

To evaluate the effectiveness of a structured educational program on knowledge about hypoglycemia and its management among diabetes patients living in selected urban slums of Durgapur, West Bengal

Arul Mathi A.^{1,*}

ABSTRACT

INTRODUCTION: Diabetes Mellitus (DM) is a significant global health issue characterized by chronic hypoglycemia and an imbalance in the metabolism of carbohydrates, fats, and proteins. It has multiple underlying causes. Hyperglycemia refers to high blood glucose levels, while low blood glucose levels are known as hypoglycemia. Raising awareness about the signs and symptoms of diabetes among individuals with the condition can potentially minimize complications. **OBJECTIVES:** 1. To evaluate the initial knowledge level of diabetic patients about hypoglycemia and its management, both before and after conducting the pre-test and post-test. (2) To assess the impact of the organised training programme on diabetic patients' understanding of hypoglycemia and how to treat it. (3) To establish a relationship between the selected demographic characteristics of the participants and their initial level of knowledge as measured by the pre-test. **RESEARCH METHODOLOGY:** The study employed a descriptive research design and utilized a non-probability convenient sampling technique to select a sample of 60 participants. **MAJOR FINDINGS OF THE STUDY:** Out of 60 samples, majority of samples 35(58.3%) were female & only 25(41.7%) of samples were male. Most of the samples 25(41.7%) belongs age group between 46 to 60 years. About 37(61.7%) of people having history of diabetes in family. About 22(36.7%) of people are using herbal medications & about 38(63.3%) of people are not using any kind of medications. About 32(53.3%) of people are having no any history of diabetes. **CONCLUSION:** According to the study's findings, diabetic patients had somewhat acceptable knowledge of hypoglycemia. So, diabetes patients need to be aware of how to control hypoglycemia by receiving health education that will help them learn how to do so and prevent further problems.

INTRODUCTION

“Wounds that don’t heal, Nerves that don’t feel, No food I can eat at ease, what a disease I have - Diabetes.”

Health is a crucial condition that results from the body's ongoing collaboration and transformation in response to stress and environmental changes to maintain an inner homeostasis. First and foremost, choosing to be healthy means taking ownership of our lives. Taking a conscious decision to embrace a healthy lifestyle is the initial stride. Wellness is a state of mind, a propensity to adopt a number of crucial principles in numerous facets of life that result in high levels of wellbeing and life pleasure. To prevent organ and brain damage, hypoglycemia must be promptly diagnosed and treated as a serious medical emergency. The range of symptoms varied depending on the length and severity of the hypoglycemia and included autonomic activation, behavioural changes, decreased cognitive function, seizures, and coma.

*Author for Correspondence

Arul Mathi A.

E-mail: mathisam12@gmail.com

¹Associate Professor, Department of Obstetrics and Gynaecological Nursing, IQ City Institute of Nursing Sciences, Durgapur, West Bengal, India

Received Date: February 27, 2023

Accepted Date: June 1, 2023

Published Date: June 6, 2023

Citation: Arul Mathi A. To evaluate the effectiveness of a structured educational program on knowledge about hypoglycemia and its management among diabetes patients living in selected urban slums of Durgapur, West Bengal. International Journal of Community Health Nursing and Practices. 2023; 1(2): 30–64p.

Trauma, cardiovascular events, mortality, and brain impairment are some of the short- and long-term effects. Untreated severe hypoglycemia can be very costly both personally and financially. Diabetic ketoacidosis (DKA) is a life threatening condition with characteristics insulin deficiency and increased hormones of cortisol, glucagon, catecholamine, and growth hormones. The insulin deficiency and increased hormones lead to dehydration, electrolyte imbalance, hyperglycemia and ketosis. Those with severe DKA are more likely to die and experience negative consequences. This paper will summarize and evaluate two articles that discuss diabetic ketoacidosis (DKA) treatment protocol and the management of DKA. India presently leads the globe in the number of diabetic patients with over 32 million, and by the year 2030, this number is projected to rise to 79.4 million, according to a World Health Organization (WHO, Jan 2016) [2] estimate. According to recent assessments, diabetes currently affects an astounding 10-16% of India's urban population and (5-8%) of its rural population. Limited data is accessible regarding the awareness and prevalence of diabetes in economically disadvantaged countries such as India. Such data is important to plan the public health program. Among diabetic people in Saudi Arabia, Ahmed Maashi Alanazi (2018) [3] conducted a study on awareness of the risk factors for DKA. This is an exploratory cross-sectional study conducted among 100 diabetic patient aged from 16 to above 35 year in Riyadh city, kingdom of Saudi Arabia. This study utilized a combination of quantitative and qualitative research methods. The questionnaire was broken up into two components; the first section dealt with participant information, while the second section evaluated personal knowledge of DKA. Data analysis was performed using Microsoft Excel 2016 and the statistical software package for social science version 23. A total of 100 Saudi Arabia diabetic adult were enrolled in the current study, 81% of which were female while 19% were male. Age group ranged from 16 more than 35 years old. Educational stage was also diverse from high school student to graduates. 56% of participants had Type 1 DM while 44% had DM type 2. Their findings demonstrated the urgent need to close the knowledge gap on DKA among Saudi individuals who had both types. In order to create an educational pamphlet, Pramela (2016) conducted research to determine how well-informed diabetic patients at PSG hospitals in Coimbatore are about managing hypoglycemia. The study utilized a descriptive survey design and included a sample of 60 participants selected through purposive sampling technique. Of of 60 samples, 32 (53.4%) were overwhelmingly male, while just 28 (46.6%) were female. Among the participants, the largest proportion, 23 individuals (38.33%), fell into the 31-40 age group. A majority of the participants, 40 individuals (66.66%), were using hypoglycemic agents. Additionally, 33 individuals (55%) reported taking medication once a day. Out of the sample, 18 individuals (30%) had a history of experiencing hypoglycemic symptoms, while 7 individuals (11.66%) were uncertain about the symptoms. Only 24 individuals (40%) demonstrated awareness of self-management strategies for hypoglycemia. The study findings reveal that 13 individuals (21.6%) had adequate knowledge, 39 individuals (65%) had moderately adequate knowledge, and 8 individuals (13.3%) had inadequate knowledge regarding the management of hypoglycemia among diabetes mellitus clients. According to the study's findings, diabetic patients had somewhat acceptable knowledge of hypoglycemia. So, diabetic patients must be knowledgeable about managing hypoglycemia by employing informational booklets that aid in patient understanding of how to manage the condition and prevent it [1-4].

1.1 BACKGROUND OF STUDY:

Diabetes Mellitus (DM) is a significant global health issue. One of the most prevalent metabolic disorders, it can have negative social and economic as well as medical effects. Chronic hypoglycemia with an imbalance in the metabolism of carbohydrates, fats, and proteins as a result of abnormalities in insulin secretion and insulin action are all explained by diabetes mellitus. Long-

term damage, organ failure, and malfunction are all effects of diabetes mellitus. Common symptoms of diabetes mellitus include increased thirst, frequent urination, blurry vision, and weight loss. In more severe cases, individuals may experience ketoacidosis or non-ketotic hyperosmolar conditions, which can lead to symptoms such as confusion, stupor, and coma. The long-term effects of diabetes mellitus include the gradual onset of retinopathy, which may result in blindness, nephropathy, which may result in renal failure, and neuropathy, which increases the risk of foot ulcers, amputation, Charcot joints, and signs of autonomic dysfunction, such as sexual dysfunction. Two aspects of diabetes mellitus are hyperglycemia and hypoglycemia. Hyperglycemia refers to an elevated level of glucose in the blood. Conversely, hypoglycemia is characterized by a blood glucose level that falls below the normal range. Hypoglycemia can be categorized as "mild" when it is self-treated, "moderate" when assistance is required, and "severe" when hospitalization and medical intervention under the supervision of a physician are necessary. Diabetes Mellitus is presently experiencing rapid growth and is becoming one of the most prevalent debilitating diseases worldwide. It is estimated that one out of five people aged 20 to 79 lives with this disease, while a similar percentage of the population is at risk of developing it. It was the 16th leading cause of global mortality in 2014. People of Indian descent are more likely to develop diabetes than other ethnic groups, according to research on geographic impacts. In India, the prevalence of diabetes in adults is expected to triple, increasing from 19.4 million in 2005 to 57.2 million in 2025. Diabetes is rapidly gaining the status of potential epidemic in India around 65 million people are currently being affected by it and by 2050, India's diabetes numbers are expected cross the 100million mark and it is increasing to nearly 2 million in a year [5-7].

According to reports, 382 million people worldwide had diabetes in 2013. To avoid organ and brain damage, hypoglycemia must be diagnosed and treated right away as a serious medical emergency. The symptoms varied from autonomic activation to behavioral changes to impaired cognitive function, and in severe cases, they could lead to seizures or coma, depending on the duration and severity of the hypoglycemia. Trauma, cardiovascular events, mortality, and brain impairment are some of the immediate and long-term effects. Untreated severe hypoglycemia can cause major self-burden and providence.

A person with diabetes mellitus has a high serum glucose level for one of two reasons: either the pancreas does not release enough insulin, or the body's cells do not respond to the insulin that is produced. The traditional symptoms of polyuria, polydipsia, and polyphagia are exacerbated by high blood sugar. The WHO predicts that by 2025, there would be 101 million adult diabetics in India, up from the current 61,3 million. India has emerged as the global hub of diabetes, with the prevalence of diabetes mellitus increasing at a worrisome pace worldwide. Nowadays, diabetes is more commonly diagnosed in children than it was thirty years ago, and it is no longer a condition primarily affecting the elderly. Although it cannot be cured, diabetes can be controlled. Clients with diabetes must follow a rigorous regimen of personal care, which includes taking medication, maintaining a healthy diet, exercising, and recognising the symptoms of glycosuria and hypoglycemia. Every patient with diabetes should have regular monitoring, meticulous evaluation of hypoglycemia, correction of hypoglycemia, and educational instruction on disease management. In diabetic patients, hypoglycemic episodes are common, especially at night. A continuous glucose monitoring device can offer crucial insight into 24-hour glycemic management and result in a successful course of treatment for diabetic patients [8-12].

Diabetes is managed with insulin, a balanced diet, and exercise to keep blood sugar levels under control and prevent the occurrence of its effects. Education regarding the comprehensive treatment plan, including blood glucose monitoring and insulin replacement, is crucial for properly managing diabetes. Diet, exercise, and problem solving strategies must be delivered to the patient. Education is crucial for patients to enhance their ability to manage their own health and prevent complications, both at the time of diagnosis and throughout their lifespan.

Diabetes self-management education is recommended at diagnosis and throughout self-management because it is considered an essential part of care. When diabetes is first detected, education helps people start practising good self-care. It also helps them keep up with their diabetes. The aim of educational intervention is to manage hypoglycemia and hypoglycemia, maintain normal blood glucose level reduce the complications, gain skill in self-management improve quality of life (Robert complications, gain skill in self-management improve quality of life[13-18]).

1.2 NEED FOR THE STUDY:

The World Health Organization (WHO, Jan 2016) research states that India currently leads the globe in the number of diabetic patients with over 32 million, and by the year 2030, that number is projected to rise to 79.4 million. According to recent assessments, diabetes currently affects an astounding 10-16% of India's urban population and (5-8%) of its rural population. Very little information is available on diabetes awareness and prevalence in poor nations like India. Such data is important to plan the public health program.

A global issue is the rise in cases of diabetes. The World Health Organization estimates that more than 180 million people have diabetes across the world and this figure is likely to double by 2030. A prevalent rate of 1.67 was seen in 1971. This level increased to 5.49 in 1978. Ten years later in 1988 the rate increased by 1.56 giving a value of 8.6. A further increase to 13.8 was observed in 1998 and currently the 2008 statistics indicates the prevalence rate of 18.03. This rate is 3.3 times the rate 30 years ago.

Low blood sugar is the literal translation of the term hypoglycemia. Hypoglycemia occurs when the levels of blood sugar (or blood glucose) drop below the necessary threshold to adequately support the body's energy and stability across its various systems.

Apart from directly leading to death, one of the indirect hazards of hypoglycemia is that it may endanger the life of a diabetic and other people, during activities like driving. Swimming and walking. Hypoglycemia can also lead to (e.g. dizziness, palpitation. Sweating, nausea and vomiting. Lack of concentration, visual impairment, abdominal discomfort, tremor, intense, hunger, speech disabilities) and hence proper management should be given at proper time. For this reason clients knowledge and perception of hypoglycemia symptoms needs to be assessed.

Diabetes has emerged as one of the world's biggest health problems and its prevalence is increasing at an alarming rate. Individuals with diabetes who want to push the boundaries of their lives will need to learn a lot about their condition. To give the patient the self-management skills required to achieve effective glycemic control, comprehensive patient education is required. Epidemiologic research suggested that many patients would not receive the adequate care or education required to build these management skills [19-23].

Diabetes is challenging. Diabetes places lifetime obligations on those who have diabetes and their families, who must make many decisions about managing their condition. People with diabetes must monitor their blood sugar levels, take their medications, engage in regular exercise, and change their eating habits. Furthermore they may have to face issues related to living with complications of diabetes and may need to make considerable psychological adjustments. The need to develop teaching or health education practice activities for diabetic clients and their families associated with the prevention of complications through self-management of the disease, which permits patient to live with it better. In addition to other potential negative effects, hypoglycemia may increase

vascular events, including death. Based on the patient's features, glycemic control ought to be customised with some level of safety. To maintain adequate glycemic control, lower the risk of hypoglycemia, and prevent long-term problems, it's crucial to identify hypoglycemia risk factors, monitor blood sugar, choose the right regimens, and educate healthcare providers and individuals with diabetes. Muhammad Pajouhi and others (2012). The development of a patient's independence and self-esteem depends on personal care. Yet, managing diabetes on one's own is challenging and necessitates substantial effort, expertise, and understanding. Training in diabetes skills assists in cultivating the necessary competencies and proficiency for effectively caring for one's diabetes. Patients with diabetes should perform a compound set of self-care activities, including administering insulin, monitoring blood glucose, and adhering to a healthy diet. (2011) Stephanie Austin. Exercise must be a part of managing diabetes, and it must be designed in accordance with the patient's interests and skills. Frequent exercise helps the body utilise meals and frequently reduces the need for insulin. It is important to take precautions because exercise might cause hypoglycemia during or right after the activity. 2013; Bernardini et al.

The goal of diabetes education includes encouraging the patient to do exercises and also to acquire knowledge and skill to manage the hypoglycemia and hyperglycemia: The main goal of the National Diabetes Prevention and Control Programme (NDPCP) is to reduce the burden of disease and to increase the awareness and knowledge on diabetes

A prospective cohort trial included 61 individuals with diabetes who actively participated in a Diabetes Day Care programme (DDCP). where diabetic instruction on "survival skills" has been provided. The group noted an improvement in knowledge about diabetes following a thorough education campaign, as well as a proper education and awareness programme. The aforementioned evidence indicates that hypoglycemia is still an attention-related problem in our nation with very little epidemiological information. To increase knowledge and minimize complications, it is essential to examine the self-reported occurrence of hypoglycemia among individuals with type-2 diabetes.

Nurses roles in balancing glycemic control for preventing hypoglycemia is by providing optimum care for diabetes clients, such as recognizing precipitating factors or triggering events, ordering appropriate scheduled insulin or anti-diabetic oral agents, monitoring blood glucose at the bedside, educating patients, family, friends, and staff about symptom recognition and appropriate treatment and providing appropriate nutritional requirements. Nurse researcher observed the diabetes mellitus clients whether they had enough Guidance and education regarding the management of hypoglycemia and able to identify their knowledge on management. The understanding and implementation of self-care by patients are considered essential for achieving desired outcomes in ambulatory care settings.

With this above aspect and background the current study was planned to improve the knowledge and management of hypoglycemia among diabetic patient.

1.3 HYPOTHESIS:

Hypothesis for effectiveness of intervention –

H1-There will be significant increase in post-test knowledge scores than the pre-test knowledge score on hypoglycemia and its management among diabetic patients.

Hypothesis for association with demographic variables –

H2 – A meaningful correlation is expected to exist between the initial level of knowledge regarding hypoglycemia and certain demographic variables among diabetic patients.

1.4 OPERATIONAL DEFINITIONS:

According to Oxford dictionary.

Assess – to judge or decide the amount, value or importance of something.

According to this study...

Assess -It refers to determine the level of knowledge regarding hypoglycemia and it's management amongdiabetic patients.

According to Oxford dictionary:

Effectiveness - The capability of producing a desired result or ability to produce desiredOutput.

According to this study

Effectiveness – It refers to the outcome of structured teaching programme in terms of improvement inknowledge regarding hypoglycemia and it's management among diabetic patients.

According to Oxford dictionary:

Knowledge – facts, information and skills acquired through experience or education, the Theoretical orpractical understanding of a subject.

According to study

Knowledge: The Knowledge refers to correct responses given by diabetic patients regarding hypoglycemia and itsmanagement.

According to Oxford dictionary –

Hypoglycemia – The condition of having to low a level of blood sugar.

According to this study...

Hypoglycemia – It refers to decreased of sugar (glucose) in the blood.

According to Oxford dictionary:

Diabetic – A medical condition in which the body cannot produce enough insulin to control the amount ofsugar in the blood.

According to the study....

Diabetic-A person affected by diabetes.

1.5 DELIMITATION:

- a. The study was delimited to the diabetic patients in the age group of 18-74 years.
- b. The Study was delimited to the persons who are willing to participate.
- c. The study was delimited to the persons who are available during the period of the data collection.
- d. The study was delimited to the persons who can understand.

1.6 CONCEPTUAL FRAMEWORK: Conceptual frame work based on modified Pender's health promotion model is explained in Fig 1.

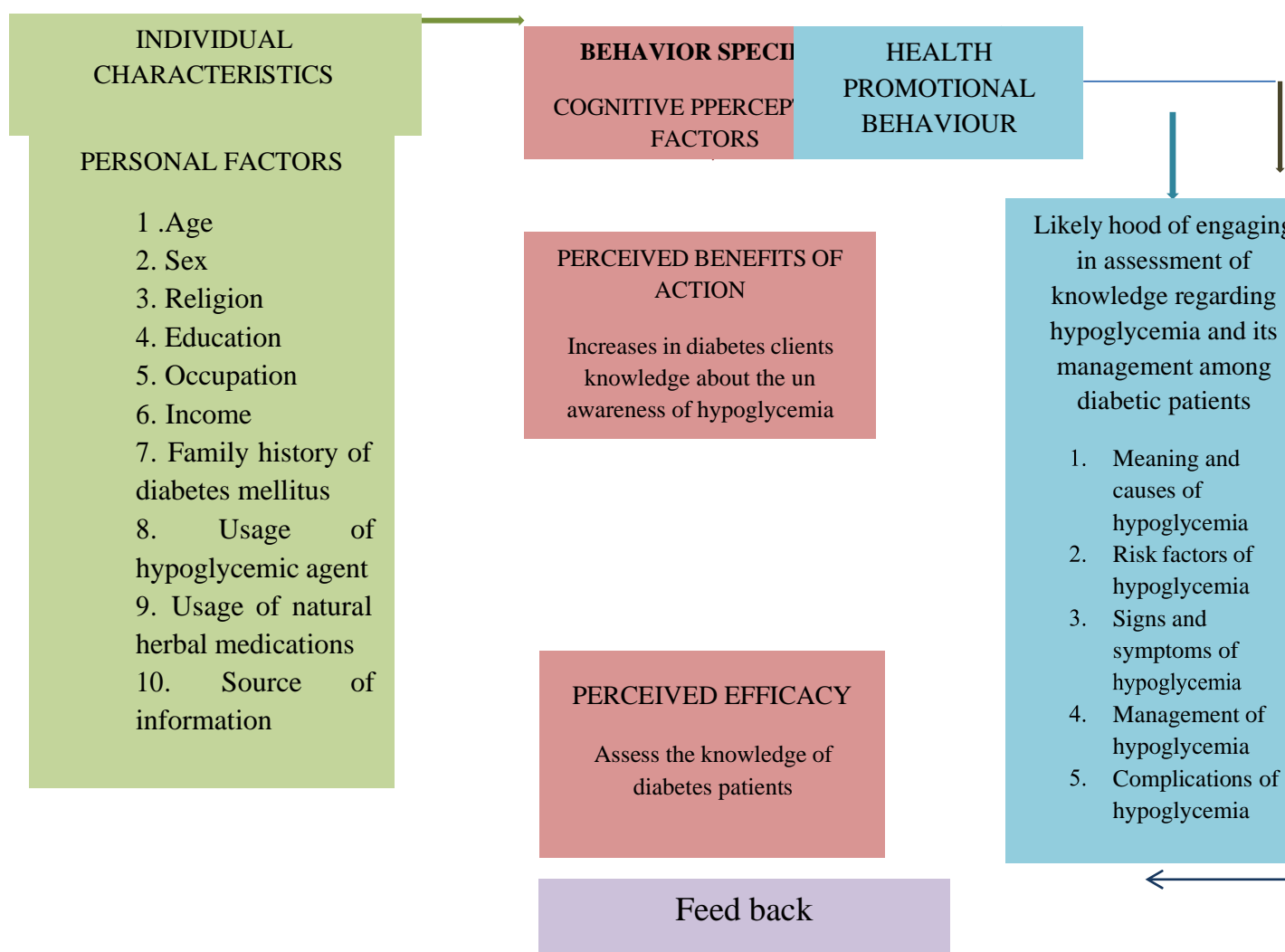


FIG1: Conceptual frame work based on modified Pender's health promotion model
REVIEW OF LITERATURE

2.1 LITERATURE RELATRD TO DIABETES MELLITUS:

A descriptive study was conducted to assess the prevalence rate of type 1 diabetes in Karnal City. Data were collected from type 1 diabetes patients with the age below 18 years old those who are

attending in

the endocrine OPD for three months period of duration from June to August 2014. The incidence rate in urban area is 26.6/100,000 population in the rural area is 4.27/ 1,00,000 population. The prevalence rate of male is 11.56/1,00,000 population and the female is 8.6/1,00,000 population. The researcher determined that there was a considerable incidence of type 1 diabetes mellitus among both male and female individuals residing in urban areas. And the overall prevalence rate was higher in the Karnal City in North India.

In the Karnal District, a descriptive research was carried out to determine the prevalence of diabetes over a three-month period. Of the 121 diabetic patients, there were 70 men and 51 women, and the prevalence rate in the Karnal District is 10.20/1,000,000. According to Sanjay Karla's study in 2010, the findings indicated a higher likelihood of men being diagnosed as patients compared to women, and urban populations had a higher likelihood of being diagnosed compared to rural populations. To look into and track the trend of diabetes incidents around the world, Finland performed a long-term investigation. Patients from 100 centres in 50 countries were examined to estimate the prevalence of diabetes. According to the study, there was a relatively high frequency in Sardinia, Finland, Sweden, Norway, Portugal, the United Kingdom, Canada, and New Zealand. The populations from China and South America had the lowest incidence. The study indicated that diabetes can strike anyone of any age, with a peak incidence between the ages of 45 and 60.

A descriptive survey was conducted in Philadelphia, to estimate the incidence of diabetes from 2000 to 20 in diabetes mellitus outpatient departments. The study found that 935 patients diagnosed diabetes mellitus, the overall incident rate in 2009 to 2012 was 17.0/1,00,000 and incidence in white patients aged 45 to 60 years is 19.2/1,00,000 per year which is higher than black patients. From 2009 to 2012, the incidence rate rose by 29% over the preceding year [24].

2.2 LITERATURE RELATED TO PREVELENCE OF DIABETES MELLITUS:

A descriptive survey to evaluate the effect of structured teaching programme to promote the awareness of diabetes and the programme was conducted for about two weeks aimed at improving overall treatment quality through self-care, diet, exercise and weight reduction. 5-8 groups were participated and each group

contains 10 members. The results strongly suggested that education improve the awareness level among 92% of participants in the group. A study on impaired hypoglycemia awareness and employment in people with Type 1 diabetes mellitus. Adults with Type 1 diabetes who are of working age and were randomly selected completed a questionnaire outlining their diabetes history. This study was first to demonstrate that those with Type 1 diabetes mellitus and insulin associated hypoglycaemia remain as economically active as those with normal awareness of hypoglycaemia, although subjects with insulin associated hypoglycaemia were significantly more likely to feel that having diabetes had adversely affected their capacity for employment. The fourth National Family Health Survey, performed in India between January 2015 and December 2016, was examined in a cross-sectional study. This nationally representative sample comprised 699686 women 15-49 years of age, of whom 32428 (4.6%) were pregnant. Data were analysed between July and December 2019 and between July and August 2020. Of the 31746 pregnant women with complete data in the study, the mean age was 24.3 (4.7) years and the mean

gestational age was 5.1 (2.3) months. The frequency of gestational diabetes varied significantly by state, socioeconomic status, and demographic characteristics in this study. This research has significance for gestational diabetes screening practises in low-resource settings in India, particularly in populations with lower incidence rates in certain locations or demographic groups. A community-based cross-sectional study was conducted in rural Khammam district, Telengana, from January 1 to December 31, 2015, among people aged 30 and over. 910 people who were 30 years of age or older in total were included in the study. About 74 people (8.1%) had type 2 diabetes mellitus. The prevalence of type 2 diabetes mellitus increased with age, with rates of the disease being 16.22% in the 30-40 year age group, 24.32% in the 41-50 year age group, 43.34% in the 51-60 year age group, and 16.2% in the 61-70 year age group. This association between age and type 2 diabetes mellitus prevalence was found to be statistically significant [25-28].

2.3 LITERATURE RELATED TO KNOWLWDGE REGARDING HYPOGLYCEMIA AND ITS MANAGEMENT:

The cross sectional study on the relationship between diabetes knowledge and compliance among women diabetes patients. The data was collected through self structured interviews based on validated scales, assessing diabetes knowledge, and demographic data. 100 samples were selected based on the random sampling technique. The findings indicated that there was no significant association between education level and knowledge. Nearly 70% strategies were bridge the gap between knowledge and practice and increase patient's motivation ability to comply with health regimen.

An evaluation of African-American and Hispanic families with a history of diabetes' knowledge, perceptions, awareness of risk factors, and preventive behaviours through a descriptive study. Interviews were conducted with 50 adolescents. Open ended question was given to assess the knowledge results shows that majority of them were over - weight nearly half of them have adequate knowledge on diabetes. Seventy four percentage of them correctly identified family history as a risk factor 26% of them identified over weight as a cause for diabetes. 160 diabetic patients were the subjects of an interventional study in Riyadh to assess the efficacy of diabetic education. The knowledge questionnaire was administer to all diabetes mellitus patients of the studied group. The majority of diabetes patients' attitudes towards urine glucose screening have increased to 99%, according to the study. Additionally, the majority of patients (96%) have begun to control their food intake, and the majority of patients (99%) have begun to control their intake of sweets. Health education has a significant impact on most patients' daily blood glucose monitoring practises (90%) but less so on daily urine glucose screening practises (44%) as well.

In order to assess the impact of self-management training on glycemic control in 36 diabetic patients aged 40 to 70 who had been diagnosed within a year, a randomised prospective trial was conducted in Washington. Self-monitoring blood glucose techniques, self-injection, learning about dietary changes, and other baseline evaluations, such as HbA1c, were covered throughout the educational session. The study revealed that self-management training frequently exhibits a favourable impact on glycemic control. Young patients with diabetes may avoid the anticipated worsening of metabolic control with a reduction of 0.7% immediately following the intervention and 0.26% reduced after 4 months of self-management training, and they advise conducting education and self-care management training in outpatient follow-up [29].

A longitudinal study was conducted in Brazil, to assess the relationship between physical activity and glycaemic control in diabetes among patient with diabetes mellitus years. The study found that HbA1c is inversely correlated with physical exercise for both sexes, while only male patients had significantly lower dose of insulin. The comprehensive review suggests that exercise and long-term glycaemic management in diabetes have a good relationship.

2.4 LITERATURE RELATED TO EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME REGARDING DIABETES MELLITUS AMONG DIABETES PATIENTS:

In the Dadra Nagar Haveli community health centre, a preliminary experiment was done. At intervals of 15 days, about 100 patients with type 2 diabetes mellitus are coming in for follow-up. Purposive sampling was used to choose samples in January 2018, and the study population included any type 2 diabetes mellitus patients who visited the OPD. Data from study participants were gathered through scheduled structured interviews using structured knowledge questionnaires. Among the patients general knowledge on diabetes is about 40.38% , blood glucose monitoring about 37.5 %.

A descriptive research was done to evaluate the impact of a structured education programme on diabetic patients' understanding of hypoglycemia and how to treat it. The information was gathered from 60 diabetic patients who visited community health centres and clinics for non-communicable diseases and were chosen using the convenience sampling technique. Teaching was carried out for 45 minutes. Method of instructions was lectured cum discussion. Post test was conducted using the same questionnaire on the 7th day of teaching. Among 60 respondents most of the subjects (31.7%) belonged to age group 41-50 years and they were females(34%). About 55% subjects were having family history of diabetes mellitus. Most study participants (83.3%) had a variety of eating habits, and the majority (68%) had no bouts of hypoglycemia. 95% of the individuals had never heard of hypoglycemia before.

A cross-sectional study was conducted at the University of Gondar Referral and Teaching Hospital, involving a total of 422 diabetic patients who were selected systematically. Data was collected using a pre-tested questionnaire that was structured and administered by interviewers. SPSS version 20 was used to analyse the data, and binary logistic regression was used to quantify the associated variables with a 95% confidence interval. From the total of 422 diabetic patients, 61.6% were male, 70.1% of them urban dwellers, 37.9% of them were unable to write and read, and 70.6% of the participants were taking insulin. The majority of respondents had good knowledge of (77.5%) and practice of (93.1%) hypoglycaemia prevention. The practise of preventing hypoglycemia was only highly correlated with those who had a thorough understanding of the topic.

In 2017, 500 people with diabetes who were enrolled in the outpatient programme at the AIIMS in Rishikesh, Uttarakhand, underwent a cross-sectional study. The study included individuals diagnosed with diabetes. Informed consent was obtained from the participants, and their knowledge regarding the symptoms and early treatment of hypoglycemia was collected. The data were analyzed using frequency and percentage. The study included 500 diabetes patients , of which 55.5% were females. The common symptoms were hypoglycaemia known to the study subjects were dizziness (84.4%), weakness(74.1%), and drowsiness(68.1%). Overall, 322 (64.4%) diabetic patient had good knowledge on hypoglycaemia. 49% of patients preferred ingesting sugar or glucose powder with water as an immediate treatment for hypoglycemia. Age, illiteracy, and low socioeconomic level were linked to inadequate knowledge, whereas treatment with insulin and oral hypoglycemic medications was linked to adequate knowledge of hypoglycemia.

A quasi-experimental study was conducted among 100 diabetic client. To choose samples, a practical sampling technique was employed. Demographic information and knowledge questions were collected through structured interviews. A pre-test was completed to gauge the client's understanding of diabetes, and then an educational pamphlet was distributed. The same questionnaire was used to conduct the post-test after seven days. Among 100 samples, 56(56%) samples were male and 44(44%) of the samples were females. The samples 2(2%) belongs to age group between 41-50 years, 24 samples belongs to the age group between 51-60 years. This study clearly interferes there is significantly improvement in the post-test level of knowledge regarding management and awareness of diabetic emergency among diabetic patient.

SUMMARY:

Literature related to awareness of hypoglycaemia, literature regarding knowledge of hypoglycaemia, literature regarding diabetes helped to identify the objectives of the study. The study laid the foundation for the present study. Which briefly describes procedure protocol, selection criteria and method of analysis. The studies which included survey study, comparison study and observational study were reviewed deeply for the present study. These reviews gave an idea on hypoglycaemia. In conclusion, current literatures suggested regarding the knowledge, attitude, risk factors and management of hypoglycaemia.

RESEARCH METHODOLOGY

3.1 INTRODUCTION:

Research methodology is the way of doing the research to solve a problem. The strategies to be employed for data collecting and the statistical method to analyse data are both included in the research methodology. Also, the reasoning behind it.

Research approach, research design, setting of the study, variables under study, population and sample, sampling technique, criteria for sample selection, tool for data collection, pilot study, data collection procedure, and plan for data analysis are all covered in the methodology used for this study [30].

3.2 RESEARCH APPROACH:

In this study, the research adopted the quantitative approach.

3.3 RESEARCH DESIGN:

The researcher adopted pre-experimental (One group pre-test post-test) design in this study. The research design was depicted as follows –

Pre-test	Intervention	Post-test
01	X	02

01 – Pre-test on knowledge regarding Hypoglycemia and it's management among diabetic patients.X – Structured teaching programme regarding Hypoglycemia and it's management.

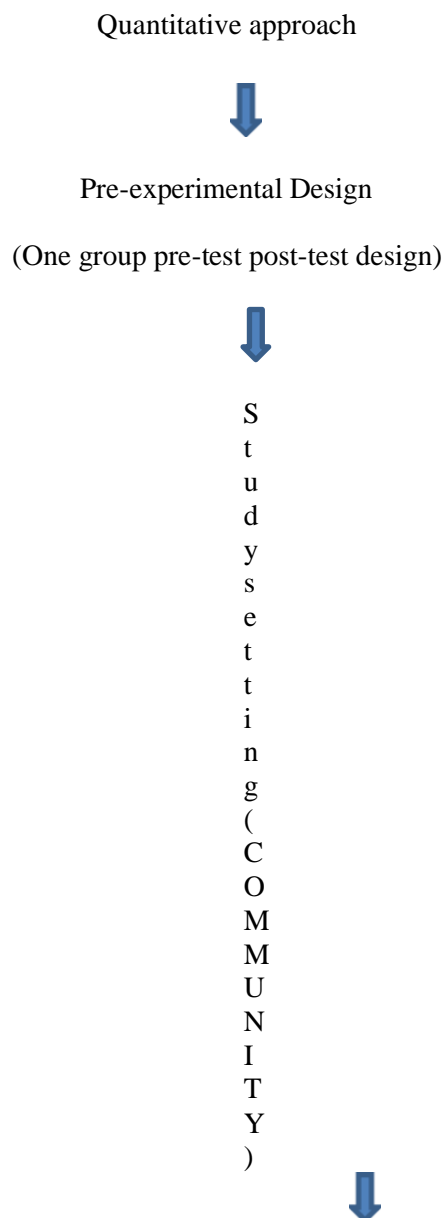
02 – Post-test on knowledge regarding Hypoglycemia and it’s management among diabetic patients.

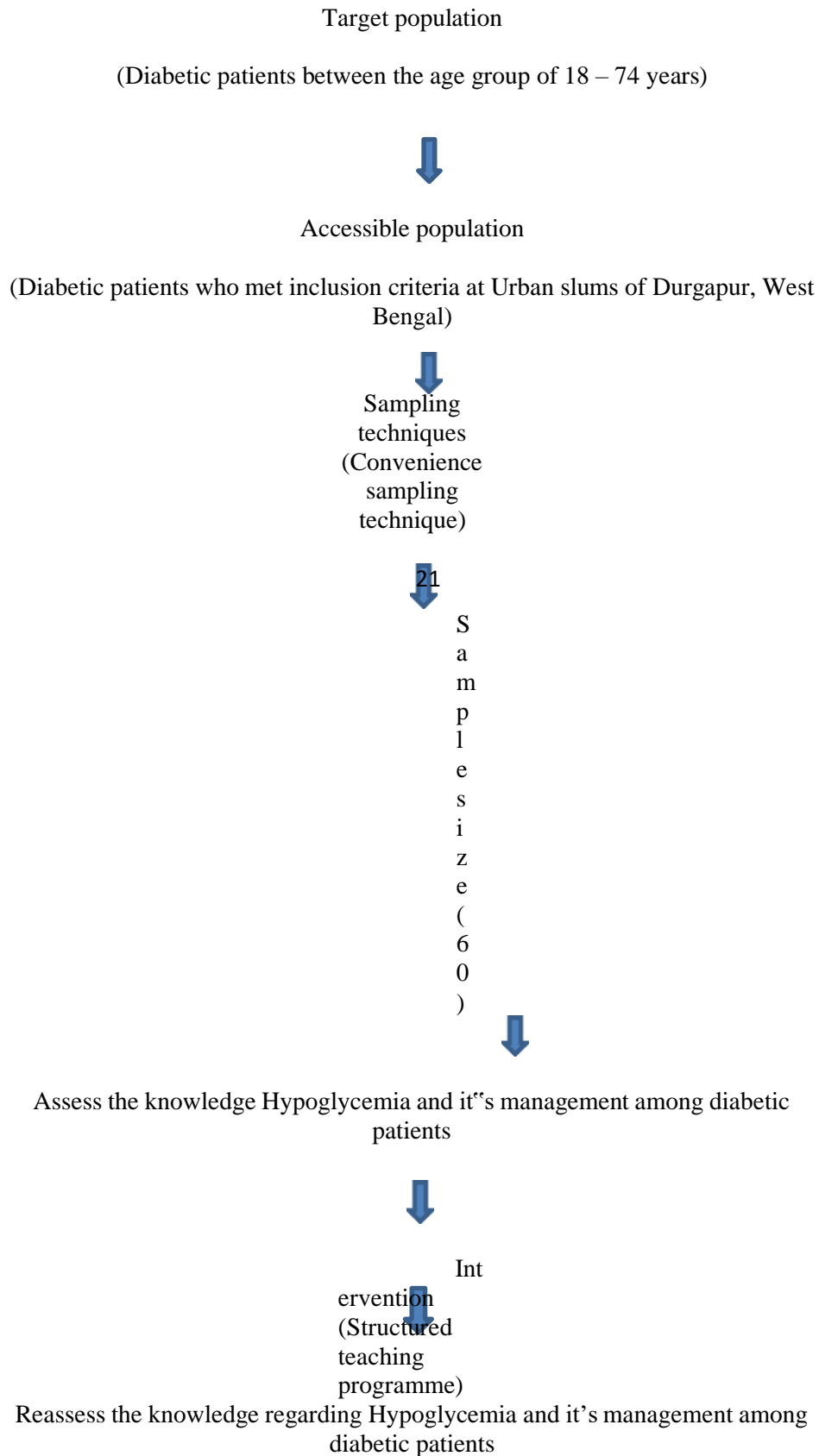
3.4 VARIABLES:

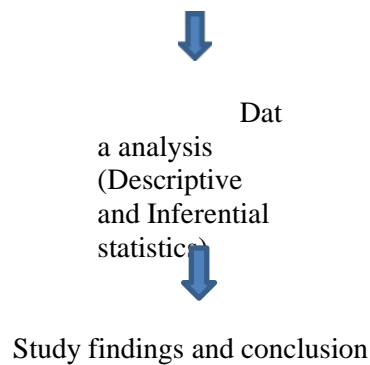
- **Independent Variables** – Structured teaching programme regarding Hypoglycemia and it’s management.
- **Dependent Variables** – Knowledge regarding Hypoglycemia and it’s management among diabetic patients.

3.5 SCHEMATIC REPRESENTATION OF STUDY DESIGN: Study design is explained in Fig2

Fig 2: Flowchart showing Study design representation







3.6 SETTINGS:

The study was conducted in selected Urban slums of Durgapur, West Bengal.

3.7 POPULATION:

Diabetes patients between the ages of 18 and 74 are the target audience, and those who meet the eligibility requirements are the accessible population.

3.8 SAMPLE AND SAMPLING TECHNIQUE:

According to Polit and Hungler (1999), “A sample is a small portion of the population selected participate inresearch study”. For the present study a total of 60 diabetic patients were selected from Urban area at MAMC, Durgapur.

According to Abdellah and Levine (1979), “the choice of sampling techniques depends on the nature of problems, kinds of variables included in the study, type of research and the number of sampling unit”. For this investigation, a non-probability practical sampling technique was used.

3.9 SAMPLE SELECTION CRITERIA:

Inclusion Criteria –

- Diabetic patients between 18-74 years of age.
- Diabetic patients who can understand Bengali.
- Diabetic patients those who are willing to participate.

Exclusion Criteria –

- Diabetes Mellitus patients with any other co-morbid illness.
- Those who are not willing to participate.
- Diabetic patients who can not understand Bengali.

3.10 SAMPLE SIZE:

Study consisted of 60 adults in urban slums of Durgapur, West Bengal.

3.11 TOOL FOR DATA COLLECTION:

Data collection tools are devices that researcher uses to collect the data. A valid and reliable data collecting instrument is considered to yield a high quality data. Tools are selected for the study was structured questionnaire to assess the level of knowledge regarding Hypoglycemia and it's management among diabetic patients residing in selected Urban slums of Durgapur, West Bengal.

Section A –Demographic variables

It consists of personal information such as age, gender, food habits, educational status, occupation, if employed, family income, type of family, family history of diabetes mellitus, episodes of hypoglycemia.

Section B – Questions regarding Hypoglycemia and it's management

Part A- It includes meaning of hypoglycemia, fasting blood sugar level, causes, risk factors, early symptoms, symptoms of night time hypoglycemia, complications of hypoglycemia,.

Part B - It includes treatment of mild to moderate hypoglycemia, treatment for severe hypoglycemia, shortacting form of glucose, self-management for hypoglycemia, time of retest blood sugar level after the treatment of hypoglycemia.

Scoring – A scoring key is prepared. Each correct response carries a score of 1 while every wrong answer has a 0 and the total score is 23 (Table 1).

Table 1: Score Interpretation

Serial No.	Level of knowledge	Score
1.	Poor	0-5
2.	Average	5-10

3.	Good	10-15
4.	Excellent	15-20

3.12 TECHNIQUE OF DATA COLLECTION:

Base line data such as demographic data, medical history, life style factors and dietary factors was collected through questionnaire method.

3.13 DATA COLLECTION PROCEDURE:

Diabetic patients are selected as subject. We introduce ourselves to subject and notifies about the step of the study and takes written consent from the diabetic patients. Data collects from diabetic patients then the diabetic patients are assessed for knowledge regarding hypoglycemia and its management by using structured questionnaire. Following that, descriptive and inferential statistics were used to analyse the data.

3.14 CONTENT VALIDITY:

“How well a test measures what it is intended to measure is known as validity.”

The investigator prepares the items related to the socio-demographic proforma and knowledge questionnaire on importance of hypoglycemia management. Eleven experts were consulted regarding the tool's content validity after receiving the tool's produced blue print and the study's purpose. As per their suggestions, some modifications and rearrangement of items were made and the final tool was developed (Table 2).

- Content validity was done from
- Tool was given to four experts for validation
- Received back tool from four experts

Table 2: Content validity from expert

SL NO.	DEPARTMENT	NO OF EXPERTS
1.	Dept. of Medicine	01
2.	Dept. of Neurology	01
3.	Obstetrics and Gynecological Nursing	01

4.	Community Health Nursing	01
----	--------------------------	----

3.15 PILOT STUDY:

A study is a small preliminary investigation of some general character as the major study . It designs the acquaint the researcher with the problem to correct in preparation study.

Pilot study was conducted in Urban slums of Durgapur, West Bengal to ensure the validity and reliability of the tool and feasibility for giving intervention. A informed consent was obtained from diabetic patients and knowledge of them were assessed by administering 23 structured questions on hypoglycemia

and it's management and scoring has also been given. Following that, descriptive and inferential statistics were used to analyse the data.

3.16 ETHICAL CONSIDERATION:

Permission to conduct the main study in the IQ City Institute of Nursing Sciences was obtained from IQ City Medical College & Hospital, Durgapur. The ethical consideration was obtained and data collection for main study was done.

3.17 RELIABILITY OF THE TOOL:

- 10th September 2022
- Reliability of the knowledge questionnaire was calculated with PEARSON CORELATIONCOEFFICIENT FORMULA.

$$r = \frac{n \sum xy - \sum x \sum y}{\sqrt{(n \sum x^2 - (\sum x)^2) (n \sum y^2 - (\sum y)^2)}}$$

r= 0. 7537, so the tool is reliable for the study

3.18 PILOT STUDY:

- Date: 7th September 2022
- Total 6 sample selected as 6% of total were selected for study
- Time consumed by participant was 40-45 minutes
- The study was found feasible to conduct the main study

3.19 PLAN FOR DATA ANALYSIS:

The data analysis was done by using both descriptive and inferential statistics as follows –

Descriptive Statistics

- Frequency and percentage distribution of the demographic data of the diabetic

- patients to describe the sample characteristics.
- Frequency and percentage distribution of the knowledge score of diabetic patients regarding hypoglycemia and its management.
 - The mean and standard deviation of diabetic patients' knowledge scores about hypoglycemia and its treatment.

Inferential Statistics

- A “t” test was used to see whether a structured education programme had any influence on diabetic patients' awareness of hypoglycemia and how to control it..
- Chi-square test is employed to ascertain the relationship between pre-test knowledge levels and their chosen demographic variables.

3.20 EXPERIENCES DURING DATA COLLECTION:

We had a great experience during the course of data collection. As we were able to relate the theoretical process of data collection with practical field., all of us were so much desirous. All the faculty member and students were so much co-operative and responded in an expected way, which made our study so accurate and affective. Through the field visit we assessed the knowledge regarding hypoglycemia and its management among diabetic patients in selected Urban slums of Durgapur, West Bengal. These provide awareness and develop health behavior among them. We are very much grateful to the community people, respected faculty members and our guide for their co-operation in data collection process.

SUMMARY:

The chapter deals with the methodology for the study. It includes the following: the research methodology, the research design, the variables, the schematic representation of the study design, the setting of the study, the population, the sample and sampling technique, the sample selection criteria, the sample size, the tool for data collection, the technique for data collection, the data collection procedure, the content validity, the pilot study, the ethical consideration, the plan for data analysis, and the experience during data collection.

ANALYSIS AND INTERPRETATION OF DATA

4.1. INTRODUCTION:

The phase of data analysis and interpretation involves computing specific measures and looking for patterns of relationships among data groups. Analysis and interpretation of data compilation, editing, coding, classification and presentation of data.

Data collecting is referred to as raw data. The analysis of data means to make the raw data meaningful after the statistical treatment.

4.2. OBJECTIVES:

All planning and strategy operations are underpinned by objectives, which are fundamental tools. It's a specified outcome that an individual or system strives to accomplish within a time period and with the resources at hand.

The objectives for analysis of data in this study:

- To make the raw data meaningful
- To test the significance of data or related data
- To draw inferences and generalisation
- To estimate parameters

HYPOTHESIS:

Hypothesis for effectiveness of intervention-

H1: There will be significant increase in post test knowledge scores than the pre test knowledge score on hypoglycemia and its management among diabetic patients.

Hypothesis of association with demographic variables -

H2: Pre-test awareness of hypoglycemia will significantly correlate with a number of diabetes patients' demographic factors.

4.3. SECTION A: Frequency and percentage distribution among diabetic patients regarding hypoglycemia and its management with selected demographic variables.

4.5: SECTION B: Analysis of effect of structured teaching programme on knowledge of hypoglycemia and its management.

SECTION A

TABLE 3: SHOWS THE FREQUENCY AND PERCENTAGE DISTRIBUTION OF HYPOGYCEMIC PATIENTS BY THEIR AGE

n = 60

AGE	FREQUENCY	PERCENTAGE
18 – 32	10	16.7%
32 – 46	20	33.3%
46 – 60	25	41.7%

60 – 74	5	8.3%
---------	---	------

Among 60 patients majority of patients lie in the age group of 46 to 60 years i.e, 25(41.7%), 20(33.3%) patients lie in the age group of 32 to 46 years, 10(16.7%) patients lie in the age group of 18 to 32 years, 5(8.3%) patients lie in the age group of 60 to 74 years (Table 3 and Fig 3).

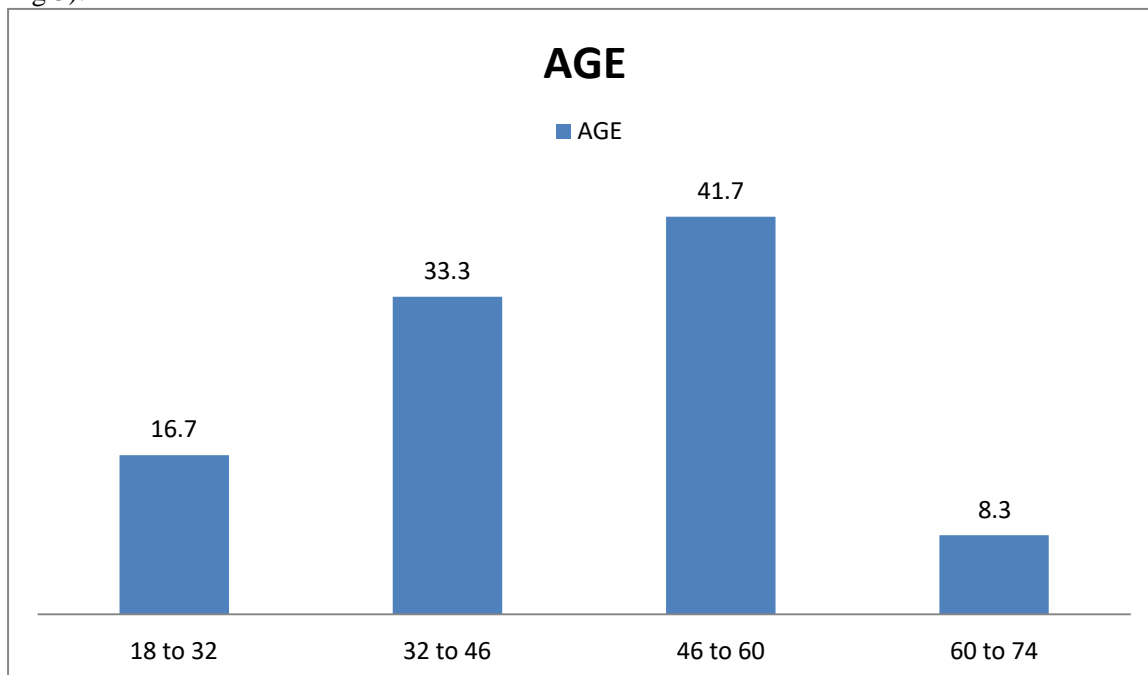


Fig 3: Showing categorization of mothers according to age group

TABLE 4: SHOWS THE FREQUENCY AND PERCENTAGE DISTRIBUTION OF HYPOGYCEMIC PATIENTS BY THEIR GENDER

n = 60

GENDER	FREQUENCY	PERCENTAGE
Female	35	58.3%
Male	25	41.7%

Among 60 patients, 35(58.3%) are females & 25(41.7%) are males (Table 4 and Fig 4).

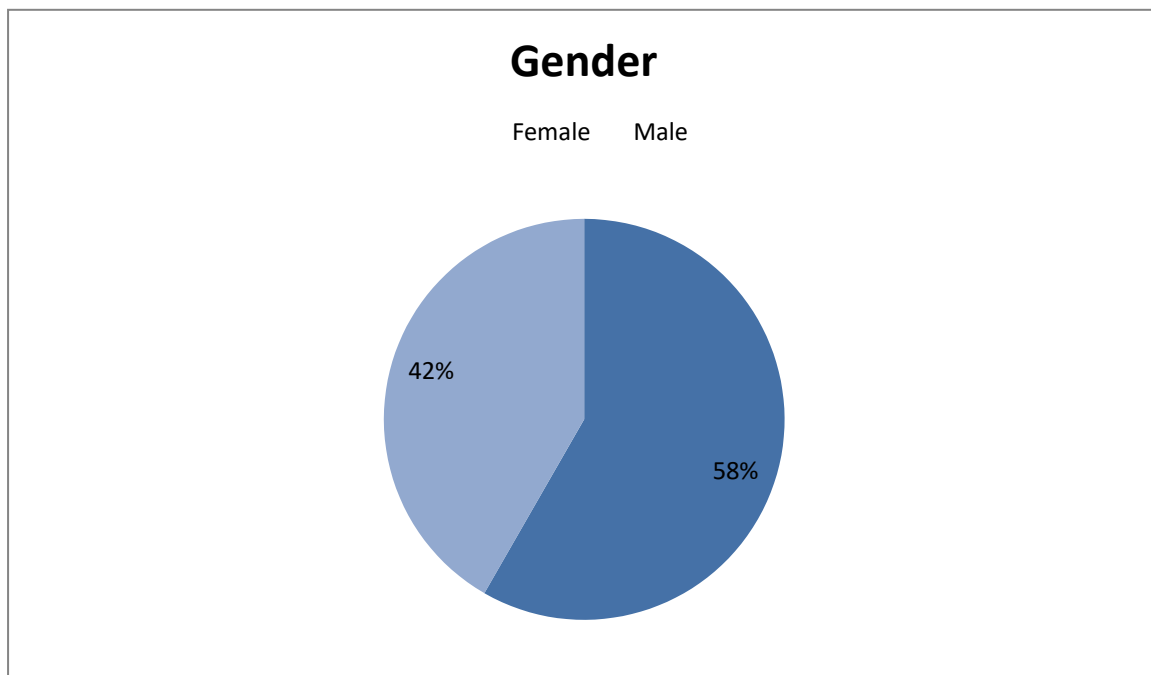


Fig 4: Showing the frequency of gender in the sample

TABLE 5: SHOWS THE FREQUENCY AND PERCENTAGE DISTRIBUTION OF HYPOGYCEMIC PATIENTS BY THEIR EDUCATIONAL STATUS

n = 60

EDUCATIONAL STATUS	FREQUENCY	PERCENTAGE
Primary level	23	38.3%
Secondary level	27	45%
Graduate	6	10%
Post graduate	4	6.7%

Among 60 people, majority of people, i.e., 27(45%) people have learned till secondary level, 23(38.3%) people have learned till primary level, 6(10%) people have learned till graduate level, 4(6.7%) people have learned till post graduate level (Table 5 and Fig 5).

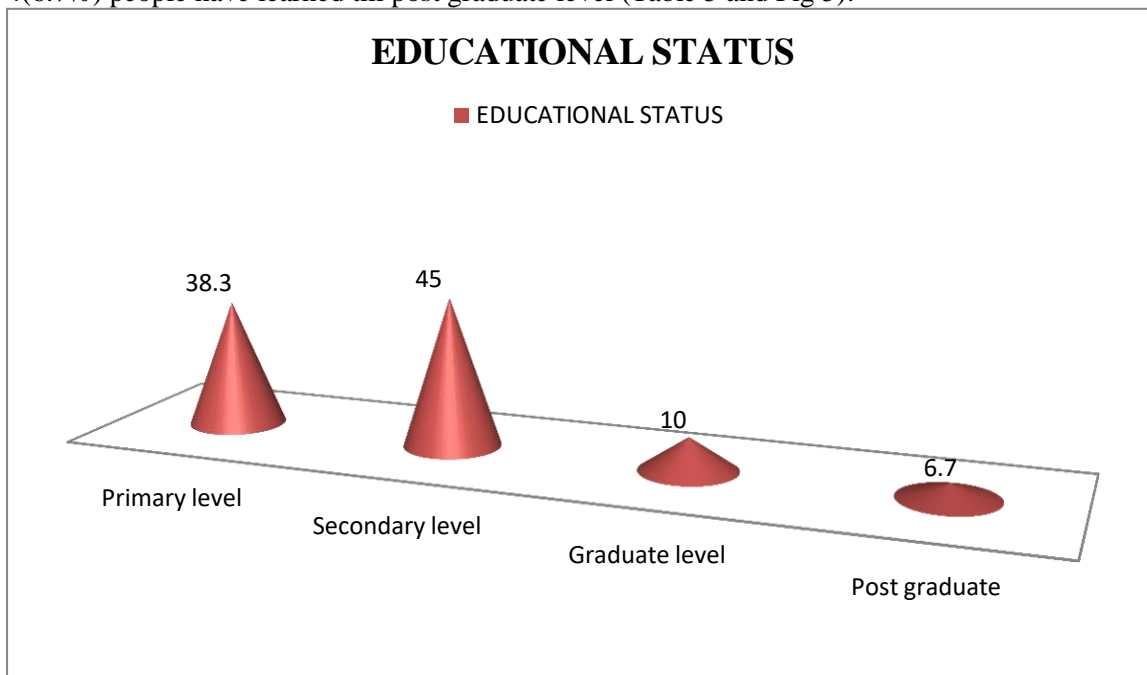


Fig 5: Graph showing educational status of all sample.

TABLE 6: SHOWS THE FREQUENCY AND PERCENTAGE DISTRIBUTION OF HYPOGYCEMIC PATIENTS BY THEIR OCCUPATION

n = 60

OCCUPATION	FREQUENCY	PERCENTAGE
Employed	7	11.7%
Unemployed	5	8.3%
Home maker	35	58.3%
Other	13	21.7%

Among 60 peoples, majority of peoples, i.e., 35(58.3%) are home maker, 13(21.7%) are others, 7(11.7%) are employed and 5(8.3%) are unemployed (Table 6 and Fig 6).

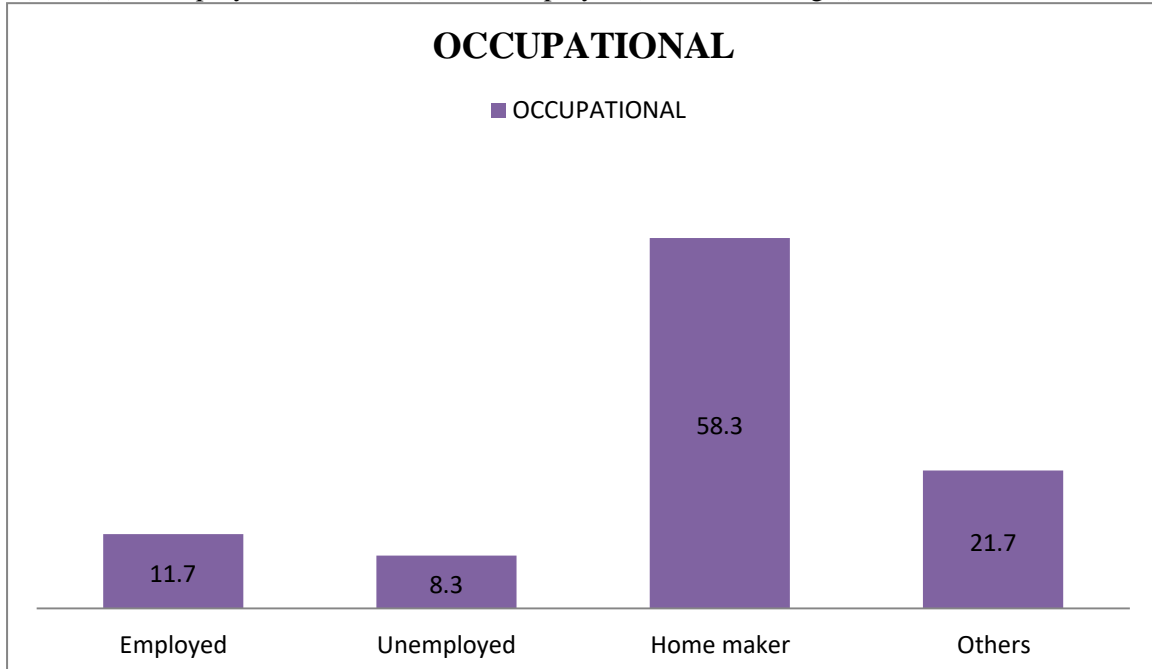


Fig 6: Showing number of people involved in various services.

TABLE 7: SHOWS THE FREQUENCY AND PERCENTAGE DISTRIBUTION OF HYPOGYCEMIC PATIENTS BY THEIR EMPLOYMENT

n = 60

EMPLOYMENT	FREQUENCY	PERCENTAGE
GOVT. Service	7	11.7%
Private service	16	26.6%
Factory worker	13	21.7%
Others	24	40%

Among 60 peoples majority of people, i.e., 24(40%) are employed in other services,

16(26.6%) are employed in private services, 13(21.7%) are employed in factory, 7(11.7%) are employed in GOVT.services (Table 7 and Fig 7).

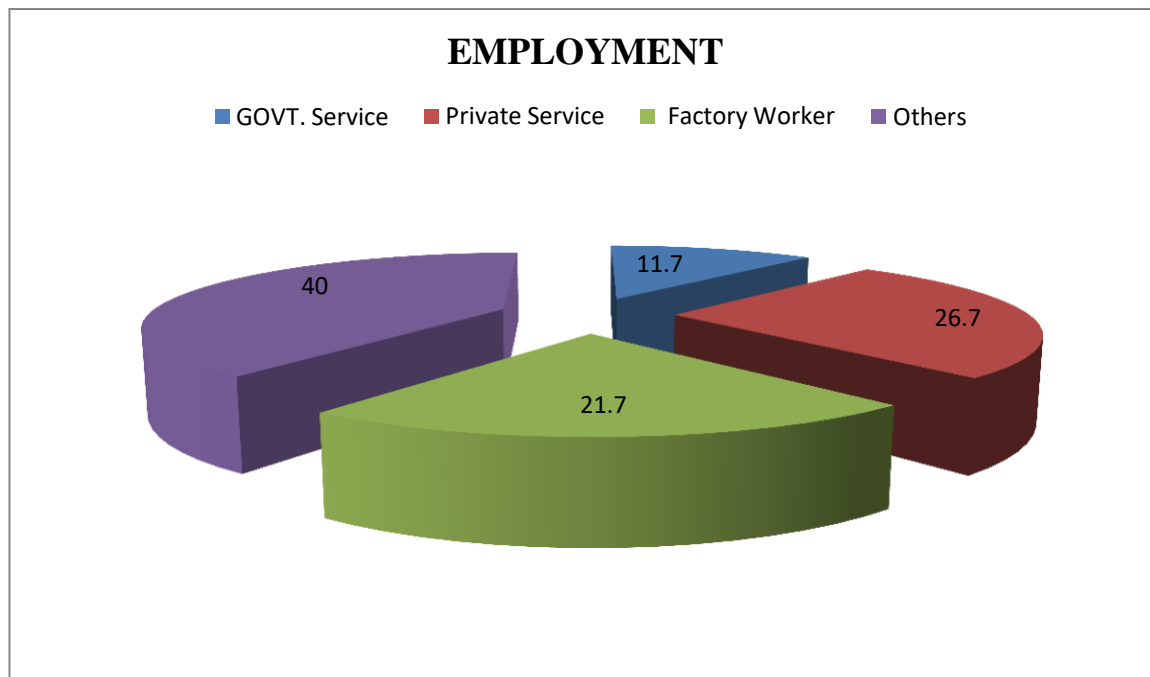


Fig 7: Showing the number of people involved in various employment

TABLE 8: SHOWS THE FREQUENCY AND PERCENTAGE DISTRIBUTION OF HYPOGYCEMIC PATIENTS BY THEIR FAMILY INCOME

n = 60

FAMILY INCOME	FREQUENCY	PERCENTAGE
Below Rs.3000	3	5%
Rs.3001 to 5000	7	11.7%
Rs.5001 to 10,000	17	28.3%
Above Rs.10,000	33	55%

Among 60 Peoples, majority of people, i.e., 33(55%) are earned above Rs.10,000, 17(28.3%) are earnedRs.5001 to 10,000, 7(11.7%) are earned Rs.3001 to 5000, 3(5%) are earned below Rs.3000 (Table 8 and Fig 8).

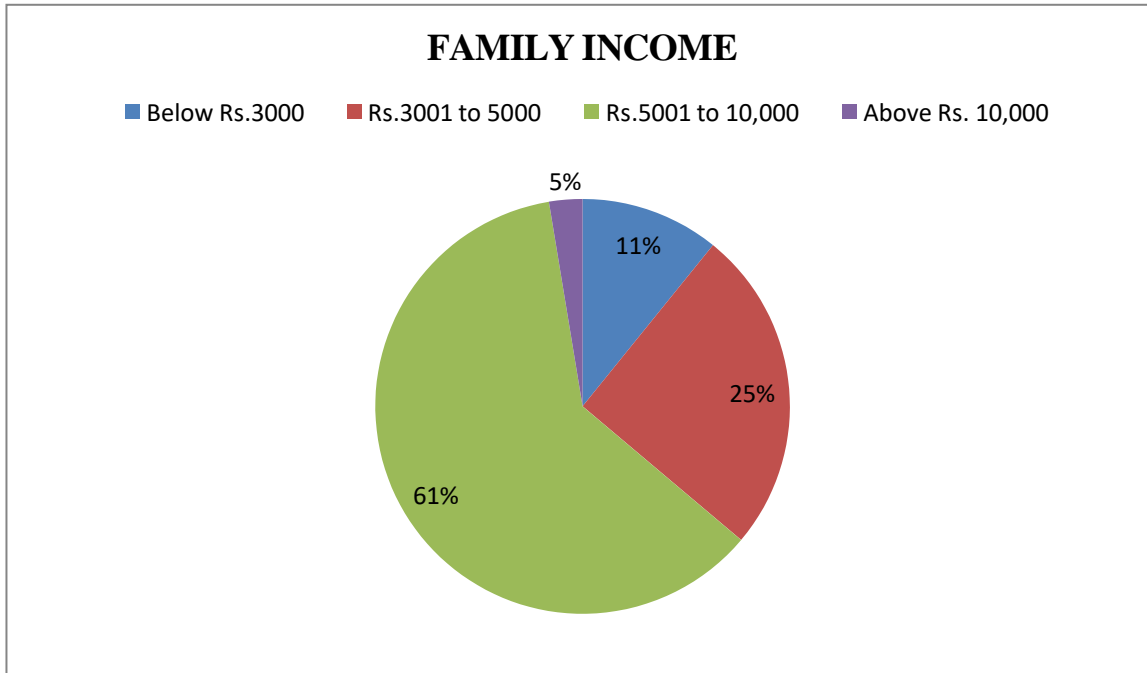


Fig 8: Showing income of various families

TABLE 9: SHOWS THE FREQUENCY AND PERCENTAGE DISTRIBUTION OF HYPOGYCEMIC PATIENTS BY THEIR TYPE OF FAMILY

n = 60

TYPE OF FAMILY	FREQUENCY	PERCENTAGE
Nuclear	25	41.7%
Joint	18	30%
Single parent family	14	23.3%

Extended parent	3	5%
-----------------	---	----

Among 60 peoples, majority of families, i.e., 25(41.7%) are nuclear family, 18(30%) are joint family, 14(23.3%) are single parent family, 3(5%) are extended parent (Table 9 and Fig 9).

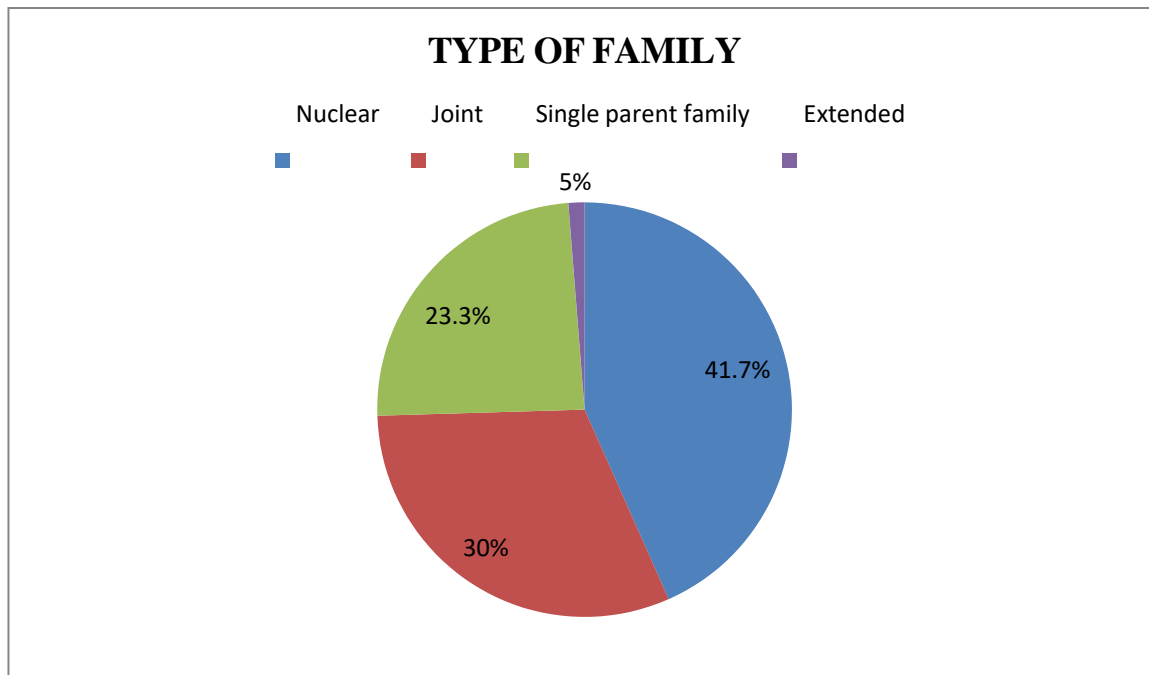


Fig 9: Showing the type of family involve in the sample

FIG 10: HISTORY OF DIABETES IN FAMILY MEMBER

n = 60



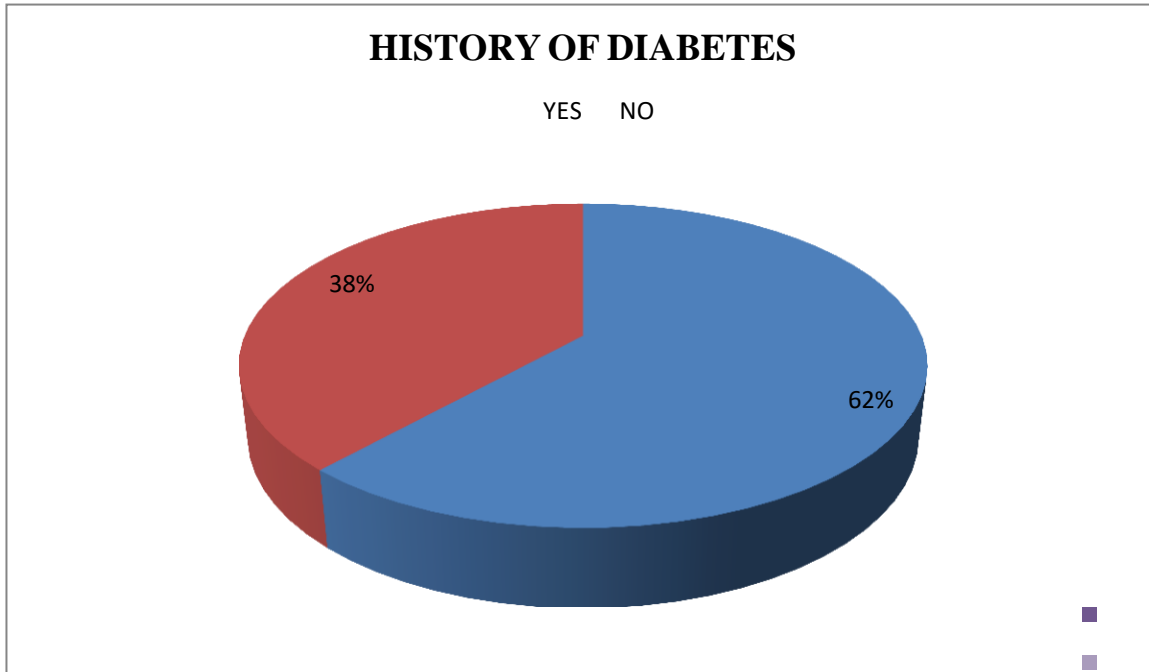


FIG 11: HISTORY OF TAKING NATURAL HERBAL MEDICATIONS

n = 60

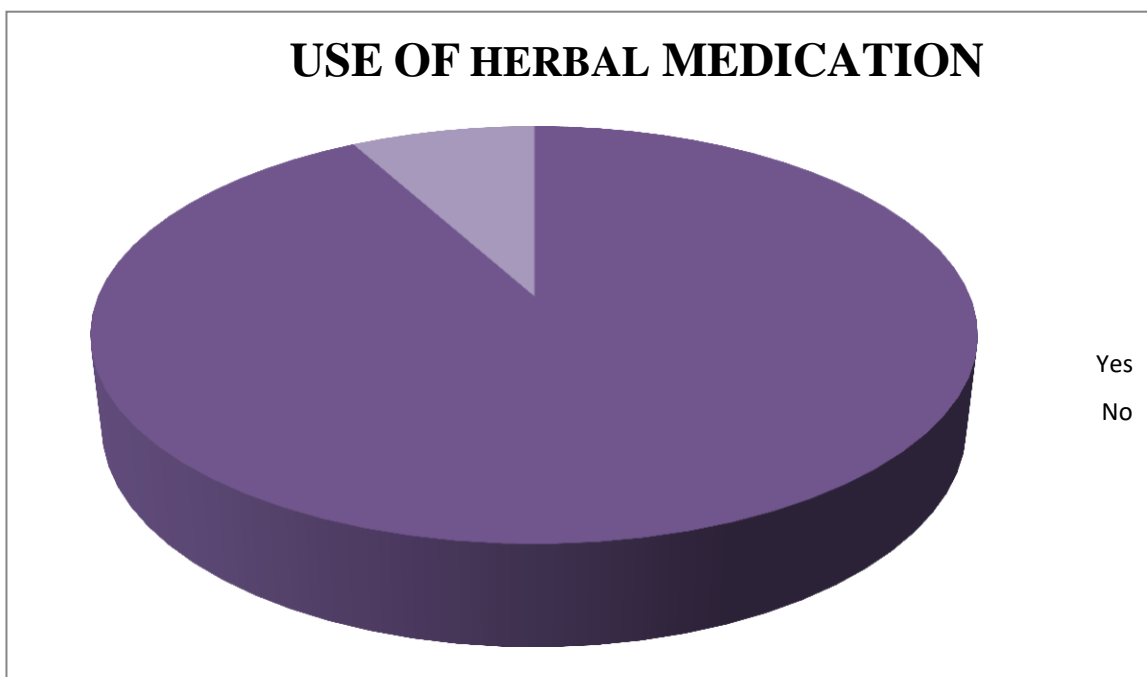
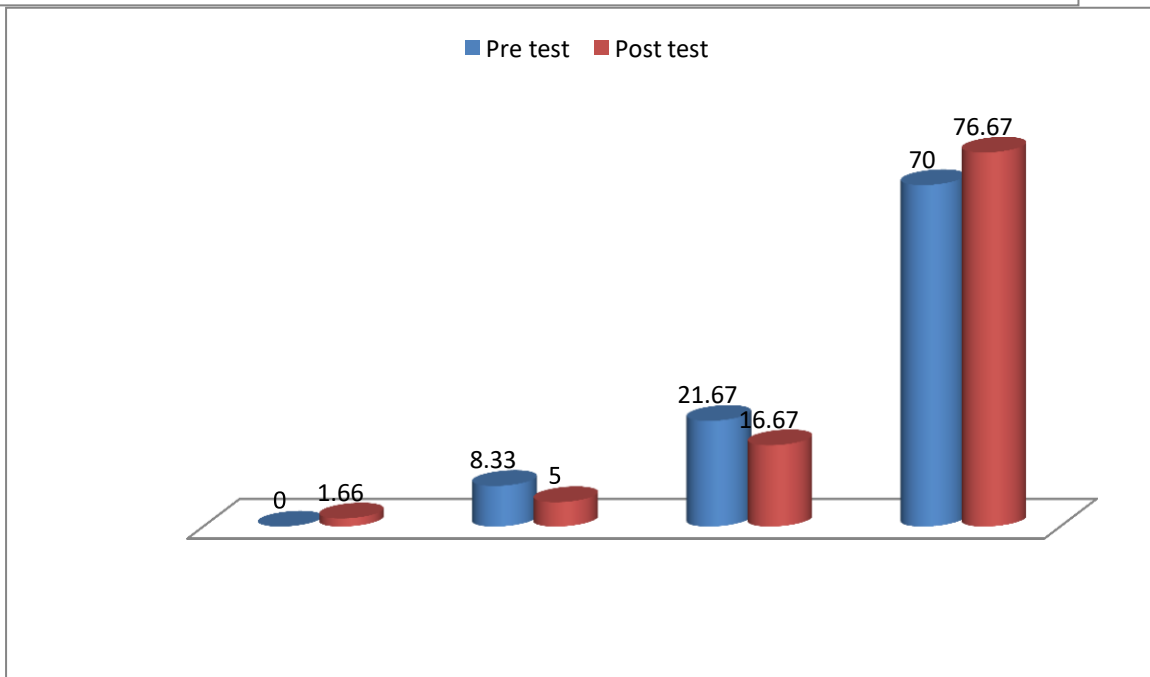
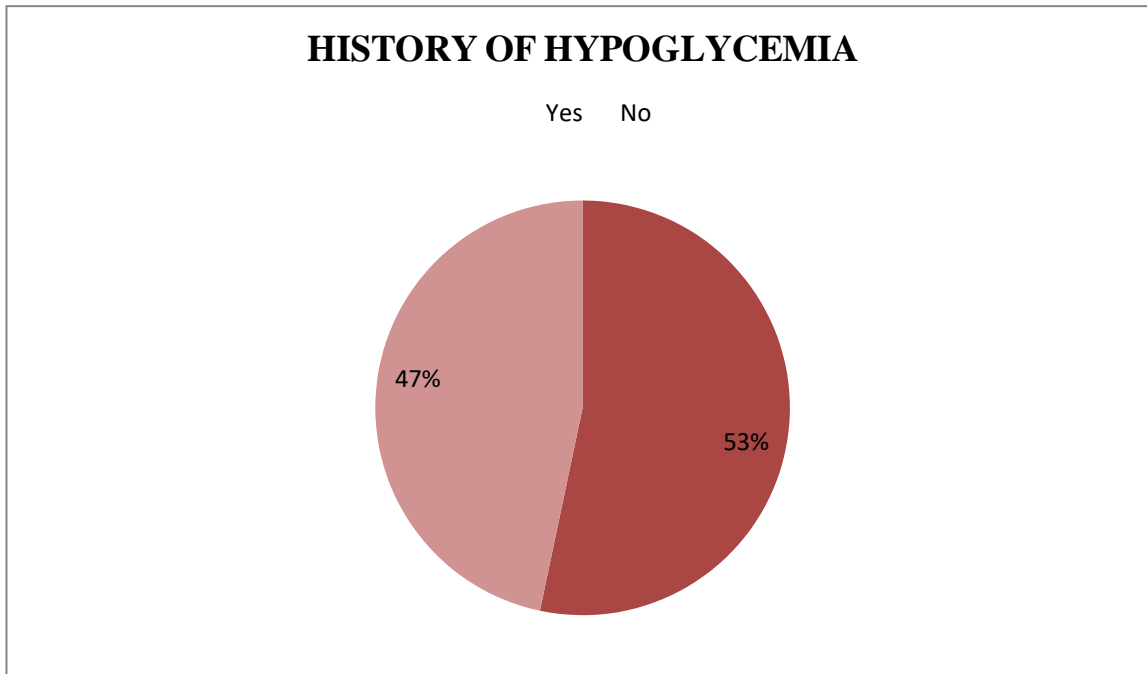


FIG 12: HISTORY OF HYPOGLYCEMIA

n = 60



SECTION B

Effectiveness of Structured Teaching Programme on Knowledge Regarding Hypoglycemia and its Management among Diabetic Patients

Table 10. Showing the frequency and percentage distribution of pre -test, post- test knowledge score of the sample.

Score category	Score range	Pre-test knowledge		Post-test knowledge	
		Frequency	Percentage	Frequency	Percentage
Poor	0-5	0	0	1	1.66
Average	5-10	5	8.33	3	5
Good	10-15	13	21.67	10	16.67
Very good	16-20	42	70	46	76.67

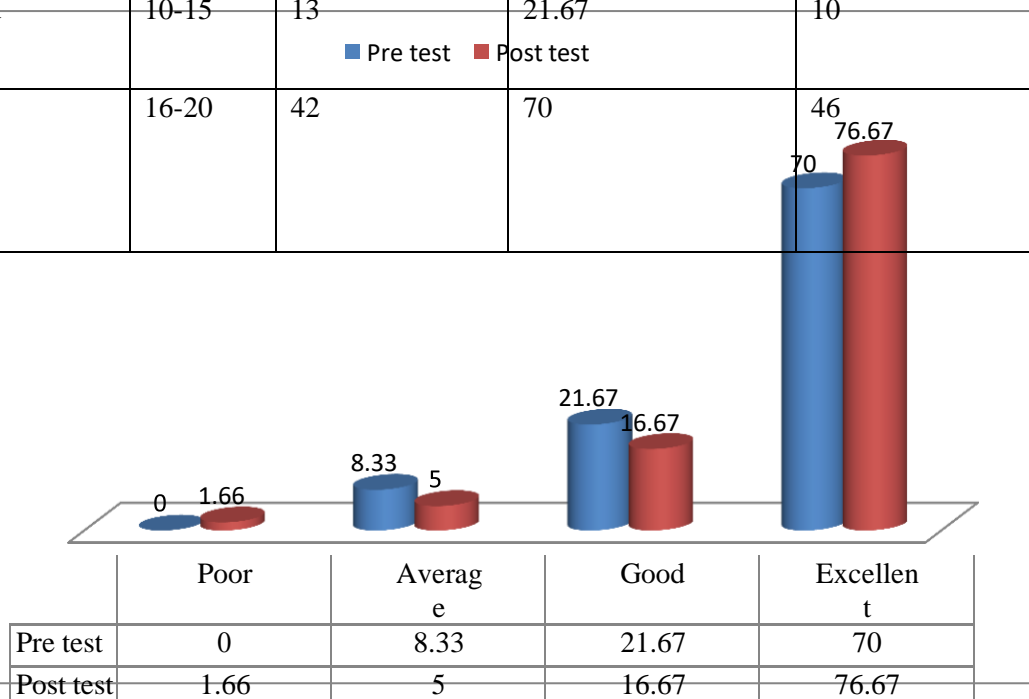


Figure 13 and Table 10 shows the frequency and percentage distribution of pre-test, post-test knowledge. It shows the pre- test 70% of sample have excellent score, 21.67% have good score, 8.33% are found to have average score regarding management of hypoglycaemia. In post-test 76.67% sample have excellent score, 16.67% have a good score, 5% have average and 1.66% have poor score.

Table 11. Shows mean, mean difference, “t” value of the sample of pre-test and post-test knowledge score.

Knowledgescore	Mean	Mean difference	Standard deviation	“t” test value	“p” value
Pre-test	15.58	0.17	3.71	3.91	0.9*

Post-test	15.75	3.23		
-----------	-------	------	--	--

*= "p" value is significant

The data presented in the above table showed that the mean post-test knowledge score (15.75) of hypoglycaemic peoples was significant higher than their mean pre-test knowledge score (15.58) with a meandifference 0.17, while that „t“ value 3.91 found by calculating which is significant at 0.9 („p“ value) level of the tabulated value 0.39. This indicates a substantial difference in knowledge score between the pre-test and the post-test (Table 11 and Fig 14).

Hence H1 is accepted.

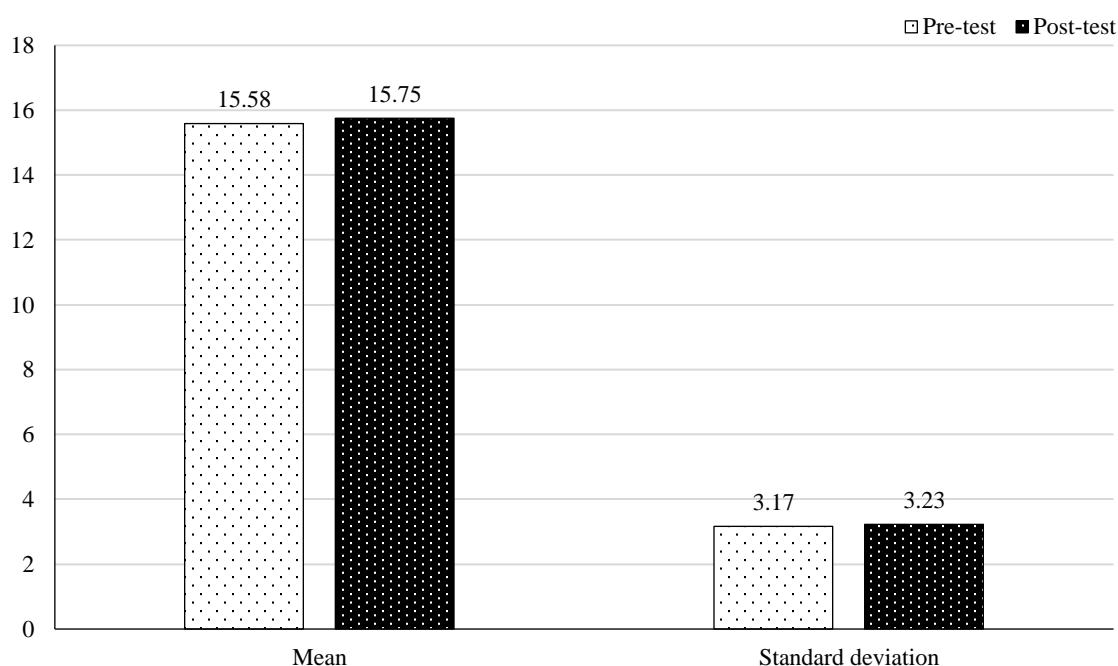


Figure 14. Comparison of mean and standard deviation of pre-test & post-test knowledge regarding management of hypoglycaemia among hypoglycaemic people in selected urban slums of Durgapur, West Bengal.

Association Between Pre-test Level Knowledge on Hypoglycemia with Demographic Variables of diabeticPatients

Table 12: Association between pre-test level knowledge on hypoglycaemia with selective demographicvariables of diabetic patients (N=60).

Demograph icvariables	Sample characteristics	Excellen t	Good	Averag e	Poor	Df	Criti cal value	Chi- squa re
Gender	Male	3	4	10	8	3	16.27	12.39
	Female	8	12	6	7			
Education alStatus	Primary level	3	10	6	4	9	27.88	3.72
	SecondaryLevel	2	9	12	4			
	Graduate	1	2	2	1			
	Postgraduate	1	1	1	0			
Occupation	Employed	2	3	0	2	9	27.88	10.32

	Unemployed	1	2	1	1			
	Home Maker	9	10	7	9			
	Other	4	2	6	1			
Employment	Govt. service	1	3	2	1	9	27.88	8.24
	Privateservice	3	7	4	2			
	Factoryworker	1	4	2	6			
	Any otherspecify	4	10	6	4			
Total family Income per month	Below 3000	0	2	1	0	9	27.88	4.54
	Rs 3000 to5000	1	2	3	1			
	Rs 5001 to10,000	3	7	4	3			
	Above Rs10,000	7	14	5	7			

Significant Table 12 shows that, at the 0.001 level of significance, there was a significant relationship between the subjects' pre-test knowledge score and certain sociodemographic variables, such as specifying the sources of information, as the calculated value was 12.39, which was higher than the table value of 16.27. Other socio-demographic variables were not associated with the pre-test knowledge score. Hence the research hypothesis **H2** was rejected. There was no significant association observed between the pre-test knowledge score on the management of hypoglycemia and the selected socio-demographic variables among the diabetic patients, considering a significance level of 0.001.

Therefore, its established that the structure teaching programme regarding management of hypoglycaemia among diabetic patients was effective in enhancing the knowledge score [31-33].

SUMMARY: The data were statistically analysed in accordance with the study's goals and hypotheses. The results demonstrate a considerable improvement in diabetes patients' post-test knowledge regarding the management of hypoglycemia, demonstrating the efficacy of the organised instruction programme.

SUMMARY AND CONCLUSION

This chapter deals with summarization of study, conclusions drawn from the findings, limitation of the study, implications of the result and suggestion. Also, it offers suggestions for additional studies in this field.

Summary

This descriptive study was conducted to assess the knowledge on hypoglycemia and its management among diabetic clients in selected urban slums of Durgapur, West Bengal. Relevant literatures were reviewed to enrich the knowledge on the selected phenomenon that is to know about the awareness on management of hypoglycemia and develop an appropriate conceptual model, developing a frame work and research plan. The pre-experimental (one group pre-test post-test study) research design was used for this investigation. Using a non-probability handy sampling procedure, a total of 60 diabetes patients were chosen. By conducting a pilot research, the tool's validity and dependability were evaluated. By keeping the objectives in mind the tool was prepared on hypoglycemia condition, management of hypoglycemia and prevention of hypoglycemia. The goal of the current study was to evaluate the impact of a structured education programme on diabetic patients' understanding of hypoglycemia and how to treat it.

Major Findings of The Study

- Among 60 samples, majority of the samples 25(41.7%) were male and only 35(58.3%) of the samples were female. Most of the samples 25(41.7%) belongs age group between 46-60years.
- On verifying the educational status, 23(38.3%) of them have primary level of education, 27(45%) were qualified with secondary level of education, 6(10%) were graduates and only 4(6.7%) were post graduate. Out of 60 samples, majority of samples 35(58.3%) were female & only 25(41.7%) of samples were male. Most of the samples 25(41.7%) belongs age group between 46 to 60 years. About 37(61.7%) of people having history of diabetes in family. About 22(36.7%) of people are using herbal medications & about 38(63.3%) of people are not using any kind of medications. About 32(53.3%) of people are having no any history of diabetes.

Nursing Implication:

Nursing practice:

Preventive, promotional, curative, and rehabilitative services are provided to the public by nurses. Health education can be given to the patient regarding the management of hypoglycemia. Nurses can conduct an awareness programme to improve the life style practices regarding hypoglycemia that can prevent the early complications. Conducting regular diabetic campaign to monitor the diabetic client status and prevent the complication through various lifestyle modifications and increased physical activity.

Nursing Education:

Nursing education should emphasize on preparing prospective nurses to assess and identify the hypoglycemic patients and to take necessary interventions to reassure them. Many in-service education programmes can be planned by the nursing personnel which help them to learn newer concepts and update their knowledge regarding prevention of hypoglycemia. Nurse educators can prepare information booklet and brochure for hypoglycemic patients and make them aware about hypoglycemic symptoms and its management.

Nursing Administration:

Developing a protocol to overcome and prevent hypoglycemia in the community settings. The administrator can also work as a resource person in providing education regarding hypoglycemia patients and relatives. The administrators should motivate and initiate the health personnel in organizing, conducting and participating in various educational programmes to the hypoglycemic patients that would improve their health.

Nursing Research

To measure the extent of knowledge and attitude in hypoglycemia patients, extensive research investigations can be conducted in several disciplines. The study result can be used as evidence based material for improving the quality of care.

Recommendations

The following suggestions for future research were made based on the findings :

- To generalise the results, a comparable study with a large sample can be conducted.
- A follow up study for a longer period for more reliability and effectiveness of the self-management program on diet, exercise, medications and preventing diabetic complications.
- The same research can be done on the signs and symptoms of hypoglycemia in people with type 1 diabetes.
- The same study can be conducted on the prevalence of hypoglycemia and patients' awareness of the condition.

Limitations

The study was conducted only in community settings. Small sample has restricted the generalization of the findings.

Suggestions

- Knowledge of the diabetic patients should be focused regarding Hypoglycemia and its management.
- Home management skills regarding hypoglycemia should be taught to the selected samples and their family members.
- Frequently monitoring the blood sugar level at the periphery level.

CONCLUSION

A significant limiting factor in the overall glycemic management of diabetes, hypoglycemia can also result in other undesirable side effects. Glycemic control should be individualized based on characteristics with some degree of safety. Glycemic control can be maintained by identifying risk factors for hypoglycemia, monitoring blood sugar levels, choosing the right regimens, and implementing education programmes using information booklets for diabetic patients.

REFERENCES

1. Black J.M. (2005). Medical Surgical Nursing. (7th Edition). India, W.B Saunders company.
2. Burns and Grove S .K (1995). Understanding Nursing Research. (4th Edition). United States of America, B.W Saunders company.
3. Polite Denise F, Beck Teton Cheri (2011). Nursing Research. (8th Edition). New Delhi: Walter Kluwer Publication.
4. Brunner and Suddharths. (2004). Text Book of Medical Surgical Nursing. (10th Edition). Philadelphia: Lippincott Company.
5. Dirksen H, Lewis (2004). Medical Surgical Nursing Assessment and Management of Clinical Problems. (6th Edition). USA. Mosby Publication.
6. Kothari C.R (2001). Research Methodology. (2nd Edition). New Delhi, Gupta publishers.
7. Kraal P, Leo (2002). Joslyn's Diabetes Manual. (11th Edition). Philadelphia; Lea and Fabler.
8. Ruby Bilious (2010). Handbook of Diabetes. (4th Edition). London: A John Wiley & Sons Ltd., Publications.

-
9. V.Seshiah (2010).Handbook on Diabetes Mellitus.(5th Edition).New Delhi: All India publishers&Distributors.
 10. Polite Denise F, Beck T; (2004).Nursing Research Principles and methods. (7th Edition).Philadelphia;Lippincott Williams and Wilkins.
 11. Kahn, Weir,Moses, Smith (2010).Joslin"s Diabetes Mellitus.(14th Edition). New Delhi:Walters KluwerLtd.
 12. Pickup & Williams (2003).Text Book of Diabetes .(3rd Edition). Black well Publishers.
 13. Richard J., Sunder Rao P.S.S (2002).An Introduction to Biostatistics. (3rd Edition). New Delhi:Printicehallpublishers.
 14. Watson (2002).Medical Surgical Nursing and Related Physiology.(4th Edition).London, W.BSaundersCompany.
 15. Williams G, Pickups J.C, (2004).Hand book Diabetes.UK; Oxford Black May 2008;47-51.
 16. Suzanne C. Smelter, Brenda G .Bare, Janice Hinkle, Kerry h. Cheever;Brunner and Siddhartha"sTextbook of Medical Surgical Nursing.(12th Edition).Lippincott Williams and Wilkins; Philadelphia.
 17. C.K Piranha,Raj, MM Agadir (2004). Knowledge Attitude on diabetes mellitus. Indian Journal ofMedical Specialties.American Diabetes Association (2004), Implication of the Diabetes Control, complication trials and diabetics.
 18. Bennet S.SC, (2004). Homecare Management Of Diabetes ,Diabetes Care (27);264243ApuroopaGadepalli,(2015).A study on patients" awareness, recognition management and prevalence of hypoglycemic episodes in type 2 diabetes mellitus in a tertiary care hospital. Asian Journal ofPharmaceutical and Clinical Research.
 19. Wright RJ, (2008).Hypoglycemia case study - impaired awareness of hypoglycemia, clinical casestudies.DiabetesHypoglycemia.
 20. Wendell, Blossom B, Oberg H. (1997). Psychic and socioeconomic consequences with diabetes compared to other chronic conditions. ScanPublic Health. 1997; 25:39-43.
 21. Giardia CB, (2014) Incidence and Correlates of Hypoglycemia in Type 2 Diabetes Journal of Diabetes &Metabolism.
 22. IDF, (2012). Global guideline for type 2 diabetes Retrieved from International Diabetes Federation
 23. Website: http://www.idf.org/sites/default/files/IDF_GuidelineforType-2-Diabet
 24. WHO. (2012b). Diabetes. Retrieved Mar. 07, 2013, from World Health Organization website: <http://www.who.int/mediacentre/factsheets/fs312/en/index.html>
 25. Wild, D., von Malt Zahn, R., Brogan, E., Christensen, T., Clauson P., &GanderFrederick, L. (2007). A critical review of the literature on fear of hypoglycemia in diabetes: Implications for

diabetes management and patient education. *Patient Education and Counseling*, 68(1)

26. Geddes J, Schuman JE, Summit NN, et al. (2008). Prevalence of impaired awareness of hypoglycemia in adults with Type 1 diabetes. *Diabetes Med.*; 25(4):501–4.

27. Gold AE, MacLeod KM, Firer BM. (1994). Frequency of severe hypoglycemia in patients with type I diabetes with impaired awareness of hypoglycemia. *Diabetes Care* 7:697-703.

28. Williams SA, Pollack MF, Bonaventura M (2011). Effects of hypoglycemia on health-related quality of life, treatment satisfaction and healthcare resource utilization in patients with type 2 diabetes mellitus. *Diabetes Clinical Practical* 2011; 91:363-70.

29. Sanjay Karla, (2013). Hypoglycemia: The neglected complication *Indian Journal of Endocrinology and Metabolism*, Volume 20, Issue 4

30. Maria Chiara Rossi., (2013). Incidence and Correlates of Hypoglycemia in Type 2 Diabetes. The Hypos- 1 Study: *Journal of Diabetes and Metabolism*.

31. O.O.Ogundipe,(2014). Impaired hypoglycemia awareness and employment in people with Type 1 diabetes. *Oxford Journal Occupational Medicine.*, Volume 61, Issue 4.

32. Spoorthi Ashok Pai, Peter George, (2015), Study on Awareness of Symptoms of Hypoglycemia & Early Management among Patients with Diabetes. Volume 14.

33. Stephenn.Davis,Md,(2003).Hypoglycemia in Diabetes. *Diabetescare*, Volume 26.