

Pre-Experimental Study to Assess the Knowledge Regarding Intramuscular (IM) Injection among Undergraduate Students in SRM College of Nursing, Kattankulathur, Tamil Nadu, India

Pampha Bhusal¹, C. Kanniammal², P. Malarvizhi³

¹M. Sc. Nursing, ²Dean, ³Assistant Professor;
SRM College of Nursing, SRMIST, Kattankulathur, Tamil Nadu, India

Corresponding Author: Pampha Bhusal

DOI: <https://doi.org/10.52403/ijshr.20220142>

ABSTRACT

Background of the Study: Intramuscular injection is a method of administering medications deep into the muscle tissues so that they can be absorbed quickly into the body. Generally, the intramuscular injection is used to administer vaccines and drugs.

Aim: The aims of the study was to assess the pretest posttest level of knowledge regarding intramuscular injections and to determine the association between the levels of knowledge regarding intramuscular injection with their selected demographic variables.

Methodology: A pre-experimental research design (one group pre-test and post-test design) was applied for this study, which included Fifty-five nursing students. Purposive sampling technique was used for the sample selection. The data was collected through virtual mode using demographic variables as well as a structured knowledge questionnaire. Descriptive, inferential statistics were used to analyze the data.

Results: Majority of the nursing students had moderately adequate knowledge 31(56.4%), 16(29.1%) had inadequate knowledge and 8(14.5%) had adequate knowledge on pre-test. There was a significant improvement in post-test knowledge score of nursing students regarding IM injections ($M=10.89$ $SD=4.508$) compared to the pre-test scores ($M=14.42$ $SD=3.720$) with the 't' value of $p < 0.01$.

Conclusion: The present study reveals that more practical exposure is necessary so that they

can gain more knowledge regarding intramuscular injections. They are the future nurses who will do medication to the patient.

Keywords: Knowledge, Intramuscular injections, Nursing students

INTRODUCTION

Every year in world 12 billion injection were given. For all types of injections intramuscular injection were predominantly compared to subcutaneous due to high vascularity of muscle tissue. Intramuscular (IM) gluteal injections are commonly used injections in clinical medicine. Medications such as sedatives, hormonal therapy, long-acting antipsychotics, immunosuppressants and vaccines are injected intramuscularly. Drug absorption is high due to high vascular supply in this muscle, due to that this route is highly popular. (Soliman et al, 2018). Safety in injection means that the recipient is not harmed and that the provider isn't exposed to avoidable risks, while no wastage results in the community. Bloodborne pathogens, burden of disease can emerge as a practice of unsafe injection. (Gyawali, et al, 2013) In India over 63% of injections are reported to be unsafe or deemed unnecessary. One in every third patient who visited on outpatient department were prescribed for the injection India

contributes to a 25-30% global injection load. (Chaturvedi et al, 2012).

Nurses and nursing students must have adequate knowledge in theory and practice.

MATERIALS & METHODS

Research approach was quantitative approach. Pre-experimental research design (one group pre-test posttest design). Structured teaching programme was conducted on intramuscular injection after the pretest. Study samples comprise (55) B.Sc. Nursing 2nd-year students. A self-structured questionnaire was used for the data collection via online mode. The researcher clarified the objective of the research and reassured the topics that the information gathered will be kept confidential.

RESULT

The tool consists of 2 sections

- Section A- Structured questionnaire to elicit demographic factors.
- Section B- Structured questionnaire to elicit knowledge

After the pretest as an intervention Structured teaching programme regarding intramuscular injection, types of muscles used, indication and contraindication of IM injection as well as standard procedure steps were taught to the students.

Statistical Analysis

Descriptive statistics and Inferential statistics applied for the data analysis. The collected data were analyzed by SPSS version 20. Paired “t” test was used to know the difference in mean knowledge score and chi-square test for association.

Table1: Distribution of demographic variables of undergraduate students n=55

Variables	Class	No. of respondents	%
Age in years	19-20	51	92.7
	21-22	4	7.3
Gender	Male	6	10.9
	Female	49	89.1
Religion	Hindu	40	72.7
	Muslim	1	1.8
	Christian	14	25.5
Marital status	Married	3	5.5
	Unmarried	52	94.5
Medium of study	Tamil	13	23.6
	Hindi	1	1.8
	English	41	74.5
Sources of information	Books	21	38.2
	Lecture	7	12.7
	Clinical practice	13	23.6
	Internet	14	25.5
Residential area	Rural	25	45.5
	Semi urban	10	18.2
	Urban	12	21.8%
	Town	8	14.5%

Regarding the age, most of them 51(92.7%) belonged to the age group of 19-20years and a minority of them 4(7.3%) were 21-22years. In respect to the gender, most of them 49(89.1%) belonged to females and 6 (10.9%) belonged to a male. In regard to the religion, most of them were Hindu 40(72.7%), Muslim 1(1.8%). Concern the marital status, most of them

were unmarried 52(94.5%) and 3 (5.5) were married. In view of the medium of study, most of them were from English medium 41(23.6%) and Hindi medium 1(1.8%). To see the source of information, most of them got information books 21(38.2%), lecture 7(12.7%). Considering the place of residence 25(45.5%) from rural and 8(14.5%) from town.

Table 2: Frequency and percentage distribution of knowledge score before intervention and after intervention of undergraduate students

Level of knowledge	No. of respondents in			
	Pre test	%	Post test	%
Inadequate Knowledge	16	29.1	8	14.5
Moderate Knowledge	31	56.4	19	34.5
Adequate Knowledge	8	14.5	28	50.9

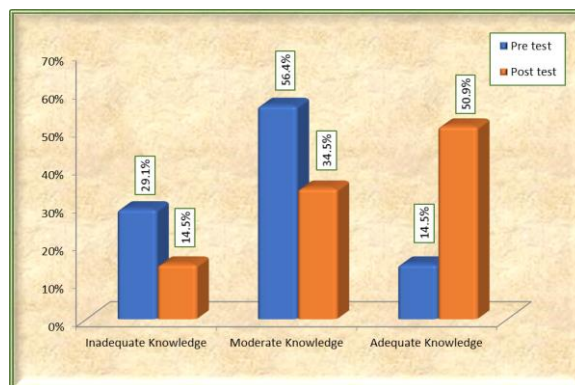


Fig 1: Double bar diagram shows the percentage of knowledge in pretest and posttest

The outcomes of the study reveal that, 31(56.4%) had moderate knowledge and 8(14.5%) had adequate knowledge, 16(29.1%) had inadequate knowledge on pretest. 28(50.9%) had adequate knowledge, 19(34.5%) had moderate knowledge and 8(14.5%) had inadequate knowledge. In the

present study, step wise data analysis was conducted and the knowledge score was increased after the structured teaching programme. We can see the significant difference between pretest and posttest knowledge score in Table (1).

Table 3: Compare the pretest and posttest level of knowledge regarding intramuscular injection among undergraduate students

		(Paired t test)			n=55	
Test	N	Mean	SD	t value	DF	P value
Pre test	55	10.89	4.508	-4.990	54	0.000**
Post test	55	14.42	3.720			

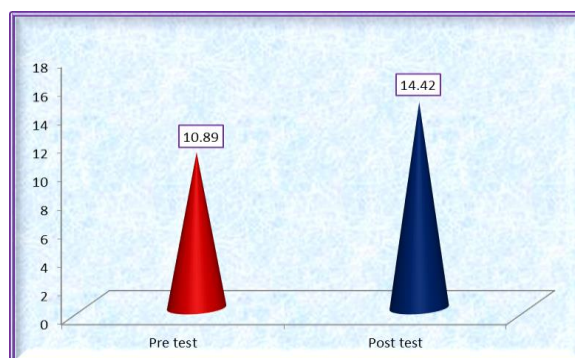


Fig 2: Cone diagram shows the difference between the means of knowledge scores regarding intramuscular injection at pretest and posttest level

The pretest and posttest mean \pm SD mean 10.89 ± 4.508 and 14.42 ± 3.720 respectively. The p-value is less than 0.01 hence; the p-value is highly significant at a 1% level. The mean value of the posttest is

higher than the mean value of the pretest hence; there is a high significant improvement in knowledge regarding intramuscular injection among undergraduate students.

Table 4: Determine association between levels of knowledge regarding intramuscular injection with their selected demographic variables among undergraduate students

Demographic Variables	Class	(Chi-Square test)			Chi-Square value	DF	P Value
		Inadequate Knowledge	Moderate Knowledge	Adequate Knowledge			
Age in years	19-20 years	7	18	26	0.439	2	0.803
	21-22 years	1	1	2			
Gender	Male	2	0	4	4.289	2	0.117
	Female	6	19	24			
Religion	Hindu	5	10	25	9.036	4	0.060
	Muslim	0	1	0			
	Christian	3	8	3			
Marital status	Married	0	1	2	0.618	2	0.734
	Unmarried	8	18	26			
Medium of the study	Tamil	2	7	4	5.514	4	0.238
	Hindi	0	1	0			
	English	6	11	24			

Table no. 4 continued...							
Source of information	Books	3	8	10	2.716	6	0.844
	Lecture	0	3	4			
	Clinical practice	2	5	6			
	Internet	3	3	8			
Residential area	Rural	4	6	15	5.685	6	0.459
	Semi urban	1	5	4			
	Urban	2	3	7			
	Town	1	5	2			

* - Significant at 5% level

** - Significant at 1% level

The p values corresponding to the demographic variables are not less than 0.05 and hence the p values are not significant at a 5% level. Therefore, there is no significant association between the knowledge level regarding intramuscular injection and their selected demographic variables.

DISCUSSION

A Descriptive cross-sectional study was conducted through virtual mode due to pandemic. As the student had (56.4%) had moderate knowledge on pretest. After the intervention the knowledge was increased to (50.9%) which was adequate. The findings were supported by similar to study conducted by Srividya et al, (2015). The pretest and posttest mean \pm SD mean 10.89 ± 14.42 and 4.508 ± 3.720 respectively. To determine the association between levels of knowledge regarding intramuscular injection with their selected demographic variables among undergraduate students shows no significant association. This finding also supported by Ammu et al, (2017) whereas, 30 participants were chosen for the study. The researcher found that there is an association between the level of knowledge, educational status, years of experience and age. The study shows that more practical exposure is important to enhance the skill on intramuscular injection. Assessing the practice is lacking in this study.

CONCLUSION

Nurses must be proficient in basic psychomotor skills to ensure safe and effective care cautiously while administering the intramuscular injection. There should be the balanced between the theoretical knowledge and practical skills

which they are practiced in the simulation lab, or practice laboratories. Undergraduate nursing students are the future nurses. The analysis of many studies shows that despite their theoretical knowledge, newly graduated nurses lack clinical skills, and entering the profession is risky for the patients. In our developing countries, most of the patients were dependent on medical staff during medication.

Acknowledgement: None

Conflict of Interest: None

Source of Funding: None

Ethical Approval: Approved

REFERENCES

1. Soliman E, Ranjan S, Xu T, Gee C, Harker A, Barrera A, Geddes J. A narrative review of the success of intramuscular gluteal injections and its impact in psychiatry. *Bio-design and Manufacturing*. 2018 Sep;1(3):161-70.
2. Gyawali S, Rathore DS, Shankar PR, Kc VK, Jha N, Sharma D. Knowledge and practice on injection safety among primary health care workers in Kaski District, Western Nepal. *The Malaysian journal of medical sciences: MJMS*. 2016 Jan; 23(1):44.
3. Birhanu D, Amare E, Belay A, Belay Y. Injection Safety Knowledge and Practice among Nurses Working in Jimma University Medical Center; Jimma South West Ethiopia; 2018. *J Community Med Public Health Care*. 2019;6:045
4. Arora NK. Injection practices in India. *WHO South-East Asia journal of public health*. 2012 Apr 1;1(2):189.
5. Srividya BP, Nagabushan H, Drupad HS. Assessment of knowledge among health

- care providers regarding intramuscular injection administration. Asian Journal of Pharmaceutical and Clinical Research. 2015;8(1):220-2.
6. Ammu A, Kumar SS, Bashetti S. Assessment of the level of knowledge regarding the intramuscular administration of medication among staff nurses. Janaki Medical College Journal of Medical Science. 2017;5(2):35-40
 7. Bajracharya R. Factors associated with safe intramuscular injection practice among nurses of a teaching hospital. Journal of Patan Academy of Health Sciences. 2019 Dec 31;6(2):70-4
 8. Unal KS, Alkan SA. Determining the Knowledge Levels of Nursing Students about Intramuscular Injection. International Journal of Caring Sciences. 2019 Sep 1;12(3):1321
 9. Strohfus PK, Paugh O, Tindell C, Molina-Shaver P. Evidence calls for practice change in intramuscular injection techniques. J Nurs Educ Pract. 2018;8(2):83-92.
 10. Alawadi FA. Observational Checklist–As an Instrument to Measure Intramuscular Injection Administration Skills among Students in the Institute of Nursing, Kuwait., 2017 (8)
 11. El-Demerdash SM, Mohamed EM, Taha AS. Adequacy of intramuscular injection among undergraduate nursing students. Journal of International Academic Research for Multidisciplinary. 2015;3(7):2320-5083
- How to cite this article: Pampha Bhusal, C. Kanniammal, P. Malarvizhi. Pre-experimental study to assess the knowledge regarding intramuscular (IM) injection among undergraduate students in SRM College of Nursing, Kattankulathur, Tamil Nadu, India. *International Journal of Science & Healthcare Research*. 2022; 7(1): 284-288. DOI: <https://doi.org/10.52403/ijshr.20220142>
