

Original Research Article

Factors Associated with Nursing Students' Level of Knowledge Regarding Abdominal Palpation at Gangtok, Sikkim

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ABSTRACT

Background: Abdominal palpation is one of the components of the antenatal examination which is one of the important parts of antenatal care and incorporated in the syllabus of the nursing students and considered as an important procedure to be learned, in the practical life to prevent the complications and save the life of the mother and the infant.

Objective: The objective of the study was to assess the level of nursing student's knowledge regarding abdominal palpation and determine if level of students knowledge regarding abdominal palpation are associated with their socio- demographic and educational characteristics in terms of different nursing programme.

Materials and Methods: Quantitative descriptive study was done among 92 nursing students regarding abdominal palpation who were currently enrolled in 1st year PBBSc Nursing, 3rd year and 4th year B Sc. nursing and 3rd year GNM programme and available at the time of data collection and had attended regular classes on abdominal palpation by using purposive sampling technique from selected nursing institution at Sikkim. Data were collected by structured knowledge questionnaire through self report technique for which validity and reliability was ensured.

Results: Knowledge regarding the abdominal palpation was found to be inadequate among the 78% respondents. It was also seen that only 22 % of the respondents out of 92 nursing students had adequate knowledge. There is statistically significant association found between knowledge regarding abdominal palpation and with nursing programme currently undergoing (9.70*, P<0.05), students exposed to mass media related to obstetrical palpation (6.39*P<0.05) and number of times performed obstetrical palpation (9.97*, P<0.05).

Conclusion: The knowledge score of the nursing students was found to be inadequate. New teaching strategy and instructional method has to be combined with traditional teaching method to update the knowledge of nursing students regarding abdominal palpation.

Key words: Knowledge, abdominal palpation, inspection of abdomen, components of abdominal examination, nursing students.

INTRODUCTION

Pregnancy is that wonderful period in a woman's life when she spends each and every day in pleasant anticipation, waiting to hold her bundle of joy in her arms at the end of the ninth month. [1] Every woman hopes for a normal pregnancy and normal

delivery so that she can cradle and nurse a healthy baby. [2] More than 95% of women have a normal pregnancy and childbirth. These women require adequate antenatal care to ensure a normal physiological process. [3]

Yang Y, Yoshitoku Y, Rashid, MH, Junichi S ^[4] stated that antenatal care is given different meanings by different scholars, mainly defined as care before birth and includes education, counseling, screening and treatment to monitor and to promote the well - being of the mother and fetus. However, Antenatal Care have such attractive benefits and strategies, according to the United Nations Millennium Development Goals, every year, at least half a million women and girls die as a result of complications during pregnancy, childbirth or in the six weeks following delivery. Almost all (99%) of these deaths occur in developing countries. ^[5]

This shows that the Antenatal care activity is very weak in developing country. ^[6] More than 303, 000 women die of childbirth every year worldwide. One woman dies and twenty others suffer from injury or disease because of child birth every minute. Of these India alone accounts for 44,000 maternal deaths every year. ^[7]

The main reasons that hinder the use of antenatal care are different from country to country. But the reason experienced in developing countries are nearly similar such as; hemorrhage, followed by eclampsia, infection, abortion complications and obstructed labor. Other issues are lack of knowledge and preparedness about reproductive health in the family, community and health care provider. ^[8]

Puri ^[9] conducted a study in Bugesera District of Rwanda surveyed 87% of all obstetric care providers to determine their demographic characteristics, competency in Safe Motherhood knowledge, obstetric practices, and attitudes towards patients and training approaches. The result identified the majority of provider's performance of knowledge in normal labor (39.3% correct) and obstetric complications (37.1% correct) were the weakest areas. A high percentage of providers (60.8%) engage in the potentially harmful practice of fundal pressure during vaginal delivery, while only 15.9% of

providers practice the active management of the third stage of labor in all deliveries. ^[9]

My Mak C, Wong H S ^[10] in their study stated the work of Crede and Leopold done in 1892, which later expanded on work done earlier by Pinard and published a technique for abdominal palpation of the gravid uterus in a German text entitled 'Text-book of obstetrics for midwives'. These two chapters focused on four specific maneuvers of abdominal palpation that could be used to determine fetal position and presentation and which became formalized as 'Leopold's Maneuvers.' Crede and Leopold claimed that through their four maneuver technique it was possible to identify the limbs, size, attitude presentation and position of the fetus in utero.

Abdominal palpation is one of the components of the antenatal examination which is one of the important parts of antenatal care and incorporated in the syllabus of the nursing students and considered as an important procedure to be learned, in the practical life to prevent the complications and save the life of the mother and the infant. ^[11]

Nursing education has a major role to play in the development of graduates who can deliver high-quality nursing care, and in a manner that harmonizes theory and practice .However, the gap between theory and practice continues to be a prevailing problem in nursing and midwifery. ^[12]

Nurses form an integral part of any healthcare delivery system and play a pivotal role in that countries' national development. The primary, secondary and tertiary healthcare services, that constitute the healthcare delivery system, are delivered by nurses who must be scientifically and clinically prepared to address the healthcare needs of the country. Student nurses enter the clinical area as novices and have little understanding of contextual meaning of theories in textbooks and practical learning. In accordance with Benner's theory from 'Novice to Expert', which was first published in 1982, these student nurses need

rules to help guide their performance and opportunities to develop skills that can only be acquired in any clinical situations. [12,11]

Competency in abdominal palpation is an essential part of modern midwifery practice, despite being regarded as a subjective assessment tool and subject to error. [13] Mak and Wong [10] found that although midwives had positive attitudes and moderate employment of abdominal palpation, they felt their knowledge practice was inadequate. Learning clinical and practical skills is the base of a challenging case in nursing education. If we do not succeed in this field, its harmful consequences will hurt the whole society members especially the patients. [14]

As today's student nurses are tomorrow's professional nurses who can contribute themselves more in the field of treatment, [15] "Educating these students and creating awareness and helping them to learn more about abdominal palpation will bring about positive outcomes in the future health indicators and quality of care rendered to the community. [10]

Based on such literatures and investigator's experience as clinical instructor in same area, it is felt that it is essential to assess the knowledge of the nursing students about the importance of abdominal palpation.

Problem Statement

Comparison of factors associated with nursing students' level of knowledge regarding abdominal palpation at Gangtok, Sikkim.

Purpose and Rationale

The purpose of this study is to have an understanding of the level of nursing student's level of knowledge regarding abdominal palpation which they learn in their regular midwifery classes and perform during their clinical practice. In addition to their level of knowledge, this study also compare the level of knowledge on abdominal palpation among the nursing students from different nursing programme who were currently undergoing regular classes on the management of ante partum

period and also wants to find out the extent to which some socio demographic and educational profile of nursing students influences the nursing students level of knowledge regarding abdominal palpation.

Objectives

The objective of the study is to (1) assess the knowledge regarding abdominal palpation among nursing students in terms of overall knowledge score regarding abdominal palpation, level wise knowledge score regarding abdominal palpation, area wise knowledge scores regarding abdominal palpation (2) compare the knowledge regarding abdominal palpation among nursing students from different nursing programme in terms of overall knowledge scores among different nursing programme, level wise knowledge score among nursing programme, area wise knowledge score among different nursing programme (3) find out the association between selected socio demographic and educational variables with knowledge scores of nursing students regarding abdominal palpation.

Operational definitions

Abdominal Palpation

In this study it consists of the information related to palpation of a pregnant woman abdomen comprises of area related to anatomy and physiology of reproductive system, definition of abdominal palpation, aims of abdominal palpation, objectives of abdominal palpation, terminology related to abdominal palpation, estimation of gestational age and expected date of delivery and components of abdominal palpation.

Knowledge

In this study it refers to correct response of nursing student regarding abdominal palpation as measured by structured knowledge questionnaire regarding abdominal palpation.

Hypothesis

H₁

There is association between nursing student's knowledge regarding abdominal palpation with selected variables at 0.05 level of significance.

MATERIALS AND METHODS

The research approach adopted was non-experimental survey research approach with descriptive comparative design. The Research variable was knowledge regarding abdominal palpation which was assessed among nursing students who were currently enrolled in 3rd year GNM, 3rd and 4th year B.Sc. Nursing and 1st year PBBS Nursing

programme, who have attended regular classes on abdominal palpation, who can read and write English, who were willing to participate, who were present at the time of data collection and belong to the selected nursing institutions of Sikkim which offer GNM /B.Sc. Nursing /PBBS Nursing programmes as shown in Figure 1.

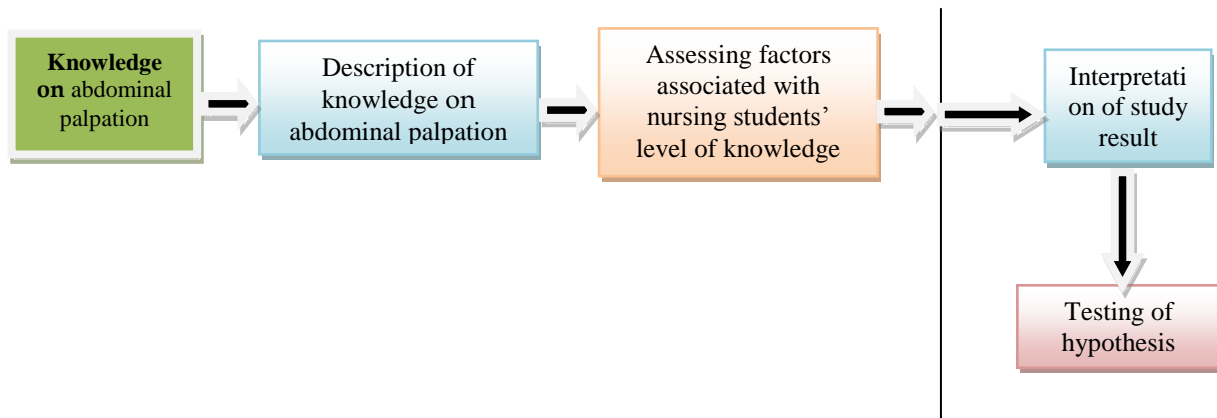


Figure 1: Schematic representation of descriptive survey design

Sikkim consist of only three nursing institution which offer nursing programme. The study was conducted at all the three nursing institution namely Sikkim Manipal College of Nursing, Vinayaka Mission College of Nursing and Nursing Training school, STNM hospital Sikkim .

The population under study consisted of 92 nursing students who were selected through non probability purposive sampling technique from selected nursing institution of Sikkim. Out of 92 samples, 19 GNM students were selected from Nursing Training school, 17 PBBS. Nursing Students from Sikkim Manipal College of nursing, 12 B sc nursing and 16 GNM students from Vinayaka Mission College of Nursing, and only 28 B Sc nursing students out of eighty Students were selected from Sikkim Manipal College of Nursing because due to internship posting, most of the students were not available in the setting hence they were excluded.

The inclusion criteria for sample was nursing students who were currently enrolled in 1st year PBBS Nursing, 3rd year and 4th year B Sc. nursing and 3rd year

GNM programme and available at the time of data collection and had attended regular classes on abdominal palpation at selected nursing institution in Sikkim.

Data collection tools and technique

The instrument used for data collection was a structured knowledge questionnaire validated by five experts from Department of Obstetrics and Gynecology, and Obstetrics and Gynecological nursing.

In this study the structured knowledge questionnaire, was a questionnaire that was filled up by the respondents which was tested for its reliability by split half technique and Socio demographic profile by Intra-rater method.

The structured knowledge questionnaire had two sections. Section I, Part A was composed of nine items to collect the information regarding personal characteristics included age in years, academic year and nursing programme currently undergoing, type of institution, previous experience in attending any classes or demonstration on abdominal palpation, exposure to mass media related to abdominal palpation, Current clinical

posting in OBG ward, whether they have any previous experience in taking care of antenatal mother, number of times performed obstetrical palpation. Part B consists of four items to collect information regarding educational profile of nursing students through record review. Section II consisted of thirty items with multiple choice questions. Each correct response was scored 1 to collect the information from nursing students regarding knowledge on abdominal palpation.

The study Ethical permission was sought from institutional ethics committee and informed written consent was taken from all the participants. Prior to the commencement of the final study the research instrument was piloted to examine the feasibility of the intended approach to study the population in this study.

Statistical analysis

The statistical analysis of the data was performed by using the SPSS 17.0 statistical package software. The data were presented as mean ± standard deviation and frequency (n, %). In the comparison of

knowledge mean scores with the selected variables, Chi square test were used.

RESULTS

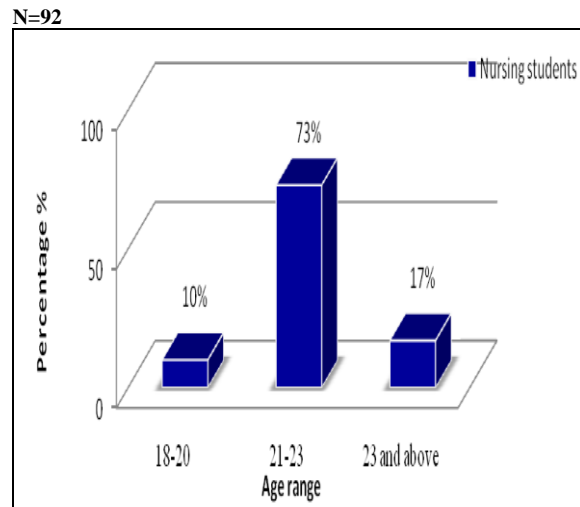


Figure 2: Distribution of nursing students in terms of their age range

Among the 92 respondents, 73 % of respondents belong to age range of 21-23 years and only 10% of the respondents belong to the age range of 18-20 years (Figure 2).

Table 1: Distribution of nursing students in terms of their socio- demographic data . N=92

Sl. No.	Demographic Variables	Nursing students	
		f	%
1.	Name of the institute		
	1.1 Nursing training center, STNM Hospital	19	21
	1.2 Vinayka school/College of Nursing	28	30
	1.3 Sikkim Manipal college of nursing	45	48.9
2.	Do you attend classes or demonstration on obstetrical palpation		
	2.1 Yes	92	98.9
	2.2 No	-	-
3.	Do you have any exposure to mass media related to obstetrical palpation		
	3.1 Yes	40	3.4
	3.2 No	52	56.5
	3.1.1 If yes, then specify the type of mass media.....		
	3.1.1.1 Video	40	100
4	Do you have clinical posting in OBG ward currently		
	4.1 Yes	51	56.4
	4.2 No	41	44.5
5.	How many times you have performed obstetrical palpation		
	5.1 < 10 times	39	42.3
	5.2 10 to 20 times	24	26
	5.3 > 20 times	29	31.5

48.9 % of respondents were selected from Sikkim Manipal College of nursing, 98.9 have already attended classes and demonstration on abdominal palpation and majority of them (56.5%) had not exposed to any mass media related to abdominal palpation. All (100%) respondents had the

experience in taking care of antenatal women and only 31.5% of the participants had performed abdominal examination more than twenty times. (Table1)

Regarding the type of nursing programme currently undergoing, majority of the respondents were from B Sc nursing

(44%), 38% were GNM students and only 18% were PBBSsc. nursing students (Figure 3).

N=92

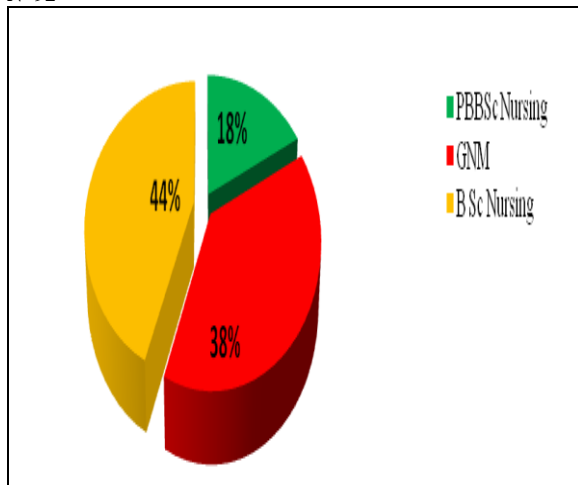


Figure 3: Distribution of nursing students in terms of their nursing programme currently undergoing

OBG ward and 46% were in different clinical area during the time of data collection (Figure 4).

N=92

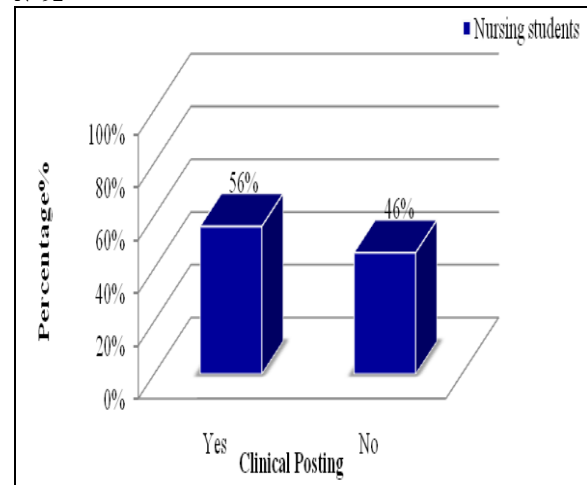


Figure 4: Distribution of nursing students in terms of their current clinical posting in OBG ward

The data also reveals that 56% of respondents were having clinical posting at

Table 2: Distribution of nursing students in terms of their education profile through record review. N=92

Sl.No	Educational profile through record review	Nursing students	
		f	%
1.	Total midwifery hours attended in theory class till now as per class attendance register		
	<50% of theory hour	5	5.43
	50-80% of theory hour	12	13
	>80% of theory hour	75	81.5
2.	Total midwifery clinical hours attended till now as per clinical attendance register		
	2.1. <50% of theory hour	1	1.08
	50-80% of theory hour	11	11.95
	>80% of theory hour	80	86.95

Almost 81.5 % of the participants had attended theory classes more than eighty percent allotted whereas only 13 % attended less than 80% hour in theory classes. In terms of attending clinical hours, nearly 86.95 % of the participants had attended more than eighty percent in midwifery clinical. (Table 2)

The data presented in table 3 shows that the maximum knowledge score on abdominal palpation was 30 with the score range of 14-28 and score percentage of 69.2%. The mean for knowledge score among nursing students was 20.76 with median of 21. The standard deviations for knowledge score among nursing students

was 3.319 which shows that the scores were deviated among the 92 respondents (Table 3).

The data presented in table 3 depicts that the knowledge score of nursing students in various areas of abdominal palpation. The maximum score was found in the auscultation of pregnant abdomen (96.7%) followed by aims and objectives of abdominal palpation (75%), but minimum scores were found in inspection (55%), palpation (67.9%), Anatomy and physiology of reproductive system (65.2%) and Terminology related to abdominal palpation (68.1) (Table 4)

Table 3: Distribution of nursing students in terms of their overall knowledge score regarding abdominal palpation. N=92

Sl. No.	Variables	Maximum score	Score %	Mean	Median	Standard deviation
1	Knowledge	30	69.2%	20.76	21	3.319

Table 4: Distribution of nursing students in terms of their area wise knowledge score regarding abdominal palpation. N=92

Area of knowledge	Knowledge scores			
	Total Score	Score %	Mean	SD
Anatomy and physiology of reproductive system	300	65.2	60	13.3
Definition of abdominal palpation	199	72.1	66.33	38.4
Aims and Objectives	138	75	69	19.7
Terminology related to abdominal palpation	188	68.1	62.66	24.5
Estimation of gestational age and EDD	191	69.2	63.66	22.5
Abdominal Examination- a. Inspection of pregnant abdomen	304	55	50.66	21.5
Palpation of pregnant abdomen	375	67.9	62.5	14.8
Auscultation of pregnant abdomen	178	96.7	89	4.2

Table 5: Distribution of nursing students in terms of their level of knowledge score regarding abdominal palpation. N=92

Level of Knowledge score	f%	Maximum score	Score %	Mean	Median	Standard deviation
Adequate Knowledge	22%	501	83.5%	25.05	25	1.19
Inadequate Knowledge	78%	1409	65.23%	19.56	20	2.66

Knowledge regarding the abdominal palpation was found to be inadequate among the 78% respondents. It was also seen that only 22 % of the respondents out of 92 had adequate knowledge on abdominal palpation even though the number of theory hour's attended (81.5%) and total classes and demonstration (98.9%) ratio was quiet high (Table 5).

The data represents the mean knowledge score of PBBSc students (22.23) is higher than the mean knowledge score of GNM (19.28) and B Sc students (21.4) .The data also reveals that the total knowledge

score of GNM students regarding abdominal palpation was 675 (64.20%), for BSc. nursing it was 857 (71.4%). Whereas the score was slightly at higher side in terms of PBBSc nursing students with total score of 510 (71.4%) out of 17 students. The standard deviations for knowledge score among the PBBSc nursing students was also less as compare to other programme students which shows that the scores among 17 PBBSc. nursing students was homogeneous as compared to the other groups (Table 6).

Table 6: Comparison of overall knowledge score in terms of different nursing programme. N=92

Types of nursing Programme	Knowledge Score on abdominal palpation				
	Score	%	Mean	Median	SD
General nursing and midwifery, n=35	675	64.20	19.28	19	3.24
PBBSc. Nursing, n=17	510	74.1	22.23	22	3.17
B Sc.Nursing, n=40	857	71.4	21.4	22	3.01

N=92

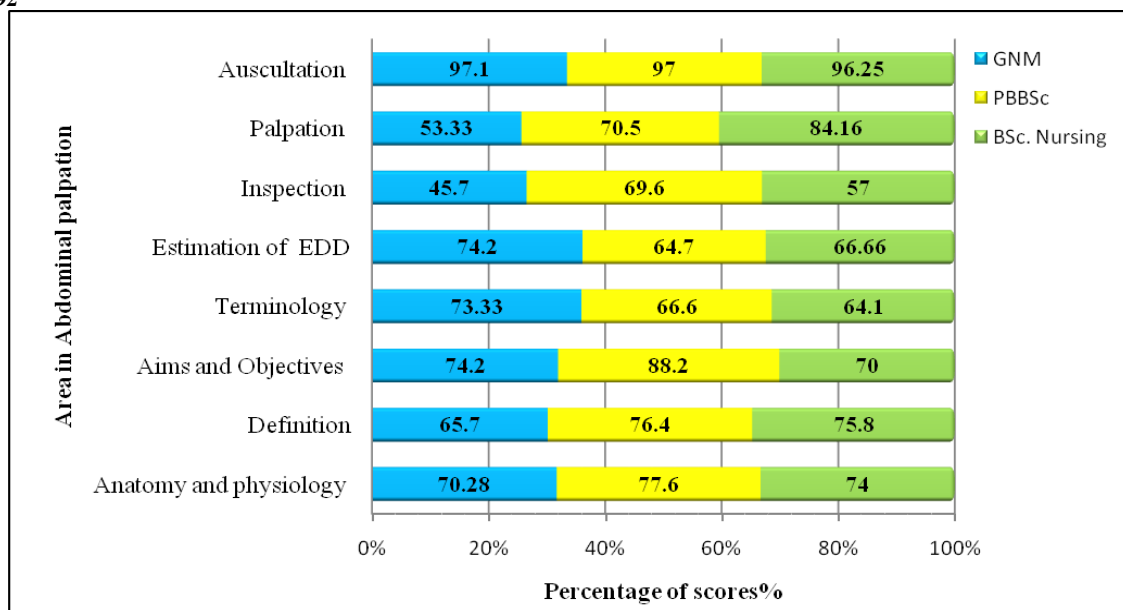


Figure 5: Comparison of area wise knowledge scores in terms of different nursing programme

The data presented in figure 5 shows that in terms of knowledge score at various areas of abdominal palpation, out of 35 GNM students the higher score at the knowledge area was found in auscultation of pregnant abdomen (97.1%) followed by anatomy and physiology of reproductive tract (70.28%), aims and objectives of abdominal palpation (74.2), estimation of EDD (74.2) and terminology related to abdominal palpation(73.33%) whereas the lowest score was found in the area of Inspection (45.7%), Palpation of pregnant abdomen (53.33%) and definition related to abdominal palpation (65.7%).

The data also reveals that, out of 17 PBBSsc students, the higher score at the knowledge area was found in auscultation of pregnant abdomen (96.25%) followed by aims and objectives of abdominal palpation (88.2%), anatomy and physiology of reproductive tract (77.6%), definition related to abdominal palpation (76.4%), Palpation of pregnant abdomen (70.5%)

whereas the slightly lower score was found in the area of Inspection (69.6 %), estimation of EDD (64.7%) and terminology related to abdominal palpation(66.6%) but overall the score was higher at all levels.

The data also reveals that, out of 17 PBBSsc students, the higher score at the knowledge area was found in auscultation of pregnant abdomen (97%), palpation of pregnant abdomen (84.16%), definition related to abdominal palpation (75.8%), anatomy and physiology of reproductive tract (74%) and aims and objectives of abdominal palpation (70%) whereas the slightly lower score was found in the area of Inspection (57%), terminology related to abdominal palpation(66.6%) and estimation of EDD (64.1%). It was found that the scores in inspection of pregnant abdomen were found lower among GNM and BSc nursing students whereas equal number of students had higher score at auscultation of pregnant abdomen (Figure 5).

Table 7: Comparison of level of knowledge scores in terms of different nursing programme. N=92

Types of nursing Programme	Knowledge Score on abdominal palpation			
	Adequate Knowledge		Inadequate knowledge	
	Mean ± SD	Mean%	Mean ± SD	Mean%
General nursing and midwifery, n=35	n=4(11%) 24.5±1	81.66%	n=31 (89%) 18.61±2.77	62%
PBBSsc. Nursing=17	n=6 (35%) 25.5±1.22	85%	n=11(65%) 20.45±2.33	68.18
B Sc. Nursing ,n=40	n=10 (25) 25±1.24	83.3%	n=30 (75%) 20.23±2.41	67.44

When comparing the level of knowledge score between different nursing programme, it was found that among 17PBBSsc nursing students, only six (35%) were having adequate knowledge regarding abdominal palpation whereas majority of the students (65%) was found with inadequate knowledge

The data also reveals that out of 35 GNM students, only four (11%) students had adequate knowledge towards obstetrical palpation where as 31 students (20%) had inadequate knowledge regarding abdominal palpation.

Out of 40 B Sc nursing students, only ten (25%) students had adequate knowledge towards obstetrical palpation

where as 30 students (75%) were having inadequate knowledge regarding abdominal palpation. Hence the majority of the GNM and B Sc Nursing students were having inadequate knowledge (<80%score-inadequate) regarding abdominal palpation. (Table 7)

The data reveals that the obtained chi square value for age (0.037), clinical posting in OBG ward (0.342), total midwifery hours attended (NA) and total midwifery clinical hours attended (3.75) was not found statistically significant at 0.05 level of significance, therefore the knowledge of nursing students was found to be independent of their age, current clinical posting in OBG ward, total midwifery hours

attended and total midwifery clinical hours attended.

The table also reveals that the obtained chi square value for nursing programme currently undergoing (9.70*, P<0.05), students exposure to mass media

related to obstetrical palpation (6.39*P<0.05) and number of times performed obstetrical palpation (9.97*, P<0.05) was significant at 0.05 level of significance.

Table 8: Association between attitude towards obstetrical palpation among student nurse midwives with selected variables. N=92

Sl. No	Selected Variables	Knowledge Score				
		Adequate	Inadequate	df	x2	P -value
1	Age (in years)					
1.1	18-20	5	4	2	0.037	P>0.05
1.2	21-23	39	28			
1.3	23 and above	9	7			
2	Nursing programme currently undergoing					
2.1	GNM	13	22	2	9.70*	P<0.05
2.2	PBBSc. Nursing	12	5			
2.3	B Sc Nursing	28	12			
3.	Do you have any exposure to mass media related to abdominal palpation					
3.1	Yes	29	11	1	6.39*	P<0.05
3.2	No	24	28			
4.	Clinical posting in OBG ward currently					
4.1	Yes	28	23	1	0.342	P>0.05
4.2	No	25	16			
5.	Number of times performed abdominal palpation					
5.1	< 10 times	16	23	2	9.97*	P<0.05
5.2	10 to 20 times	14	10			
5.3	> 20 times	23	6			
6.	Total midwifery hours attended in theory class till now as per class attendance register					
6.1	<50% of theory hour	0	5	2	NA	NA
6.2	50-80% of theory hour	0	12			
6.3	>80% of theory hour	53	22			
7.	Total midwifery clinical hours attended till now as per clinical attendance register					
7.1	<50% of theory hour	0	1	2	3.75	P>0.05
7.2	50-80% of theory hour	8	2			
7.3	>80% of theory hour	44	37			

Nursing students who are at degree programme, received information on abdominal palpation from other sources and performed abdominal palpation more than twenty times had scored higher in knowledge scale as compared to those who were at diploma level, not exposed to any mass media on obstetrical palpation and performed abdominal palpation less than 10 times. Hence the knowledge level is depended upon the types of nursing programme, information from other sources and number of times performed skill on abdominal palpation but not on how much theory classes the students had attended etc (Table 8).

DISCUSSION

The findings also showed that in relation to knowledge related to theoretical

part of the abdominal palpation, all students had an adequate knowledge but when it comes to the knowledge related to the skill part of the abdominal palpation, the knowledge score of the students was found inadequate as evident in Figure 4. Majority of the nursing students had an inadequate knowledge regarding inspection and palpation of pregnant women which is considered to be an essential element of antenatal examination. The overall score on inspection was 55 % and for palpation 67.9 when it is observed among different nursing programme. In the area of inspection of pregnant abdomen, the GNM students scored very low score of 45.7%, whereas B sc nursing students scored 57 % and PBBSc. scored 69.6 %.

Knowledge regarding the abdominal palpation was found to be inadequate among

the 78% respondents. It was also seen that only 22 % of the respondents out of 92 had adequate knowledge on abdominal palpation even though the number of theory hour's attended (81.5%) and total classes and demonstration (98.9%) ratio was quiet high. The finding is supported by the study conducted by Priyadharshini. M, Dr. P. Mangala Gowri [16] assess the knowledge on antenatal care among antenatal care giver and found that, out of 30 antenatal care giver 19 (63.3%) of them had inadequate knowledge, 10(33.3%) of them had mild knowledge and 1(3.3%) of the had adequate knowledge.

The data also shows that knowledge scores at all the area of abdominal palpation among different category of nursing students were also inadequate. Majority of the respondents had an adequate knowledge on auscultation of pregnant abdomen with a score percentage of 96.7%. In terms of different nursing programme the same result was found. The findings are consistent with the findings of the study conducted by Fungai Muzeya [17] who conducted a quantitative, descriptive, cross-sectional research to assess the knowledge, attitudes and practices of nurse-midwives related to obstetric care at Thaba-Tseka, Lesotho among 45 nurse-midwives. The findings show that the participants' performance on the knowledge questions related to fetal heart rate, were asked. Almost all (n=44, 97.8%) of the participants answered correctly and only one (2.2%) answered incorrectly the question on the normal range of the fetal heart rate.

This study reveals that there is no statistically significant association found between knowledge regarding abdominal palpation and age of respondent as p value is 0.037 which was not supported by study done at Geetanjali University by Sumol. C. Abraham [18] who found a significant difference in knowledge scores between B.Sc Nursing students of different age group. Knowledge regarding antenatal care was high in the age of >21 years, as compared to the age group of 18-19 years

19-20 years and 20-21 yrs. The least scorer was the students between 18-19 years age group.

In this study, there is significant association found between knowledge regarding abdominal palpation and different nursing programme, nursing students currently undergoing as p value is 9.70 which is supported by study done Geetanjali University by Sumol. C. Abraham [18] where there is significant association found between knowledge level with different class of students ($z=-3.06$, $p<0.04$). The knowledge level was high in students of IV year.

The present study shows that there is statistically significant association found between knowledge regarding abdominal palpation and information received from mass media related to abdominal palpation as p value is 6.39. Which was found consistent with the findings of the study conducted by Sumol.C.Abraham [18] who found a significant difference in knowledge level of B.Sc Nursing Students with type of source of information regarding antenatal care (38.95%) of students who had higher knowledge level where using other sources of information like classes books etc. The Knowledge level was higher among students using news papers, posters, and T.V regarding ante natal care whereas it was low among radio user.

Recommendation

A similar study can be replicated on a large sample, in order to validate the findings and make generalizations. An experimental study can be conducted to find out the effectiveness of a new teaching strategy regarding abdominal palpation. A study can be replicated on ANM'S, LHV and Staff Nurses in order to find out their knowledge level with which they are rendering their services.

CONCLUSION

The knowledge score of the nursing students was found inadequate. New teaching strategy and instructional method has to be combined with traditional teaching

method to update the knowledge of nursing students regarding abdominal palpation.

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REFERENCES

1. Healthizen. Pregnancy center. Healthizen; 2009. Available from: <http://www.healthizen.com/pregnancy/index.aspx>.
2. Adewoye KR, Musa IO, Atoyebi OA, Babatunde OA. Knowledge and Utilization of Antenatal Care Services by Women of Child Bearing Age in Ilorin-East Local Government Area, North Central Nigeria. *International Journal of Science and Technology*. 2013; 3 (3).
3. Kalayou KB, Haftom GW, Gereziher BA, Hailemariam BK, Alemayehu BK. Assessment of Antenatal Care Utilization and its Associated Factors Among 15 to 49 Years of Age Women in Ayder Kebelle, Mekelle City 2012/2013; A Cross sectional study. *American Journal of Advanced Drug Delivery*. 2014; 062-075.
4. Yang Y, Yoshitoku Y, Rashid, MH, Junichi S. Factors Affecting the Utilization of Antenatal Care Services Among Women In Kham District, Xiengkhouang Province, LAO PDR. *Nagoya Journal of Medical. Science*. 2010; 72:23-33.
5. Millenium development goals-India country report 2015. Report from Ministry of Statistics and Programme Implementation. Government of India. www.mospi.nic.in.
6. Ojo. A textbook for midwives in the Tropics. 5th ed. London: Holden and Stoughton; 2004.
7. Maternal Health. Retrieved from <http://unicef.in/Whatwedo/1/Maternal-Health>
8. Fantanesh D. Assessments of knowledge and attitudes of pregnant women on the benefits of antenatal care utilization, in Addis Ababa, Ethiopia. Online publish thesis submitted to the school of graduate studies of Addis Ababa University, for partial fulfillment to the requirements for degree of masters of Science in maternity and reproductive health nursing. June, 2015. Retrieved from www.google.com
9. Puri R. Knowledge, Attitudes and Practices of Obstetric Care Providers in Bugesera District, Rwanda. Online published thesis submitted in partial fulfillment of the requirements for the degree of Master in Science in the Duke Global Health Institute in the Graduate School of Duke University, 2011. Retrieved from www.google.com.
10. My Mak C, Wong H S. Assessing Women in Pregnancy and Labour: Is it better to palpate? A Perspective from Midwives. *Hong Kong. Journal of Gynecology Obstetrics and Midwifery* 2000; 1(2):86-95. Accessed November 29, 2015.
11. Ojong IN, Uga AL, Chiotu CN. Knowledge and attitude of pregnant women towards focused ante natal care services in university of calabar teaching hospital, calabar, cross river state, Nigeria. *March 2015; 1(1): 14-23*. Retrieved from www.eajournals.org.
12. Onuoha PC, Prescott C K, Daniel E. Factors associated with nursing students' level of satisfaction during their clinical experience at a major Caribbean hospital. *Asian Journal of Science and Technology*. 2016; 07 (05):2944-2954.
13. Benjamin JS, Virginia AS. Kaplan and Sadock's Comprehensive Text book of psychiatry. 8th edition. Lippincott publication; 805. Accessed November 17, 2013.
14. Mbada CE, Adebayo OE, Adeyemi AB, Olujide OO, Arije OO, Dada OO, Akinwande OA. Knowledge and Attitude of Nigerian Pregnant Women towards Antenatal Exercise: A Cross-Sectional Survey. *ISRN Obstetrics and Gynecology*. 2014; 2014:1-8.

15. Annamma J. Comprehensive text book of midwifery. 2nd edition. R M brothers: New Delhi; 2004.
16. Priyadharshini M, Gowri PM. Assess the Knowledge on Antenatal Care among Antenatal Care Giver. International Journal of Scientific Engineering and Research. 2015; 3(10): 89-90. Retrieved from www.ijser.in.
17. Muzeya F. Knowledge, attitudes and practices of nurse-midwives related to obstetric care at Thaba-Tseka district in Lesotho. Unpublished Master of Public Health thesis submitted to University of South Africa. June 2015. Retrieved from www.google.com.
18. Abraham SC. Descriptive study to assess the knowledge regarding Antenatal care among BSC Nursing students of selected nursing colleges of Udaipur city with a view to develop an information Booklet. International Journal of Research. 2015; 2(3):518-26. Retrieved from <http://internationaljournalofresearch.org/>.

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