | | |
| | Hypertension | 18 | 45 |
| | Hypothyroidism | 12 | 30 |
| | Bronchial asthma | 5 | 12 |
| | Hyperlipidemia | 5 | 13 |
| 9 | Family history of DM | | |
| | Yes | 33 | 83 |
| | No | 7 | 17 |
| 10 | Information about DM | | |
| | Mass media | 22 | 55 |
| | Health personnel | 11 | 28 |
| | Relatives and friends | 7 | 17 |

Table- 1: depicts the frequency and percentage distribution of the demographic variables of patients with Type

-2 Diabetes Mellitus on self- administration of insulin. Among which 18(45 %) of them belongs to the age group >60years and 28 (70 %) of them are female patients, and majority of 20 (40 %) had high school Education, 13 (32 %) are skilled labors with the income of Rs. 10,001 to 15,000 and 18 (45 %) are living in the rural area, 18 (45 %) has history of hypertension ,majority of them 33 (83 %) had family history of first degree relative with diabetes mellitus , 22 ( 55 %) has received information about diabetes mellitus through mass media.

**Table 2: Frequency and percentage distribution of the clinical variables among patients with.Type -2 Diabetes Mellitus on self administration of insulin.**

| S. No | Clinical variables | Frequency | Percentage |
|---|---|---|---|
| 11 | Duration of Diabetes Mellitus<br>< 6months<br>6-12 months<br>13-18 months<br>>18 months | <br>22<br>6<br>5<br>7 | <br>55<br>15<br>12<br>18 |
| 12. | Duration of insulin therapy<br>< 6months<br>6-12 months<br>13-18 months<br>>18 months | <br>22<br>6<br>5<br>7 | <br>55<br>15<br>12<br>18 |

Table 2:depicts the Frequency and percentage distribution of the clinical variables among patients with. Type -2 Diabetes Mellitus on self administration of insulin. Among 22 (55%) of them were Duration of Diabetes Mellitus and insulin therapy for less than 6months

**Table 3: Frequency and percentage distribution of the level of knowledge among patients withType -2 Diabetes Mellitus on self administration of insulin.**

| S.No | Level of knowledge | Frequency | Percentage |
|---|---|---|---|
| 1 | Inadequate Knowledge | 32 | 80 |
| 2 | Moderately Adequate Knowledge | 04 | 10 |
| 3 | Adequate Knowledge | 04 | 10 |

Table 3: depicts that 32 (80 %) had inadequate knowledge and 4 (10 %) had moderately adequate and 4 (10%) only had adequate level of knowledge regarding self administration of insulin.

**Table 4: Frequency and percentage distribution of the level of practice among patients with diabetes mellitus regarding self administration of insulin**

| S. No | Level of practice | Frequency | Percentage |
|---|---|---|---|
| 1 | Poor practice (1-3) | 34 | 85 |
| 2 | Average practice (5-7) | 4 | 10 |
| 3 | Good practice (8-10) | 2 | 5 |

Table 4:depicts that 34 (85 %) of them had poor levels of practice; 4(10 %) and 2(5 %) had adequate and good levels of practice regarding patients with diabetes mellitus regarding self administration of insulin.

**Table 5: Mean and standard deviation on the Level of knowledge and practice among patients with. Type -2 Diabetes Mellitus on self administration of insulin. (N= 40)**

| S.No | Variables | Mean | Standard deviation |
|---|---|---|---|
| 1 | Level of knowledge regarding self administration of insulin. | 8.9 | 2.983 |
| 2 | Level of practice regarding self administration of insulin | 3.75 | 1.936 |

Table 5: depicts **t**he mean and standard deviation of the knowledge variable is 8.9and2.98; practice is 3.75and 1.936 respectively.

## Discussion

The descriptive statistics reveals that 32 (80 %) had inadequate knowledge and 4 (10 %) had moderately adequate and 4 (10 %) only had adequate level of knowledge regarding patients with diabetes mellitus regarding self administration of insulin. Similarly, 34 (85 %) of them had poor levels of practice; 4(10 %) and 2(5 %) had average and good levels of practice regarding patients with diabetes mellitus regarding self administration of insulin. The result suggest that the three topics on which the patient felt less informed were diet management ,exercise into daily life and periodic checkups of the blood sugar. Hence the nurse based education programme is crucial to improve their well-being. There is an significant association between the age, residence, sex, occupation and co-morbid illness with the level of knowledge and practice of patients with diabetes mellitus regarding self administration of insulin

## Conclusion

The patients with diabetes mellitus on insulin therapy will have impairment in their physical, psychological and social dimensions. The findings of the present study suggest that even though the attending physician provides education to them during the consultation that is not enough for them to alleviate their myths. Hence separate education programme on the disease process is essential in order to avoid complications and improve the quality of life among type 2 diabetes patients. The findings of the present study suggest that the nurse led education programme is essential key in the diabetes management plan and to improve their quality of life.

**Ethical Clearance**- Not appeared

**Source of Funding**- Self

**Conflict of Interest** – Nil.

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