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A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING ADMINISTRATION OF INSULIN AMONG B.SC NURSING 2ND YEAR STUDENTS AT ERA COLLEGE OF NURSING, LUCKNOW

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ABSTRACT

Introduction:
Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood sugar. Insulin is a hormone secreted by beta cells which are one of the four types of cells in the islets of langerhans in the pancreas. Insulin is considered to be a life-saving drug; however, regular accessto low-cost insulin – particularly the newer analogue types – may be reduced in economically poor countries and individuals.Data collected by WHO 2016-2019 from 24 countries on four continents showed that human insulin wasavailable only in 61% of health facilities and analogue insulin in 13%. The data showed that's month'ssupply of insulin would cost worker in Accra, Ghana, the equivalent of 5.5 days of pay per month, all 22% of his/her earnings. **Objective Of The Study:**Assess the knowledge level regarding insulin administration among B.Sc nursing 2nd year students atEra College of Nursing, Lucknow. Evaluate the effectiveness of Structured Teaching Programme on knowledge regarding insulinadministration among B.Sc Nursing 2nd year student at Era College of Nursing, Lucknow.To find out the association of level of knowledge about insulin administration with their selecteddemographic variables. **Research Methodology:**This study was conducted using Quantitative Research approach at Era College of Nursing, Lucknow. Pre-experimental one group pre-test, post-test design was used in this study.The conceptual framework used in this study was Modified Kings Goal Attainment Theory. The total sample size was 30 selected by convenient sampling technique. The data was collected by administrating Structured Knowledge Questionnaire followed by Structured Teaching Programme about Insulin Administration. After 7 days, post-test was done to assess the effectiveness of STP.**Results:** The data obtained are tabulated and analyzed using descriptive and inferential statistics. The statistically analysis of data shows that 7 samples (23.33%) had adequate knowledge, 17 samples (56.67%)had moderate knowledgeand 6 samples (20%) had inadequate knowledge.The mean Pre-test knowledge score was (15.73) with standard deviation (6.84) and standard error (1.24). After giving Structured teaching Programme the score was increased to (24.16) with standard deviation (3.45) and standard error(0.629). The significance of Structured Teaching Programme regarding administration of insulin was assessed by using paired t-test (dependent t-test). The calculated t value for knowledge regarding administration of insulin is 13.62 is highly significant with degree of freedom is 29 at $p<0.05$ which shows that STP was effective for improving the knowledge among B.Sc Nursing 2nd year students. **Conclusion:** The finding revealed that there was a significant improvement in knowledge of B.Sc Nursing 2nd year students in post test after structure teaching programme. It showed that there was anassociation with post-test knowledge and selected demographic variable like Age, Previous knowledge regarding insulin, Knowledge regarding administration of insulin.

Key words: Effect, Structure Teaching Programme, **Administration of insulin**

Introduction :

During the last twenty years the prevalence of Diabetes mellitus has increased dramatically in many parts of the world and the disease is now a worldwide public health problem.[1]Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood sugar.In 2014, 8.5% of adults aged 18 years and older had diabetes. In 2019, diabetes was the direct cause of 1.5 milliondeaths. In 2012 (year of the latest available data), there were another 2.2 million deaths due to high blood glucose.Between 2000 and 2016, there was a 5% increase in premature mortality from diabetes. In high-income countries the premature mortality rate due to diabetes decreased from 2000 to 2010 but then increased in 2010-2016. In lower-middle-income countries, the premature mortality rate due to diabetes increased across both periods.[1]

Insulin is a hormone secreted by beta cells which are one of the four types of cells in the islets of langerhans in the pancreas (Porth and Matfin, 2009). In type 1 Diabetes, exogenous insulin must be administered for life because the body loses the ability to produce insulin. Insulin may be grouped into several categories based on the onset, peak, and duration of action. Rapid-acting insulin produce a more rapid effect that is of

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shorten duration than the regular insulin.[2] Data collected by WHO 2016-2019 from24 countries on four continents showed that

human insulin was available only in 61% of health facilities and analogue insulin in 13%. The data showed that's month'ssupply of insulin would cost worker in Accra,Ghana, the equivalent of 5.5 days of pay per month, all 22% of his/her earnings.[3]

Need Of The Study

Insulin is necessary for normal carbohydrate, protein, and fat metabolism. People with type 1 diabetes mellitus do not produce enough of this hormone to sustain life and therefore depend onexogenous insulin for survival. However, over time, many of these individuals will show decreased insulin production, therefore requiring supplemental insulin for adequate blood glucose control, especially during times of stress or illness.[4]

A study to assess theIncorrect Insulin Administration: A Problem That Warrants Attention.Researchers recruited adult patients with diabetes who were ≥21 years of age, had been on insulin therapy for ≥2 years, and were personally responsible for their injections.The majority of participants were female (58.3%) and white (75.9%). The mean age was 57.3 years (± 13.5, range 25–80). Most (80%) were on multiple daily injection regimens. Participants were quite confident in their ability to properly inject insulin, with 93.3% responding that they were "moderately" or "very" confident, but they were somewhat less confident in their ability to choose the correct dose, with 83.3% responding that they were "moderately" or "very" confident. High percentage of participants who demonstrated problems with site selection and rotation and reported using expired insulin, not taking recommended insulin doses, and not taking insulin at correct times. In conclusion, finding that errors in self- administration of insulin are common in ambulatory adults with diabetes is of concern. These results strongly suggest that more attention to periodically reviewing and re-educating patients concerningproper insulin self-administration should be considered.[5]

Problem Statement:

" A Study To Assess The Effectiveness Of Structured Teaching Programme On Knowlegde Regarding Administration Of Insulin Among B.Sc Nursing Iind Year Students At Era College Of Nursing, Lucknow."

Aim Of The Study:

The aim of the study is to improve the level of knowledge regardingadministration of insulin through a Structured Teaching Programme.

Objectives:

1. Assess the knowledge level regarding administration of insulin among B.Sc nursing 2nd year students atEra College of Nursing, Lucknow.

2. Evaluate the effectiveness of Structured Teaching Programme on knowledge regarding administrationof insulin among B.Sc Nursing 2nd year students at Era College of Nursing, Lucknow.

3. To find out the association of level of knowledge regarding administration of insulin with their selected demographic variables.

OPERATIONAL DEFINITION:

1. **Assess:** In this study, it refers to assess the effectiveness of Structured Teaching Programme on knowledge about Insulin Administration among the B.Sc Nursing 2nd year students.

2. **Effectiveness:** In this study, it refers to evaluate the outcome of Structured Teaching Programme on knowledge about Insulin Administration among the B.Sc Nursing 2nd year students.

3. **Structure Teaching Programme:** In this study, it refers to the teaching programme for B.Sc Nursing 2nd year student regarding Insulin Administration by using lecture cum discussion method with the help of different instructional medias.

4. **Knowledge:** In this study it refers to the awareness of understanding the Insulin administration that is discussed or learned through Structured Teaching Programme.

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5. **Insulin Administration:**Insulin administration is a technique which acts as a replacement for or a supplement to, body's natural insulin.

Assumption:

1 .Most of the students has inadequate knowledge regarding administration of insulin.

2. Structured Teaching Programme will improve the knowledge regarding administration of insulin.

Hypothesis

H1: There will be a significant difference between pre-test and post-test level of knowledge regarding administration of insulin at $p \leq 0.05$ level.

H2: There is a significant association of level of knowledge regarding administration of insulin with their selected demographic variables at $p \leq 0.05$ level of significance.

Delimitation:

The study is delimited to the B.Sc Nursing 2nd year students studying at Era College of Nursing, Lucknow. Conceptual

Framework:

The researcher will adopt Imogene King's Goal Attainment theory (1981) based on the personal and interpersonal system including interaction, perception, judgment, communication and transaction.

The investigator will adopt goal attainment as a basic theory conceptual frame work, which is aimed toshow effectiveness of Structured Teaching Programme in improving the knowledge regarding administration of insulin among B.Sc Nursing 2nd year students at Era College of Nursing, Lucknow.

Six major concepts describe these phenomena.

Perception:

This involves each person's representation of reality. Researcher perceived the need for Structured Teaching Programme to improve the knowledge regarding administration of insulin among B.Sc Nursing2nd year students at Era College of Nursing, Lucknow.

Judgment:

Judgment is a decision which will be made. The researcher decides to provide Structured Teaching Programme regarding Administration of insulin to improve the knowledge among B.Sc Nursing 2nd year students at Era College of Nursing.

Action:

The researcher's action is to provide Structured Teaching Programme to the B.Sc Nursing 2nd year students at Era College of Nursing, Lucknow and students decide to receive the intervention.

Reaction:

Reaction helps in setting a mutual goal. The researcher and the sample set a mutual goal. Here themutual goal is to improving the knowledge regarding administration of insulin.

Interaction:

It refers to the verbal communication between two or more individual who involve goal directed perception. The researcher provides Structured Teaching Programme to the B.Sc Nursing 2nd year

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students at Era College of Nursing, Lucknow.

Transaction:

This is the achievement of the goal. The researcher goal is to improving knowledge regarding administration of insulin among B.Sc Nursing 2nd year students at Era College of Nursing, Lucknow and toevaluate the effectiveness of Structured Teaching Programme on knowledge.

REVIEW OF LITRATURE

Review of literature is an essential component of the research process. It is a critical examination of publication related to a topic of interest. Review should be comprehensive and evaluative. It helps to plan and conduct the study in a systematic and scientific manner.

The literature has been reviewed under the following headings:

SECTION-1: Literature related to knowledge regarding administration of insulin.

SECTION-2: Literature Related to effect of Teaching Programme regarding administration of insulin.

Section-1: Literature related to knowledge regarding administration on insulin among nursing students.

A study was conducted for the Assessment of Insulin-related Knowledge among Healthcare Professionals in a Large Teaching Hospital in the United Kingdom. All qualified and registered healthcare professionals practicing at the hospital. n = approx. 6000 were selected through convenience sample of 10 academic in Large Teaching Hospital in the North of England. The questionnaire consisted of 16 items, including both multiple-choice and open questions. Data was analyzed through electronically via the online questionnaire platform. A total of 113 questionnaires were completed. The result revealed that thefinal analysis (n=109) comprised of 36 nurses (33%), 33 hospital pharmacists (30%), 20 doctors (19%) ofwhom 16 (15%) were junior doctors and 4 (4%) were consultants—, 18 pharmacy technicians (17%), 1 dietician (1%) and 1 operational department practitioner (1%). Most professionals reported being “slightlyconfident” in their knowledge of insulin products and regimens; only 21% of respondents stated that theywere confident, or very confident in their knowledge of insulin.[6]

Section-2: Literature related to effect of Teaching Programme regarding administration of insulin.

A quasi experimental study was conducted to assess the effectiveness of a structured teaching programme on knowledge and practice of safe insulin administration among nurses in a Tertiary Care hospital. 80 nurses were selected through convenient sampling technique in a Tertiary Hospital in Mumbai. Pre-post test design is used to study the effectiveness of the structured training programme. One hour of diabetic lecture followed by demonstration of safe injection practice. Conducted two post training, day one and three months training. The injection practices were assessed using a check list. The result revealed that the mean score for insulin knowledge was 6.81 and increased 16.85 after training.The study concluded that it increased the knowledge about appropriate insulin injection practice improved with adequate guidance and information.[7]

RESEARCH METHODOLOGY

The methodology of research indicates a general and fundamental pattern for organizing the procedure of gathering valid and reliable data for an investigation. This chapter deals with the brief description of methodology adopted for this study this include- research approach, research design, description of research setting, population, sample and sampling technique, development and description of tools, scoring key development and description of information booklet, pilot study and plan of data collection and plan for data analysis.[7]

Research Design

The research design selected for this study is **Pre Experimental one group pre-post-test research design** was adopted for this study. There was no control group in this study.

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Group	Pre-test	Treatment	Post-test
B.Sc Nursing 2nd year	X1	O	X2

X1- Pre-test knowledge assessment of B.Sc Nursing 2nd year students.O- Intervention (Structured Teaching Programme).

X2- Post-test knowledge assessment of B.Sc Nursing 2nd year students.

Variable Of The Study:

Variables are defined as an attribute of a person or an object that varies that is, it takes different value. Three types of variables are used in the study.

1. **Independent variables:** Independent variables are stimulus or activity that is manipulated or varied by the researcher to create the effect on the dependent variable. The independent variable is also called as treatment or experimental variable.
   In this study independent variable is the Structured Teaching Programme regarding administrationof insulin.
2. **Dependent variables:** A dependent variable is the response, behavior or outcome that the researcher wants to predict or explain.In this study, dependent variable is the knowledge of the B.sc Nursing 2nd year students regardingadministration of insulin.
3. **Demographic variables:** It includes baseline information like age, previous knowledge regarding insulin and administration of insulin.

Hypothesis

H1: There will be a significant difference between pre-test and post-test level of knowledge regarding administration of insulin at $p \leq 0.05$ level.

H2: There is a significant association of level of knowledge regarding administration of insulin with their selected demographic variables at $p \leq 0.05$ level of significance.

Setting Of The Study

According to **Polit& Beck (2008),** setting is the physical location and condition in which the data collection takes place in the study. The researcher should carefully select an appropriate setting becauseit can influence the way people behave or feel and how they respond. "The researcher needs to decide where the interventions will be implemented and when the data will be collected''.

The investigator selected Era College of Nursing to conduct the study. The investigator selected the setting based on the-

1. Availability of subjects
2. Economy of time and money access
3. Feasibility in terms of cooperation extended by the authorities of Era College of Nursing

Population

The entire set of individuals or the objects having the same common characteristics.

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(Polit&Hungler, 1999).

In this study, the population includes B.Sc Nursing 2nd Year Students.

Assessable Population

In this study, the assessable population includes B.Sc Nursing 2nd Year Students at Lucknow.

Target Population

In this study, the target population includes B.Sc Nursing 2nd Year Students of Era College of Nursing at Lucknow.

Sample

In this present study, samples were B.Sc Nursing 2nd year students of Era College of Nursing at Lucknow and who fulfils the inclusion criteria.

Criteria For Sampling Selection

The criteria selected for the study are-

Inclusion criteria

1. Students who are available during the data collection period.
2. Students who are willing to participate.

Exclusion criteria

1. Students on leave due to any health issues.

The Sampling Technique And Size

In this study, the samples will be B.Sc Nursing 2nd year Students of Era College of Nursing, Lucknowand will be selected by using **Non-probability Convenience Sampling Technique.** This is the sampling technique, where the researcher draws the sample because the sample will be easily available during the data collection period. Research restricted the size of the sample as **30.**

Data Collection Tools

Development And Description Of The Tools

It includes a **Structured knowledge questionnaire** were prepared to assess the knowledge regarding administration of insulin among B.Sc nursing 2nd Year Students of Era College of Nursing, Lucknow.

The questionnaires were consist three sections:

Section-A: Demographic variables
Section-B: A Structured questionnaire to assess the knowledge regarding insulin.

Section-C: A structured questionnaire to assess the knowledge regarding administration of insulin.

Scoring Techniques

Part 1: The scoring key was prepared by coding the demographic variables to assess the background of the samples and find out the association level of knowledge with selected demographic variables by statistical analysis.

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Part 2: For each question for option were given and among those only one correct answer was present. There were 30 questions and for each correct answer the score is 1. For incorrect/unanswered one, score is 0. The maximum score of the knowledge questionnaire is 30. The obtained knowledge score was graded as follows:

S.NO.	SCORE	PERCENTAGE	LEVEL OF KNOWLEDGE
1.	0-10	0-33%	Inadequate
2.	11-20	34-66%	Moderate
3.	21-30	67-100%	Adequate

Preparation of Structured Teaching Programme

The structure teaching programme was developed based on the topic of the study, review of literature and non-research literature. A blue print of the content pertained to the information regarding administration of insulin was prepared for the construction of the lesson plan.

Content validity:

Validity refers to whether an instrument accurately measures what is supposed to measure. When an instrument is valid, it truly reflects the concept, it is supposed to measure.'[27]

To ensure the content validity, tools and lesson plan along with the objectives and criteria. Checklists are given to 4 experts. The expert are from various fields equipped with knowledge and experience. They are requested to give their opinions and suggestions regarding their relevancy, accuracy,and appropriateness of the tool for improving knowledge among B.Sc Nursing 2nd Year Students regardingadministration of insulin. Based on the input from the experts and in consultation with the guide, the tool was modified to make questions more appropriate for the intended purpose.

Reliability of the tool

Reliability is the degree of consistency and accuracy with which an instrument measure theattribute for which it is design to measure. It is the extent to which the instrument yields the same result. It is then concerned with consistency, accuracy, precision, stability, equivalence and homogeneity.[28]

In order to establish the reliability of the tool Split-half method was used. The tool was administering to 5 samples other the sample of actual study. The reliability co-efficient of the whole test was then estimatedby Spearman-Brown Prophecy Formula ($r^1=2r/1+r$) where r^1 is the reliability co-efficient and 'r' is the Karl Pearson correlation co-efficient. The reliability score obtained for Structured Teaching Questionnaire was r=0.70. Hence, the tool was considered to be reliable for the study.

Ethical consideration

The study was conducted after the approval from the following;

- Principal (ECON), for conducting the Plot study.
- Principal (ECON), for conducting the Main study.
- Participatory consent from each participant under study.

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Pilot Study

Pilot study is a small-scale study conducted to test the plan and method of a research study.[29]

Pilot study was conducted to assess the feasibility of study and to decide the statistical analysis. After taking permission from the Principal, Era College of Nursing, Lucknow, a pilot study was conducted with a sample size of 05 (B.Sc Nursing 2nd Year) on **22/12/2021**, in Era College of Nursing, Lucknow, UP.

On **22/12/2021** aStructure Knowledge Questionnaire regarding administration of insulin was distributed to the 05B.Sc Nursing 2nd Year students with instruction to complete it. The completedquestionnaire was collected back by the researcher after average time of 40 minutes. After obtaining the data from the sample regarding administration of insulin, the Structure Teaching Programme was given tothe B.Sc Nursing 2nd Year students in the classroom. Projector was used to facilitate understanding of B.Sc Nursing 2nd Year students. The time spent for teaching programme was 1hour. On 8th day post-test was conducted by administering the same Structure Knowledge Questionnaire which was used for pre-test. The completed questionnaire was again collected after an average time period of 40 minutes. Data were analyzed and the result indicated that, there was a significant increase in the knowledge of B.Sc Nursing 2nd Year students after intervention. The finding of the pilot study revealed the study is feasible.

Data collection process:

The data collection procedure includes the following phase:

Phase-1

The formal written permission was received from the principal of Era College of Nursing, Lucknow,to conduct the study.

Phase-2

The data was collected from the 30 samples at a time. The collection period was from **06/01/2022** to **12/01/2021.** Consent was obtained from the sample. The data was collected by using Structured Knowledge Questionnaire after brief self-introduction, explained the purpose of the study and obtained informed consent from the sample. On the first day the knowledge of the B.Sc Nursing 2nd year was assessed using Structured Knowledge Questionnaire. Then a Structured Teaching Programme on Administration of insulin was conducted by administering the same Structured Knowledge Questionnaire. The samples were comfortable and cooperative well during the study.

Plan for Data Analysis:

The data obtained were analysed by using descriptive and inferential statistics on the basis of objectives and hypothesis of the study. Descriptive statistics was used to elaborate the baseline details with the help of frequency and percentage. The plan for data analysis as follows:

- The sample characteristics will be analysed by using frequency and percentage.
- The level of knowledge regarding administration of insulin among B.sc Nursing 2nd year studentswill be analysed using descriptive statistics (frequency, percentage, pie and bar graph).
- The effectiveness of Structured teaching programme regarding administration of insulin will be measured by paired ‘t’ test.
- The association between levels of knowledge with selected demographic variables among B.ScNursing 2nd year students will be analysed by Chi Square test.
- The data would be represented in the form of table, bar graph and pie graph.

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DATAANALYSISANDINTERPRETATION

Part-1: Distribution of demographic characteristics of B.Sc. Nursing 2nd year students.

Table -1: Frequency and percentage distribution according to demographic variables of B.Sc. Nursing 2nd year students.

S.no.	DemographicData	Category	Frequency	Percentage (%)
1.	Age in Years	18-20	16	53.33
		21-23	12	40
		24-26	2	6.67
		26-30	0	0
2.	Previous knowledge regarding insulin			
		Yes	12	40
		No	18	60
3.	Family member ison insulin			
		Yes	8	30
		No	22	70

Table-1: Reveal the percentage distribution of B.Sc. Nursing 2nd year students according to thedemographic variables age, previous knowledge regarding insulin, family member is on insulin.

Out of 30 samples 16 samples (53.33%) had belonged to age group 18-20 years, 12 (40%)had belongedto age group 21-23 years, 2 samples (6.67%) had belonged to age group 24-26, 0 sample (0%) were belonged to age group 26-30.

With respect to the previous knowledge regarding insulin 12 samples (40%) having knowledge regarding insulin and 18 samples (60%) don't have any previous knowledge regarding insulin.

With respect to the family member is on insulin 8 samples (30%)is on insulin and 22 samples (70%) familyis not on insulin.

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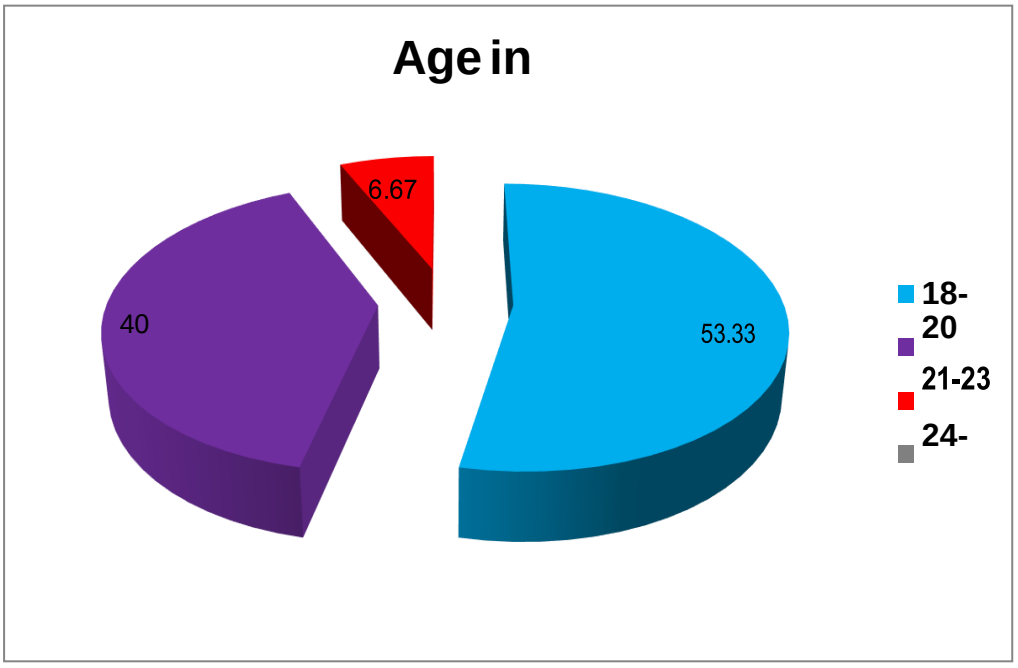

FIG-IV: PRECENTAGE DISTRIBUTION OF B.Sc. NURSING 2ND YEAR STUDENTS BY AGE

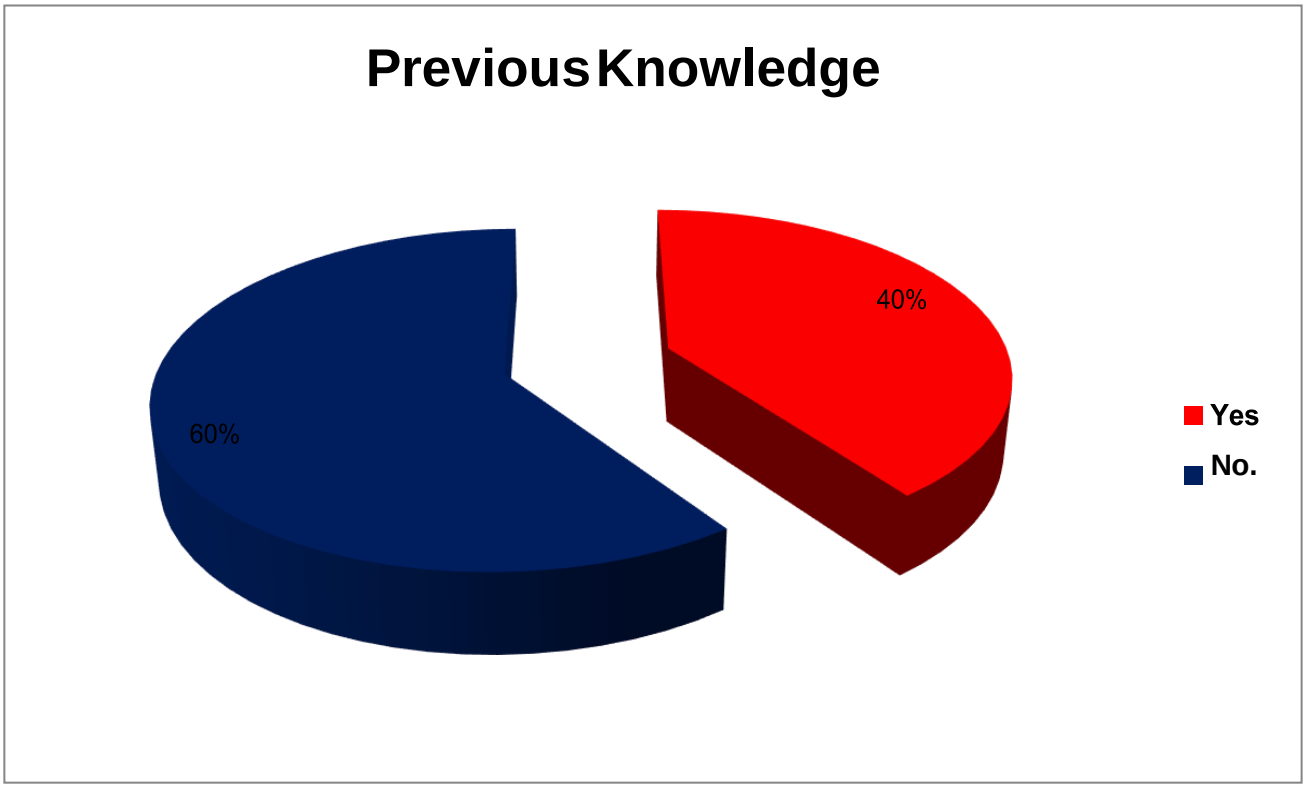

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FIG-V: PERCENTAGE DISTRIBUTION OF B.Sc. NURSING 2ND YEAR STUDENTS BY PREVIOUS KNOWLEDGE

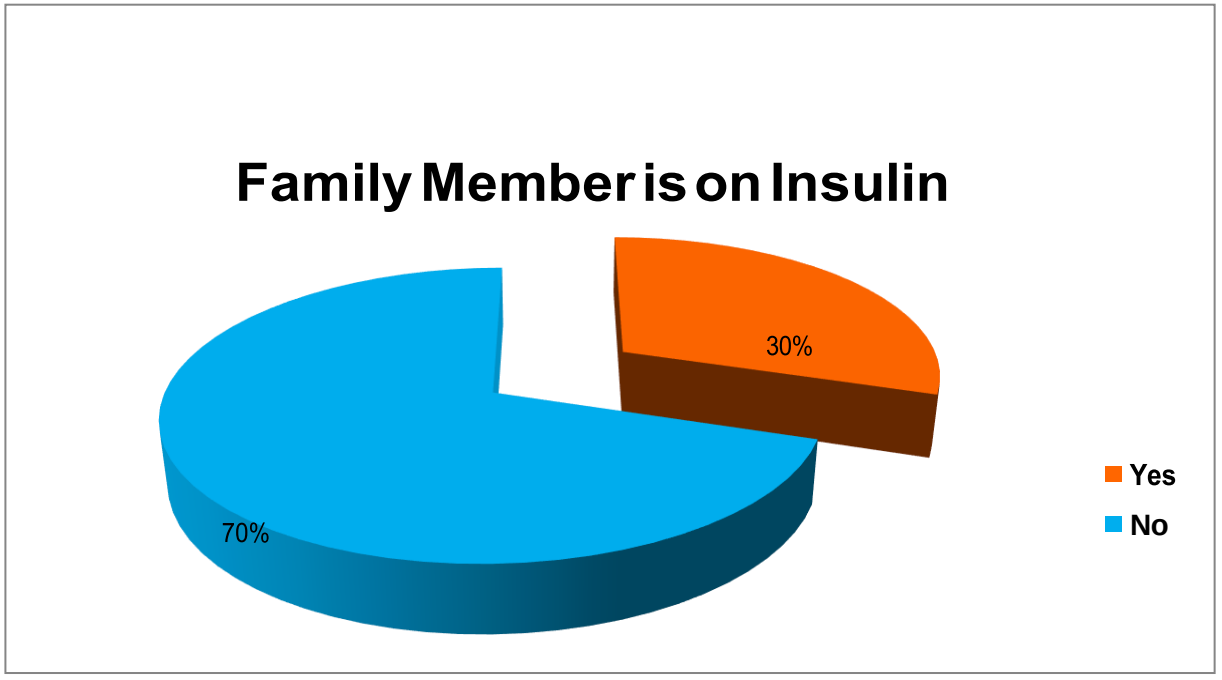

FIG-VI: PERCENTAGE DISTRIBUTION OF B Sc. NURSING 2ND YEAR STUDENTS BY FAMILY MEMBER IS ONINSULIN

Part-2: Findings related to assessment of level of knowledge regarding administration of insulin amongB.Sc Nursing 2nd year students.

This section describes the findings related to the level of knowledge regarding insulin among B.ScNusing 2nd year students at Era College of Nursing, Lucknow. Frequency and percentage distribution of the level of knowledge score are presented in table and bar diagram. Measures of central tendency of level of knowledge score on administration of insulin are presented in table.

A) Frequency and percentage computation to describe the level of knowledge regarding administrationof insulin among B.Sc Nursing 2nd year students presented in pie graph and bar graph.

B) Measures of central tendency according to their level of knowledge score on administration of insulinare presented in table.

It deals with frequency and percentage distribution of existing knowledge of the B.Sc Nursing 2nd year students regarding administration of insulin.

The data was obtained by using Structured Knowledge Questionnaire on knowledge regarding administration of insulin. The question comprises of 30 questions each carrying one mark. The scoring was categorized as0-10 marks (inadequate), 11-20 marks (moderate) and 21-30 marks (adequate). In this the researcher did not inform students priorly about the test of knowledge regarding administration of insulin. Informed consent was taken from the participant after describing them about the study in detail.

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Pre-test Knowledge score n=30

Level of Knowledge	Score	Frequency	Percentage (%)
Adequate	21-30	7	23.33
Moderate	11-20	17	56.67
Inadequate	0-10	6	20

The table above shows the pre-test knowledge score of 30 samples, 7 samples (23.33%) had adequate knowledge, 17 samples (56.67%) had moderate knowledge and 6 samples (20%) had inadequate knowledge.

FIG-VII: CHART SHOWING THE PRE-TEST LEVEL OF KNOWLEDGE

Hypothesis testing:

This section deals with the testing of the hypothesis put forward by the investigator in the beginning ofthe study with sound support of the statistical analysis. The data of the study on the hypothesis listed below:

- **H1:** There will be a significant difference between pre-test and post-test level of knowledge regarding administration of insulin at p≤0.05 level.
- **H2:** There is a significant association of level of knowledge regarding administration of insulin with their selected demographic variables at p≤0.05 level of significance.

For the purpose of testing the effectiveness of Structured Teaching Programme in terms of gain in knowledge following null hypothesis can be formulated.

- **H01:** There will not be significant difference between pre-test and post-test level of knowledge about the administration of insulin at p≤0.05 level.
- **H02:** There will not be significant association of level of knowledge regarding administration of insulin with their selected demographic variables at p≤0.05 level of significance.

The data tested below will be based on null hypothesis.

H01: There will not be significant difference between pre-test and post-test level of knowledge about the administration of insulin at p≤0.05 level.

The study result shows that there is a significant difference in mean pre-test knowledge score of 15.73 to a mean post-test knowledge score of 24.16 with a p value of 24.16. Therefore the null hypothesisH01 is rejected. So, research hypothesis H1 is accepted.

H02: There will not be significant association of level of knowledge regarding administration of insulin with their selected demographic variables at p≤0.05 level of significance.

From the results, it is found that there is a no significance association with level of knowledge regarding administration of insulin with selected demographic variables like age, previous knowledge and family member in on insulin at p≤0.05 level of significance. So, the null hypothesis H02 which is stated as there is no significance association between level of knowledge and selected demographic variable is rejected and research hypothesis H2 was accepted.

Part-1: Frequency and percentage distribution according to demographic variables of B.Sc. Nursing 2nd **year students.**

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The percentage distribution of B.Sc. Nursing 2nd year students according to the demographic variables age, previous knowledge regarding insulin, family member is on insulin.

- ✓ Out of 30 samples 16 samples (53.33%) had belonged to age group 18-20 years, 12 (40%)had belonged to age group 21-23 years, 2 samples (6.67%) had belonged to age group 24-26, 0 sample (0%) were belonged to age group 26-30.
- ✓ With respect to the previous knowledge regarding insulin 12 samples (40%) having knowledge regarding insulin and 18 samples (60%) don't have any previous knowledge regarding insulin.
- ✓ With respect to the family member is on insulin 8 samples (30%)is on insulin and 22 samples (70%) family is not on insulin.

Part-2: Assessment of level of knowledge regarding administration of insulin among B.Sc Nursing 2nd year students.

SECTION-A: Assessment of pre-test level of knowledge regarding administration of insulin among B.Sc Nursing 2nd year students.

The pre-test knowledge score of 30 samples, 7 samples (23.33%) had adequate knowledge whose score range between 21-30, 17 samples (56.67%) had moderate knowledge whose score range between 11-20 and 6 samples (20%) had inadequate knowledge whose score range between 0-10.

SECTION-B: Assessment of post-test level of knowledge regarding administration of insulin among B.Sc Nursing 2nd year students.

The post-test knowledge score of 30 samples. 26 samples (86.67%) had adequate knowledge whose score range between 21-30 and 4 samples (13.33%) had moderate knowledge whose score range between 11-20.

Part -3: Analysis of effect of structured teaching program on knowledge regarding administration of insulin.

On comparison of overall knowledge of samples on administration of insulin before and after structured teaching programme the mean Pre-test knowledge score was (15.73) with standard deviation (6.84) and standard error (1.24). After giving STP the mean score was increase to (24.16) with standard deviation (3.45) and standard error (0.629) increase in knowledge among B.Sc Nursing 2nd students was statistically tested by paired 't' test. The calculated 't' value (13.62) is highly significant with df is 29 at $p \leq 0.05$ which show the STP was effective for improving the knowledge among B.Sc Nursing 2nd year students.

Part-4: Association of Post-test knowledge among B.Sc Nursing 2nd year students with selecteddemographic variables.

- There is significant comparison between the post-test knowledge among B.Sc Nursing 2nd year students regarding administration of insulin and selected demographic variables, age, previous knowledge and family member in on insulin.
- There is significant difference between post-test levels of knowledge among B.Sc Nursing 2nd year students regarding administration of insulin after Structured Teaching Programme at $p \leq 0.05$ level. The calculated X^2 value is 0.376 with the degree of freedom is 29 at 0.05 of significance. So the hypothesis is accepted.

Discussion

The purpose of the study was to evaluate the effectiveness of structured teaching programme on knowledge regarding administration of insulin among B.Sc Nursing 2nd year students at selected Era College of Nursing, Lucknow. The samples were selected by convenient sampling technique. The data was collected from 30 B.Sc Nursing 2nd year students and after the administration of structured teaching programme regarding administration of insulin by using structured knowledge questionnaire.

The first objective of the study stated as- Assess the knowledge level regarding administration of insulin among B.Sc nursing 2nd year students at Era College of Nursing, Lucknow.

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In the present study, on assessing the pre-test knowledge of the B.Sc Nursing 2nd year students regarding administration of insulin, 7 samples (23.33%) had adequate knowledge, 17 samples (56.67%) had moderate knowledge and 6 samples (20%) had inadequate knowledge. The mean of Pre-test knowledge score was 15.73. After giving structured teaching programmeregading administration of insulin,26 samples (86.67%) had adequate knowledge and 4 samples (13.33%) had moderate knowledge. The mean of Post-test score was increased to 24.16.

This study was supported by a cross-sectional study was conducted to assess the knowledge, attitudes, and practices towards insulin injection among nurses in China at Multiple centers across China. Nurses were randomly chosen from 231 grass root hospitals, 453 secondary care hospitals, and 564 tertiary carehospitals. A total of 223,368 nurses were included in the study. The questionnaire was designed on the basis of the Guidelines for Drug Administration Techniques in Diabetes Patients in China. The questionnaire was pre-tested and validated in nurses of the three hospitals in China. Statistical analysis was carried out using SAS9.3 (The SAS Institute, Cary, NC, USA). Quantitative data were presented as mean ± standard deviation or median and compared by Student's t test. The result revealed that the mean knowledge score was 13.70 ± 3.30 and 35.19% had a poor knowledge score. The mean attitude score was 17.18 ± 2.69 for the study nurses; merely 3.15% had a poor attitude score. The mean practice score of the study population was 83.03 ± 8.16 and only 0.88% had a poor practice score.

The second objective of the study states that-Evaluate the effectiveness of Structured Teaching Programme on knowledge regarding administration of insulin among B.Sc Nursing 2nd year student at Era College of Nursing, Lucknow.

The mean Pre-test knowledge score was (15.73) with standard deviation (6.84) and standard error (1.24). After giving Structured teaching Programme the score was increased to (24.16) with standard

deviation (3.45) and standard error (0.629). The significance of Structured Teaching Programme regarding administration of insulin was assessed by using paired t-test (dependent t-test). The calculated t value for knowledge regarding administration of insulin is 13.62 is highly significant with degree of freedom is 29 at $p<0.05$ which shows that STP was effective for improving the knowledge among B.Sc Nursing 2nd year students.

A quasi experimental study was conducted to assess the effectiveness of a structured teaching programme on knowledge and practice of safe insulin administration among nurses in a Tertiary Care hospital. 80 nurses were selected through convenient sampling technique in a Tertiary Hospital in Mumbai. Pre-post test design is used to study the effectiveness of the structured training programme. One hour of diabetic lecture followed by demonstration of safe injection practice. Conducted two post training, day one and three months training. The injection practices were assessed using a check list. The result revealed that the mean score for insulin knowledge was 6.81 and increased 16.85 after training.The study concluded that it increased the knowledge about appropriate insulin injection practice improved with adequate guidance and information.

The third objective of the study states that-To find out the association of level of knowledge regarding administration of insulin with their selected demographic variables.
In the statistical analysis of the present study association was calculated with the post-test knowledge among B.Sc Nursing 2nd year students regarding administration of insulin and selected demographic variables, age, previous knowledge and family member in on insulin.That there is significant difference between post-test levels of knowledge among B.Sc Nursing 2nd year students regarding administration of insulin after Structured Teaching Programme at $p\leq0.05$ level. The calculated X^2 value is
0.376 with the degree of freedom is 29 at 0.05 of significance. So the hypothesis is accepted.

Summary

Major findings of the study:

Major findings of the study were-

Socio demographic variables of the study participants shows

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- Out of 30 samples 16 samples (53.33%) had belonged to age group 18-20 years, 12 (40%)had belonged to age group 21-23 years, 2 samples (6.67%) had belonged to age group 24-26, 0 sample (0%) were belonged to age group 26-30.
- With respect to the previous knowledge regarding insulin 12 samples (40%) having knowledge regarding insulin and 18 samples (60%) don't have any previous knowledge regarding insulin.
- With respect to the family member is on insulin 8 samples (30%)is on insulin and 22 samples (70%) family is not on insulin.

Effectiveness of Structured Teaching Programme

- Paired 't' test was computed to examine the mean difference in pre-test and post-test knowledge score. Findings of the study showed there was increase in post-test mean (**24.16**) as compared to pre- test (**15.73**). The calculated 't' value was **13.62**. the obtained p value was <0.05 which was statistically significant at <0.05 level. The knowledge score was not obtained by chance but because of intervention.
- The association post-test of B.Sc Nursing 2nd year students with selected demographic variable like age, previous knowledge about insulin administration, family member is on insulin. The association was statistical tested by **Chi-Square** test. It indicated that the chi-square value computed between the pre-test knowledge score and age (X^2=0.376) statistically found to be significant and with previous knowledge (X^2=2.05), with family member is on insulin (X^2=2.84) were found to be statistically found to be highly significant. Hence H2 was retained.

Limitation

- The study was limited to:
- 30 B.Sc Nursing 2nd year students.
- The data was limited to B.Sc Nursing 2nd year students who were present at the time of data collection.
- Those who are willing to participate in the study.

Conclusion:

The present study revealed that there is proper identification problem related to knowledge regarding administration of insulin among B.Sc Nursing 2nd year students that should be focused. Structured teaching programme was effective in increasing the knowledge regarding administration of insulin among B.Sc Nursing 2nd year students. The mean post-test knowledge score (**24.16**) of B.Sc Nursing2nd year students on knowledge regarding administration of insulin was significantly higher than their pre-test knowledge (**15.73**) scores. Thus gain in knowledge was because of intervention.

Implication Of The Study

The study findings have certain important implication for the nursing profession i.e. in clinical nursing practice, nursing education, nursing administration and nursing research.

Nursing Education

- The study has an important implication in the field of nursing education and other field. In the revised curriculum of basic nursing education and in post graduation much emphasis is laid on knowledge regarding administration of insulin. Prompt decision making and immediate identification should be made by the nurses while provide the care for administering the insulin to the diabetic patients. The student nurses should develop adequate knowledge, skills and attitude for providing quick and quality care.

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Nursing Practice

Findings of the study revealed that there is a need to understand and identification of the patient who areat risk of developing uncontrolled diabetes mellitus. Nursing stdents have to equip with adequate knowledge and skills to support the patient.

Mainly working in clinics, hospitals and health care centre play an important role in promoting health and well being of diabetic patients by providing insulin.

- ❖ Nurses working in critical care should follow evidenced based nursing practice that will results in better outcome.
- ❖ Formal and informal teaching should be conducted by the nurse to patient and the attendant to reduce the risk of developing uncontrolled diabetes mellitus.

Nursing Administration

- ❖ Nursing administration should organize periodic in service education and training program regarding latest innovation for nursing students to improve their knowledge regarding practice of administration of insulin (early assessment can reduce the risk for further complication).

There is an increasing need for the quality and holistic care in today's health care system. The findings of the study can be utilized by nursing personnel while providing care to the diabetic patient.

Nursing Research

- ❖ The findings of the study will act as a catalyst to carry out more extensive research. This study will help the nursing students to gather knowledge regarding administration of insulin there by help to identify the life threatening condition of the patient.
- ❖ Research can be further useful to identify an enumerate the factors that influence that a fix outcome of the patients.

Recommendation

Following studies can be undertaken in relation to present study.

1. Similar study need to be undertaken with a large number of samples for better generalization.
2. A similar study can be conducted by seeking other variables.
3. A study can be conducted on the staff nurse to assess the knowledge regarding administration of insulin.
4. The study can be conducted among non-nursing personnel to assess their knowledge regarding self-administration of insulin.
5. Present study can be done on staff nurses working in critical wards.

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