



Medical Surgical Nursing

“KNOWLEDGE REGARDING HYPOGLYCEMIA AMONG THE DIABETIC PATIENTS OF SELECTED HOSPITALS OF KAMRUP (M), ASSAM, WITH A VIEW TO DEVELOP AN INFORMATION BOOKLET ON HYPOGLYCEMIA: A DESCRIPTIVE STUDY”

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ABSTRACT Hypoglycemia is a common adverse event in people with type1 diabetes mellitus or type2 diabetes mellitus treated with insulin. It is often unpredictable and recurrent, resulting in potentially severe physical and psychosocial morbidity, as well as associated burden. Hypoglycemia is a condition in which the blood sugar level is lower than normal. It requires immediate treatment. Treatment involves quickly getting the blood sugar back to normal either with high sugar foods or drinks or with medications. Long term treatment requires identifying and treating the cause of hypoglycemia. **Aim:** Aim of The Study was to assess the level of knowledge regarding hypoglycemia among the diabetic patients of selected hospitals of Kamrup (M), Assam. **Methods And Materials:** A descriptive study design was used to accomplish the objectives. Study was undertaken on 140 diabetic patients admitted and in attending OPDs of selected hospitals of Kamrup (M), Assam by using Non- probability purposive sampling technique. Participants were selected based on inclusion and exclusion criteria. Structured knowledge questionnaire were used to assess the level of knowledge. The reliability of the tool was done by using Split half method, where $r = 0.82$ so it was found to be reliable and the conceptual framework used for the study is the Modified Health Belief Model. **Results:** The study revealed that out of 140 respondents, majority i.e. (51 (36.4%) were aged between 46-55years, 84 (60%) were male, 63 (45%) had primary education, 104 (74.3%) were residing in rural area, 34 (24.2%) were homemaker/ housewife, 134 (95.8%) were married, 51 (36.4%) had a family income of Rs.10,001-Rs.20,000 per month, 140 (100%) had type 2 DM, 43 (30.7%) had type 2 DM for more than 10years, 100 (71.4%) had no family history of diabetes, 76 (54.3%) had current random blood sugar level in the range of 151-200mg/dl, 100 (71.4%) were currently on medication for diabetes mellitus, 74 (52.8%) were taking oral hypoglycemic agent, 94 (67.1%) had no history of other illness apart from diabetes, 28 (20%) had hypertension apart from diabetes, 83 (59.3%) had not used glucometer at home, 100 (71.4%) were not aware of hypoglycemia, 19 (13.6%) received information through health care personnel, 128 (91.4%) had no previous experience of hypoglycemia and 11 (7.9%) had experienced number of episodes of hypoglycemia in last 6 months. Most of the diabetic patients i.e. 87 (62.14%) had moderately adequate knowledge, 46 (32.86%) had inadequate knowledge and 7 (5%) had adequate knowledge about hypoglycemia. **Conclusion:** From this study it was concluded that majority of the diabetic patients had moderately adequate knowledge regarding hypoglycemia.

KEYWORDS : Knowledge, hypoglycemia, diabetes mellitus, information booklet.

INTRODUCTION

Diabetes is a chronic, metabolic disease characterized by elevated levels of blood glucose (or blood sugar), which leads over time to serious damage to the heart, blood vessels, eyes, kidneys and nerves. The most common is type 2 diabetes, usually in adults, which occurs when the body becomes resistant to insulin or doesn't make enough insulin. In the past three decades the prevalence of Type 2 diabetes has risen dramatically in countries of all income levels. About 422 million people worldwide have diabetes, the majority living in low and middle income countries, and 1.5million deaths are directly attributed to diabetes each year.⁽⁴⁾

Hypoglycemia is a condition in which the blood sugar level is lower than the standard range. Hypoglycemia is often related to diabetes treatment, but in rare cases, drugs and a variety of conditions can cause low blood sugar in people who don't have diabetes. For many people, a fasting blood sugar of 70mg/dl, or 3.9mmol/L, or below should serve as an alert for hypoglycemia.⁽⁵⁾

OBJECTIVES:

- To assess the knowledge of hypoglycemia among diabetic patients in selected hospitals of Kamrup (M), Assam.
- To determine the association between the knowledge on hypoglycemia among diabetic patients with selected demographic variables.
- To develop and validate the information booklet regarding hypoglycemia.

REVIEW OF LITERATURE

Section 1: Literature Related To Hypoglycemia In Diabetes Mellitus.

Esileman Abdela Muche and Banchamlak Terri Mekonen, 21st Aug, 2020, USA, conducted a cross-sectional study on hypoglycemia prevention practice and its associated factors among diabetes patients at university teaching hospital in Ethiopia. A total of 422 diabetic patients at the University of Gondar Referral and Teaching Hospital

were selected systematically. Data were collected using a pre-tested, structured, and interviewer-administered questionnaire. From the total of 422 diabetic patients, 61.6% were males, 70.1% of them were 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%) hypoglycemia prevention. Only good participant knowledge about hypoglycemia prevention was strongly associated with the practice of its prevention (AOR: 2.87 (1.2–6.8), $p = 0.01$). Even though diabetic patients with good knowledge of hypoglycemia and its prevention were strongly associated with good prevention practice, there exists a gap in knowledge of hypoglycemia prevention.

Section 2: Literature Related To The Management Of Hypoglycemia.

Vanishree Shriram, Shriram Mahadevan and Krishna G. Seshadri, Jan 2017, Tamil Nadu, India, conducted a hospital-based study on Reported hypoglycemia in Type 2 diabetes mellitus patients. It is a questionnaire-based cross-sectional study done using systematic random sampling selecting every 5th patient attending the diabetic Out-Patient (OP) in a tertiary medical college hospital. There were 366 participants with median age of 60 years. Around 96% reported any one symptom of hypoglycemia, but 78% had eaten following the episode and got relieved of the symptoms. Weakness (76.2%) and dizziness (74%) were the most common symptoms reported by the patients. A quarter of them reported having severe attacks requiring somebody's assistance. Most patients resorted to timely meals (85%) to avert future attacks. Patients who took insulin along with oral hypoglycemic agents (OHAs) were at a higher risk (OR = 2.3) for hypoglycemia compared to patients taking only OHAs ($P < 0.01$). The reported prevalence of hypoglycemia among type 2 diabetes patients is quite high.

Section 3: Literature Related To The Knowledge On Hypoglycemia.

Suresh K. Sharma and Ravi Kant, Dec. 2017, India, conducted a

cross sectional study on awareness of symptoms and early management of hypoglycemia among patients with diabetes mellitus. 500 diabetes mellitus patients were taken who were attending the outpatient department of AIIMS, Rishikesh, Uttarakhand in 2017. The results show that 55.5% were females. The common symptoms of hypoglycemia known to the study subjects were dizziness (84.4%), weakness (74.1%), and drowsiness (68.1%). Overall, 322 (64.4%) diabetic patients had good knowledge on hypoglycemia (knowledge of at least three symptoms of hypoglycemia together with at least one precipitating factor and at least one remedial measure). Regarding management of hypoglycemia, 49% patients preferred taking glucose powder or sugar with water as an immediate measure. Higher age, illiteracy, low socioeconomic status was associated with poor knowledge whereas treatment with insulin along with oral hypoglycemic agents was associated with good knowledge on hypoglycemia.

RESEARCH METHODOLOGY

Research Approach: Quantitative Research Approach

Research Design: Descriptive Research Design

Research Variable: Knowledge

Demographic Variable: Age, Gender, Educational qualification, Place of residence, Occupation, Marital status, Family income per month.

HEALTH RELATED FACTORS-

Type of diabetes mellitus, Duration of the disease, Family history of diabetes, Current random blood sugar level, Currently on medication for diabetes mellitus and specify the medication used if any, Any history of other illness apart from DM and specify them, Glucometer use at home, Heard about hypoglycemia and the source of information, Previous experience of hypoglycemia and the number of episodes of hypoglycemia if experienced.

Setting Of The Study:

Down Town Hospital, Ayursundra Superspeciality Hospital, Hayat Hospital, GNRC Hospital Dispur, Guwahati, Assam.

Population: Diabetic Patients

Target Population: Diabetic patients admitted in and attending OPDs of hospitals of Kamrup (M), Assam.

Accessible Population: Diabetic patients admitted in and attending OPDs of selected hospitals of Kamrup (M), Assam.

Sample: Diabetic patients admitted in and attending OPDs of Down Town Hospital, Ayursundra Superspeciality Hospital, Hayat Hospital and GNRC Hospital, Dispur, of Kamrup (M), Assam and who fulfilled the inclusion criteria.

Sample size: 140

Inclusion Criteria: The inclusion criteria were the diabetic patients who were-

- Willing to give consent for participating in the study.
- Able to read and understand English and Assamese.

Exclusion Criteria:

The exclusion criteria were the diabetic patients who were unconscious and critically ill.

Tool And Technique:

Structured knowledge questionnaire was used to assess the level of knowledge and the technique was self-report.

Scoring Key:

The structured questionnaire consists of 25 questions and each questions had only 1 correct answer. For each correct response "1" mark was given and for every incorrect answer a score of "0" and maximum score was "25" and minimum score was "0". The level of knowledge was categorized as follows:

< 33% (<8): Inadequate Knowledge

33%- 66% (8-16): Moderately adequate Knowledge

>66% (>16): Adequate Knowledge

Content Validity Of The Tool:

The prepared instrument along with the problem statement and objectives was submitted to 6 nursing experts from the field of Medical Surgical Nursing and 2 medical experts from the field of Internal Medicine and Diabetologist.

Reliability Of The Tool:

The reliability of the tool was done by using Split half method, the reliability of the tool was 0.82 so it was found to be reliable to proceed with the main study.

Pilot Study:

The pilot study was conducted from 30th Nov to 6th Dec, 2021. 25 samples were selected using Non-Probability Purposive Sampling technique and the study was found to be feasible.

Main Study:

The data collection period was scheduled from 17th January, 2022 to 7th February, 2022. Prior to data collection, the investigator obtained permission from the Medical Directors and HR Departments of Downtown Hospital, Hayat Hospital, Ayursundra Hospital and Dispur GNRC Hospital, Guwahati, Assam. A brief self-introduction and the purpose of the study were explained to the samples prior to data collection and keeping in mind the ethical aspects of research, the data was collected after obtaining the informed consent from the samples for their willingness to participate in the study. The samples were assured for anonymity and confidentiality of information provided by them. A structured knowledge questionnaire was provided to assess the knowledge of the diabetic patients regarding hypoglycemia. The respondents took approximately 30 minutes to complete the questionnaires.

RESULTS

Table 1: Frequency And Percentage Distribution Of Demographic Variables Of Diabetic Patients.

Demographic Variables	Frequency (f)	Percentage (%)
N = 140		
Age (in years)		
35 – 45	21	15.0
46 – 55	51	36.4
56 – 65	47	33.6
>65	21	15.0
Sex		
Male	84	60.0
Female	56	40.0
Transgender	-	-
Educational qualification		
No formal education	-	-
Primary education	63	45.0
Secondary education	46	32.9
Graduate and above	31	22.1
Place of residence		
Rural	104	74.3
Urban	36	25.7
Occupation		
Govt. employee	32	22.9
Private employee	19	13.6
Self-business / Business	33	23.6
Retired	22	15.7
Homemaker / Housewife	34	24.2
Student	-	-
Unemployment	-	-
Marital status		
Single	2	1.4
Married	134	95.8
Divorced / Separated	2	1.4
Widow	2	1.4
Family income per month		
≤Rs.10,000	34	24.3
Rs.10,001- Rs.20,000	51	36.4
Rs.20,001- Rs.40,000	38	27.2
≥Rs.40,001	17	12.1
Type of diabetes		
Type 1 DM	-	-
Type 2 DM	140	100.0

Duration of the disease		
<1 year	36	25.7
1 – 5 years	37	26.4
6 – 10 years	24	17.2
More than 10 years	43	30.7
Family history of diabetes		
Yes	40	28.6
No	100	71.4
Current random blood sugar level		
50-70mg/dl	14	10.0
71-150mg/dl	28	20.0
151-200mg/dl	76	54.3
>200mg/dl	22	15.7
Currently on medication for diabetes mellitus		
Yes	100	71.4
No	40	28.6
If yes, please specify		
Insulin	14	10.0
Oral hypoglycemic agent	74	52.8
Insulin + oral hypoglycemic agents	12	8.6
Nil	40	28.6
Any history of other illness apart from diabetes		
Yes	46	32.9
No	94	67.1
If yes, please specify		
ALD	1	0.7
CAD	4	2.9
CLD	1	0.7
Fatty liver	1	0.7
Hepatic problem	1	0.7
HTN	28	20.0
HTN, Thyroid disease	1	0.7
Neurological	5	3.6
Renal disease	2	1.4
Respiratory problem	1	0.7
Thyroid	1	0.7
Nil	94	67.1
Glucometer use at home		
Yes	57	40.7
No	83	59.3
Are you aware about hypoglycemia?		
Yes	40	28.6
No	100	71.4
If yes, source of information		
Friends and relatives	17	12.1
Mass media	4	2.9
Health care personnel	19	13.6
Nil	100	71.4
Previous experience of hypoglycemia		
Yes	12	8.6
No	128	91.4
If yes, specify the number of episodes of hypoglycemia in last 6 months		
Yes	11	7.9
No	1	0.7
Nil	128	91.4

Table II: Frequency And Percentage Distribution Of Diabetic Patients According To Their Level Of Knowledge. N=140

SL NO.	SCORE	FREQUENCY	%	MEAN	SD	RANGE	TOTAL SCORE
1	Inadequate knowledge (<33%)	46	32.86%	10.01	3.28	4-20	25
2	Moderately adequate knowledge (33-66%)	87	62.14%				
3	Adequate knowledge (>66%)	7	5%				

The finding of the present study is in accord with the study conducted by Prameela. A (2016), conducted a descriptive survey study to assess the awareness on management of hypoglycemia among diabetic patients in PGS hospital, Coimbatore in view of preparing an information booklet. Descriptive survey design was adopted for 60 samples using purposive sampling technique and the findings says that 13(21.6%) were having adequate knowledge, 39(65%) were have moderately adequate knowledge and 8(13.3%) had inadequate knowledge on management of hypoglycemia.

The present study findings of level of knowledge goes contrast with the study of Thenmozhi P.(Jan,2018) conducted a cross sectional study on knowledge of hypoglycemia among patients with diabetes mellitus using 60 samples by structured interview method and the findings were- 38(63.33%) had inadequate knowledge and 12(20%) had moderately adequate knowledge and 10(16.67%) had adequate knowledge. There is a significant association between the age and type of treatment at the level of p>0.05 with the level of knowledge on hypoglycemia. The study findings emphasized that majority of the patients with diabetes mellitus do not have the knowledge on hypoglycemia.

Table III: Association Of Level Of Knowledge Among Diabetic Patients With Their Selected Demographic Variables.

Demographic variables	Chi-square value	df	p-value	Remarks
1. Age	3.918	6	0.688	NS at p<0.05
2. Sex	1.448	2	0.485	NS at p<0.05
3. Educational qualification	2.838	4	0.585	NS at p<0.05
4. Place of residence	1.481	2	0.477	NS at p<0.05
5. Occupation	13.961	8	0.083	NS at p<0.05
6. Marital status	3.819	6	0.701	NS at p<0.05
7. Income per month	11.071	6	0.086	NS at p<0.05
9. Duration of the disease	5.767	6	0.450	NS at p<0.05
10. Family history of diabetes	3.926	2	0.140	NS at p<0.05
11. Current random blood sugar level	5.607	6	0.469	NS at p<0.05
12. Currently on medication for DM	0.120	2	0.942	NS at p<0.05
12.1 Medication used	2.764	6	0.838	NS at p<0.05
13. Any history of other illness apart from DM	5.468	2	0.065	NS at p<0.05
13.1 Presence of other illness	35.163	22	0.037	S at p<0.05
14. Glucometer use at home	7.141	2	0.028	S at p< 0.05
15. Heard about hypoglycemia	11.988	2	0.002	S at p< 0.01
15.1 Source of information	17.164	6	0.009	S at p< 0.01
16. Previous experience of hypoglycaemia	4.900	2	0.086	NS at p<0.05
16.1 No. of episodes of hypoglycemia	4.935	4	0.294	NS at p<0.05

NS= Not Significant, S= significant, df= degree of freedom

CONCLUSION:

The following conclusions were drawn from the present study: In level of knowledge, majority i.e. that is 87(62.14%) respondents had moderately adequate knowledge, 46(33.86%) respondents had inadequate knowledge and 7(5%) respondents had adequate level of knowledge. In association, the results showed that there was no significant association between the knowledge and selected demographic variables of age, sex, educational qualification, place or residence, occupation, marital status, family income per month, duration of the disease, family history of diabetes, current random blood sugar level, currently on medication for DM, medication used for DM, history of other illness apart from diabetes mellitus, previous experience of hypoglycemia and no. of episodes of hypoglycemia in last 6 months. The results showed that there was significant association between the knowledge and selected demographic variables of presence of specific diseases apart from DM, glucometer use at home, awareness about hypoglycemia, and source of information.

The demographic variables awareness about hypoglycemia ($\chi^2=11.988$, $p=0.002$), source of information ($\chi^2=17.164$, $p=0.009$) had shown statistically significant association with level of knowledge on hypoglycemia among diabetic patients at $p<0.01$ level. The demographic variables history of other illness apart from diabetes ($\chi^2=35.163$, $p=0.037$) and glucometer at home ($\chi^2=7.141$, $p=0.038$) had shown statistically significant association with level of knowledge on hypoglycemia among diabetic patients at $p<0.05$ level.

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