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Study to Find the Effectiveness of Standard Protocol Regarding Administration of Insulin Subcutaneously to Type-I Diabetic Patients to Enhance Knowledge Among B.Sc. Nursing Students

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Abstract

Aims and objectives- To evaluate the effectiveness of standard protocol regarding administration of insulin subcutaneously to type-I diabetic patients.

Material and methods: An evaluative study was adopted to assess the effectiveness of standard protocol regarding administration of insulin subcutaneously to type-I diabetic patients in terms to enhance knowledge among 40 B.Sc. nursing students at government college of nursing Indore who fulfil the inclusion and exclusion criteria. Simple random sampling (lottery) method was used to select the samples. Descriptive and inferential statistics was adopted To Assess the Effectiveness of Standard Protocol Regarding Administration of Insulin Subcutaneously To Type-I Diabetic Patients and assess knowledge by using structured knowledge questionnaire before and after intervention.

Result-the study findings showed that among 40 B.Sc. nursing second year students total mean score secured in pre-test was 19.32 on a scale of 1-40. The mean post- test knowledge score was 24.27 which are higher than mean pre-test knowledge score19.32. The value of S.D. in pre-test was 1.98 and post-test was 1.72.

Conclusion-standard protocol regarding administration of insulin (subcutaneously) to type-I diabetic patients in terms to enhance knowledge was found to be enhance knowledge was found to be effective.

Keywords: standard protocol, administration of insulin.

INTRODUCTION

According to W.H.O. report diabetes is a serious, chronic metabolic disease that Occurs either when the pancreas does not produce enough insulin (a hormone that Regulates blood sugar, or glucose), or when the body cannot effectively use the insulin, it Produces. Diabetes is major public health problem, one of the fourth priorities Non communicable and silent killer diseases. The prevalence of diabetes has been steadily Increasing over the past few decades. Diabetes may be type 1 diabetes (which requires insulin injections for survival) and type 2 diabetes (where the body cannot properly use the insulin it produces), but separate global estimates of diabetes prevalence for type 1 and type 2 do not exist. The majority of people with diabetes are affected by type 2 diabetes. This used to occur nearly entirely among adults, but

now occurs in children too. Globally, an estimated 422 million adults were living with diabetes in 2014, Compared to 108 million in 1980. The global prevalence (age-standardized) of diabetes Has nearly doubled since 1980, rising from 4.7% to 8.5% in the adult population. Diabetes caused 1.5 million deaths in 2012. Higher-than-optimal blood glucose
Caused an additional 2.2 million deaths, by increasing the risks of cardiovascular and other diseases. Forty-three present of these 3.7 million deaths occur before the age of 70
Years. The percentage of deaths attributable to high blood glucose or diabetes that occurs
Prior to age 70 is higher in low- and middle-income countries than in high-income Countries.
An Alarmingly rising prevalence of diabetes has been reported in recent years. According to current studies, 67 million Indians are affected with diabetes. By 2030, the Prevalence of diabetes among Indian is projected to reach 87 million. The investigator in her clinical experience has observed that improper injection Technique was produced misconception and uncompliance to medication most of the Patients in medical ward were suffered from Lip hypertrophy, hypoglycaemia, poor Glycaemic control, due to improper rotation of site, improper dose, injection site selection and depth of injection. The health care professionals should also assess and clear Misconceptions of the patients, thereby reducing fear, and thus easing adherence to
Medication.

Statement of the problem

An evaluative study to find the effectiveness of protocol regarding administration of insulin subcutaneously to type 1 diabetes patients in terms to enhance knowledge among b.sc. Nursing second year students in selected college of nursing indore.

Objectives

1. To assess the pre-existing knowledge of B.Sc. Nursing second year students Regarding administration of insulin injection subcutaneously.
2. To evaluate the effectiveness of standard protocol in terms of difference in protest Knowledge score and post-test knowledge score.
3. To find association between protest knowledge score with the selected Demographic variables.

Hypotheses

H0 - There will be no significant difference between mean protest knowledge score and Mean post-test knowledge score after administration of standard protocol.
H1 - The mean post score of knowledge will be significantly higher than the mean pre-Score of knowledge of B.Sc. nursing 2nd year students regarding administration of
Insulin injection.

Materials and methods

A pre and post pre-experimental research study was adopted to assess the effectiveness of protocol regarding administration of insulin subcutaneously to type 1 diabetes patients among 40 B.Sc. Nursing second year students in selected college of nursing of Indore. Who filled inclusion and exclusion criteria. Simple random sampling (lottery) method was used to select the sample. the data collection was done for one week and study conducted over a period of three weeks. the independent variable of this study was

standard protocol regarding administration of insulin in diabetes type1 patients and dependent variable of this study was knowledge regarding administration of insulin in diabetes type1 patients. The study was conducted in government college of nursing Indore. the sample size consisted of 40 B.Sc. Nursing second year students from selected nursing college Indore the tool consisted of two parts- i.e. Data collection tool and structured questionnaire. The data collection tool consists of demographic variables and structured knowledge questionnaire related to standard protocol regarding administration of insulin subcutaneously in diabetes type 1 patients.

Ethical consideration-

Researcher followed the ethical and legal aspects related to nursing research.

Permission was taken from the concerning authorities and consent was taken from the participants. This research was undertaken for study purpose. Researcher has maintained the confidentiality. All the financial expenses related with this research will be bearded by the investigator.

Statistical analysis

The data from proforma was entered in Microsoft excel 2010 and analysed using statistical software package for social sciences (SPSS) version 24.0 descriptive statistical was used to describe the demographic variables. Mean ± S.D. were bussed to summarize the knowledge questionnaire score. Paired sample 't' test was used for intra group analysis i.e. To determine defence between pre –post scores. paired sample t-test was used to evaluate the effectiveness of standard protocol regarding administration of insulin in diabetes type1 patients.

Table No.1 Frequency and percentage distribution of sample characteristics N = 40

S. No.	Selected demographic variable	Frequency (N)	Percentage (%)
1.	**Academic qualification**		
	a) Higher secondary with science	37	92.5%
	b) B.Sc. graduation	03	07.5%
2.	**Medium of academic qualification**		
	a) Hindi	25	62.5%
	b) English	15	37.5%
3.	**Type of examination board**		
	a) M.P. Board	38	95%
	b) C.B.S.E. Board	02	05%
4.	**Experience of administration of insulin**		
	injection subcutaneously		
	a) Yes	32	80%
	b) No	08	20%

Table No. 2 Grading Comparison between Pre-test and Post-test Knowledge Score (N=40)

Score	Grading	Pretest		Posttest	
		Frequency	Percentage	Frequency	Percentage
1-8	Fair	0	0%	0	0%
9-15	Good	1	25%	0	0%
16-22	Very Good	36	90%	7	17.5%
23-30	Excellent	3	7.5%	33	82.5%

Table No. 3 Comparison between Mean, standard deviation and „t" value of protest and post-test knowledge score (N= 40)

Knowledge Score	Mean	Standard Deviation	Mean Difference	do	paired „t" Value
Pretest	19.32	1.98	4.95	39	11.91
Posttest	24.27	1.72			

Tabulated value df = 39, 't'39 =3.66, P ≤ 0.001,

Discussion

Major findings of the study are discussed in line with objectives, hypotheses, review of literature in relation to similar studies conducted by other researchers and conceptual framework. The main aim of this study was to evaluate the effectiveness of a Standard protocol regarding administration of insulin injection subcutaneously among B.Sc. nursing second year students studying in Government College of nursing Indore. The objectives of the study were:

1. To assess the pree xisting knowledge of B.Sc. nursing second year students regarding administration of insulin injection subcutaneously.
2. To evaluate the effectiveness of standard protocol in terms of difference in pretest knowledge score and posttest knowledge score.
3. To find association between pretest knowledge score with the selected demographic variables.

Pre-Test Knowledge Score of the B.Sc. Nursing second year student's administration of insulin injection subcutaneously regarding

The findings showed that B.Sc. Nursing second year students had deficit knowledge regarding insulin protocol. The total mean secured by the B.Sc. Nursing second year students was 11.09 on the scale of 1-30. The findings showed that that 0% of sample had fair knowledge score ranging between 1-8 and 2.5% of sample had good knowledge score ranging between 9- 15 and 90% of sample had very good knowledge ranging 16-22 and. The mean pretest knowledge score was 19.32 and SD was 1.98. It suggests that 37

participants out of 40 did not have excellent knowledge score regarding Standard protocol of subcutaneous Insulin. The results show that students had limited knowledge regarding Insulin protocol. Thus, there was need to educate the nursing students insulin protocol,

Effectiveness of Standard protocol regarding administration of insulin subcutaneously

Pre-test knowledge score of 01 samples (2.5%) was limited between 9- 15 score,36 samples (90%) was limited to 16-22 score and 03 sample (7.5%) was limited between 23-30 score. This indicated B.Sc. Nursing Second Year students had inadequate knowledge regarding the administration of insulin subcutaneously. In the post-test maximum B.Sc. Nursing Second Year students 33 (82.5%) had score ranging between (23-30), 17.5% of students had score ranging between (16-22) while no B.Sc. Nursing Second Year students were in the range of good score (11-20) and fair score (1- 8). The mean post-test knowledge score was 24.27 was apparently higher than the mean pre-test knowledge score 19.32. The dispersion of pre-test scores (SD ± 1.98) was more than that of post-test scores (SD ± 1.72). This indicated there was more variation in the pretest statistical data than the posttest statistical data and the computed paired _t 'value showed that there was a significant difference between pre-test and post-testKnowledge score (t_{39} =11.91, p≤ 0.001 level). For degree of freedom 39 the tabulated paired _value was 3.66 at the level of 0.001. Hence, the computed paired't 'value is greater than the tabulated paired't 'test value. So, Null hypothesis was rejected and Research Hypothesis was accepted. The above results clearly indicate that the Standard Protocol on administration of Insulin subcutaneously effective in increasing the knowledge score of B.Sc. Nursing Second Year students studying in Government College of Nursing. Paired _t 'test was used to test the significance of difference between the pre-test and post-test knowledge score of B.Sc. Nursing Second Year students regarding the Standard Protocol of administration of Insulin subcutaneously the _tt 'valuein three areas was highly significant at levels P≤ 0.05, except in area of complication of insulin therapy. This reveals that the Standard Protocol was effective in increasing the knowledge of B.Sc. Nursing second year students in most of areas. The above results clearly indicate that Standard Protocol on administration of Insulin subcutaneously was effective.

Association between Pre-Test Knowledge Score and Selected Demographic Variables

In order to find out the association between pre- test knowledge score and selected demographic variables, chi- square test was used. The findings on association of selected demographic variables to B.Sc. Nursing second year students and pre-test knowledge score regarding Standard Protocol shows that there was no significant association between pre – test knowledge score and selected demographic variable that is Academic qualification ,type of examination board, experience of administration of insulin. Except the demographic variable type of examination board, the tabulated value (do 3, at p≤ 0.05 level = 7.82), which is less than calculated value (13.78), thus there is significant association between pre-test knowledge score and selected demographic variable.

Hypotheses were formulated that the mean post knowledge score of the b.sc. Nursing second year students regarding insulin protocol will be significantly higher than mean pretest knowledge score i.e. Research hypothesis (h_1) and there was no significant difference between mean pre -test knowledge score and mean post- test knowledge score i.e. Null hypothesis (h_0).the findings of the present study proved that mean post -test knowledge score (24.27) was higher than mean pre-test knowledge score (19.32).hence the null hypothesis (h_0) was rejected and the research hypothesis (h_1) was accepted. This indicates that standard protocol of insulin was effective in increasing knowledge score of b.sc. Nursing, second year regarding

administration of insulin subcutaneously. The conceptual model selected for this study was based on ludwig barangay's context, input, process and product evaluation model (cap) for development, utilization and evaluation of standard protocol for B.Sc. Nursing second year. The present study was aimed to prepare and evaluate the standard protocol on administration of insulin subcutaneously among B.Sc. Nursing second year students with the view to educate them and to promote their knowledge regarding administration subcutaneous insulin injection.

Limitations

1. The findings of the study cannot be generalized because of the small sample size and randomized sampling technique.
2. The study did not use a control group. The investigator had no control over the events that took place between pre-test and post-test.

Conclusions

After the detailed analysis, this study leads to the following conclusions:

B.Sc. Nursing second year students did not have 100% knowledge regarding administration of insulin subcutaneously. They require further education and information because all of them need to enhance their knowledge regarding Insulin Protocol. There was a highly significant increase in knowledge of the after giving the Standard Protocol, the paired _test computed between mean pre-test knowledge score (19.32) and post- test knowledge score (24.27) was_t '39 = 11.91, which indicated a highly significant difference in the knowledge score. So, Research Hypothesis (H_1) was accepted and the Null hypothesis (H_0) was rejected, hence it is concluded that the Standard Protocol on administration of Insulin subcutaneously was effective as teaching strategy. There was no significant association between demographic variable with pre - test knowledge score. Hence on the basis of above cited findings, it could be concluded that the written material prepared by the investigator in the form of Standard Protocol

Helped the B.Sc. Nursing second year students to improve their knowledge regarding Insulin administration subcutaneously.

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