Original Research Article

Impact Of Jigsaw Learning Technique On Nursing Students To Learn The Concepts Of Normal Labor

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ABSTRACT:
Background
Learning and reproducing the contents learnt in the examination is a part of every student's life especially in professional courses like nursing where the entire curriculum is made concise into 3 4 years. Making the teaching and learning strategies more student friendly has helped to retain student's attention and in still in them the interest to learn and perform better. Jigsaw Technique is one of the cooperative learning technique in which students equally participate, prepare and lead a group thus learning for themselves as well as preparing their group. The purpose of this study was to investigate the impact of jigsaw learning technique on nursing students as it is found beneficial in teaching. The technique also helps to revolve the learning material for peers in learning process and thereby help to build interpersonal and interactive skills among students.

Objectives:
- To plan and implement the Jigsaw Technique as a learning methodology,
- To determine the effectiveness of Jigsaw learning technique on learning the concepts of normal labor by post-test among nursing students.

Design: Quasi experimental design

Participants: Using Simple Random Sampling technique, 110 diploma and graduate nursing students were recruited among 55 participants were in each experimental and control group

Setting: kalinga institute of nursing sciences, BBSR Odisha.

Method: Using Simple Random Sampling technique, 110 diploma and graduate nursing students were recruited among 55 participants were in each experimental and control group and their pre-

knowledge was assessed on the concepts of normal labor and its management. The same group was taught the Jigsaw Technique of learning and their post knowledge was assessed.

Results and interpretation: There is significant difference between pre test 10(18.8%) ,15(27.2%) in experimental and control group and post test knowledge score 35(63.6%) ,26(47.2%) in experimental and control group at (p value) 0.05 level, analyzed by paired 't' test.

Conclusion: The Jigsaw Learning method proved to be an effective educational learning tool for nursing students

Keywords: Jigsaw Technique, Cooperative Learning, Academic Performance, Learning Technique

INTRODUCTION:

Modern and active learning methods form an important part in the education of Nursing students. They encourage the development of communication and critical thinking skills, and ensure the safe health care of patients. The implementation of active learning methods into the study process might result in students' improved motivation for learning, encourage their critical thinking skills and independent learning (Parikh ND 2016).Rather than continuing with employing traditional teacher-centered educational approaches, faculties should introduce an active student-centered learning environment since creating learning experiences that encourage reflection, knowledge building, problem-solving, inquiry, and critical thinking are highly significant (Alexander BJ, Lindow LE, Schock MD 2008)

Today's nursing profession required to know so much more content and learn it in a much shorter time and stored for a long period until updates and innovations will arrived. The content saturation often seems overwhelming, for both nursing students and faculty. Academic institutions are devising new strategies to meet this challenge; thus, several teaching strategies are being proposed and implemented for this noble purpose One of the essential requirements of healthcare systems to meet the broad needs of patients is the employment of well-qualified nurses (Ellenbecker CH, Fawcett J, Jones EJe 2017). In this respect, one of the important responsibilities of nursing education systems is providing high-quality education to nursing students and preparing competent nurses so that they can provide patients with safe and high-quality care in the future (Hofler L, Thomas K. 2016). As a step toward that end, nursing educators need to use new educational strategies to actively engage nursing students in learning activities in academic and clinical settings

Active learning increases students' retention of information, improves performance on course assessments, and increases standardized test scores (Styers, Van Zandt, & Hayden, 2018; Ulrich et al., 2017). Results from a study by Matsuda, Azaiza, and Salani (2017) support the concept that when students are connected with course content, learning outcomes improve overall. Active learning also improves students' perceptions of inclusiveness in the classroom and their self-efficacy (Lumpkin, Achen, & Dodd, 2015)

Nursing education in India has been looked upon as one of the areas that needs improvement to attract students towards the profession. Many reports have brought to limelight the key issues and problems emphasizing the improvement of quality, issues related to nursing(Evans C, Razia R, Cook)

Education are over cluttered curriculum and relying only on didactic teaching methods. A research study analyzed the source of stress among the nursing students and one of them was academic overload and poor performances in examination.(Shukla A, Kalra G, Pakhare A.(2013)) A survey of reasons for increased attrition rates in nursing schools found academic failure on the top of the list(Last, L., and Fulbrook, P. (2003)) The professional college administration and faculties have expressed increased concern over the student disengagement and lack of interest during the sessions.

Research studies have revealed that collegiate students who are adult learners expect challenges and more active involving sessions but often dismayed and feel detached with the regular monotonous lectures(Kuh, G., and Hu, S. (2001)) While looking closer at techniques of cooperative learning, we can observe many techniques of this model and many sub-dimensions of these techniques. However, in the nature of these techniques in general, students have to see each other as a competitor or team member. Research indicates both sociologically and psychologically negative effect in students when they see each other as competing(Açıkgöz, 2003; Ekinci, 2011; Slavin, 1995). To minimize these negative effects, researchers focused more on group work and studied on the sub-dimensions of these techniques. As a result, students working in groups had better academic achievements, their self-efficacy, attitudes and social skills being increased (Bandura, 1994; Johnson, Johnson & Holubec, 1993; Slavin, 1990; Ural, 2007).

In particular, clinical practice training aims to improve the student's critical thinking, analysis, psychomotor, communication & management skills and to fortify the sense of self-esteem (Aslan, 2018). As a result of the rapid development of technology and the changes in traditional lifestyle, expectations, trends, personality traits and learning styles now vary between generations (Dogan, Tarhan, & Sunal, 2018; Erden, 2017). The members of Generation Z, the first generation of the digital world, are recommended to be educated with rather innovative teaching styles different from traditional education material due to the fact that 'they can focus on more than one task at the same time' (Erden, 2017).

Jigsaw classroom or home group is a research-based kind of cooperative learning, it is an educational technique designed by Elliot Aronson in 1970 at the University of Texas and the University of California. In his four-decade educational experiment it reduces stereotyping and other forms of discrimination. It promoted dialogue among members of the group in and outside of the classroom using jigsaw method.

He recommended the following for jigsaw application 1) the group consists of 5 members not to big and not to small 2) Assign a group leader and a recorder 3) divide the lessons according to segments and assign one segment/topic per student member of the group 4) the students must be given enough time to gather the needed data, internalize and interpret 5) students having the same segment/topic must be group together into another group known as the expert group on that segment 6) students will return to their original segment group and share the ideas as discussed by the expert group 7) process the activity and do an evaluation The jigsaw technique combines problem-based learning with cooperative learning. Initially, a theme is defined, which consists of multiple "pieces" of information or skills. Students need to understand all aspects (ie, all pieces) in order to completely answer a question or master the material. Students work with 2 different groups to accomplish this task—a teaching group and an expert group.

Jigsaw techniques is one of the integrated learning technique that instigates students to get involved with their course materials, prepare for themselves, lead and present among their peer group and encourage each other to learn. The technique is done with the aid of the teacher and performed under her supervision thus helping to activate students learning instincts by involving directly. It also helps the students to create peer support, expand deep thinking and perception with their group members. It provides equal opportunities to engage in thinking and problem solving(Aronson, E. (1997), Aronson, E. (2000-2008),Çağatay, G., and Demircioğlu, G. (2013)

The main objective of midwifery is to learn the concepts of normal labor, and to help the nursing students to differentiate between normal and abnormal labor to put in to their practice and to become best midwives in their career. VI The concepts of normal labor include stages,criteria, and physiological changes during each stage of labor, drug administration, and nursing management. The normal labour and its course is the major portion to study in the syllabus and totally a new concept for the students. Hence making the learning process interesting in order to retain the learnt concepts is essential. Jigsaw technique creates interest in students motivating them to do self-

reading and take up roles to make sure that all teamed up learn the concepts under the facilitation of the teacher

MATERIALS AND METHODS:
Research Objectives
The following objectives were formulated to find out the jigsaw technique
To plan and implement the Jigsaw Technique as a learning methodology
To determine the effectiveness of Jigsaw learning technique on learning the concepts of normal labor by post-test among nursing students.

Research Design.
The research design used in the study is Quasi experimental design . One group pretest post test method was used. Here the chosen samples for the Pretest were given the questionnaire to assess the knowledge on the concepts of normal labor and its management after attending a regular non-interactive lecture and the same group was offered the same questionnaire after they participated in the Jigsaw technique to learn the same topic.
Setting: The study was conducted at kalinga institute of nursing sciences, Bhubaneswar, Odisha

Sample Size and Sampling technique.
Total 110 nursing students from diploma and under graduate were recruited for the sample. Sample were divided into two group by using simple random sampling techinique. Sample are equally divided in experimental and control group.

Jigsaw Technique.
Step 1: The Samples were divided into 5 "Expert Groups" with 11 samples in it.
Step 2: One sample in each group who has sound academic performance was appointed as the group leader to lead the group.
Step 3: The concepts on normal labour were divided into 10 different segments like Factors and Theories triggering onset of labour, First Stage Physiology and Management, Second stage Physiology, Labor Preparation, Mechanism of labour, Vaginal Delivery and Management, Third Stage and Management, Recovery period or fourth stage(Annamma Jacob (2007))
Step 4: Number of students in each group and assign them segment of the topic
Step-4: Give students time to individually research and learn about their topic
Step-5: Then the students with similar topics make a group and discuss their topics. Each student shared their acquired knowledge on their topics. The others noted down additional points
Step-6: Students then returned to their parent group and once again shared their topics having new points.

Tool description
A structured questionnaire on normal labour was developed and used in the study. It consists of sixty questions related to the concepts of normal labour. Each item in the tool was collected for its quality by performing item analysis. The tool was sent to identified five experts for their opinions and content validity. The reliability of the tool was tested by using split half method and Karl persons formula. The tool was found to be reliable as r value was 0.82

Inclusion criteria- Nursing students who will give consent to participating in the study
-The students who attended the lecture on normal LR

Exclusion criteria- The students who are not available during data collection

RESULTS AND DISCUSSION

SL.NO	DEMOGRAPHIC VARIABLE	EXPERIMENTAL GROUP		CONTROL GROUP	
		Frequency (f)	Percentage(%)	Frequency (f)	Percentage(%)
1.	Age in years				
	1.19-21 years	19	35	20	37
	2.22-24 years	16	48	24	44
	3.25-27years	10	19	11	20
2.	Sex				
	1.Male	4	2	4	2
	2.Female	51	29	51	29
3.	Education				
	1.Diploma in nursing	25	45	25	45
	2.Graduate in nursing	30	55	30	55
4.	Religion				
	1. Hindu	43	79	49	89
	2. Christian	10	19	5	9
	3. Muslim	2	4	1	9

Table 1. Descriptive statistics for demographic variables (N=110)

In this study to majority of the 26(48%) students were between the age of 22-24years in experimental group ,24(44%) in control group. Maximum number of the students 51(29%) female participants in experimental group in both experimental and control group. 25(45.4%) diploma in nursing in both experimental and control group,30(54%) graduate in nursing in both experimental and control group.maximum 43(78%) religion Hindu in experimental group 49(89%) in control group.

Table-2: Frequency and percentage distribution of pretest and post test Knowledge Score.

Level of knowledge	Score range		EXPERIMENTAL GROUP		CONTROL GROUP	
			Frequency	percentage	Frequency	percentage
Pre test	Good	21-30	10	18.8%	15	27.2%
	Average	11-20	20	36.3%	15	27.2%
	Poor	1-10	25	45.4%	25	45.4%
Post test	Good	21-30	35	63.6	26	47.2
	Average	11-20	10	18.1	15	27.2
	Poor	1-10	5	9	14	25.4

Data represent that, in pretest 10 (18.8%) students gained good knowledge score in experimental group ,15(27.2%) in control group, 20(36.3%) students gained average knowledge in experimental group ,15(27.2%) in control group and 25 (45.4%) students gained poor knowledge in experimental group ,25(45.4%) in control group. In post test 35(63.6%) gained good knowledge in experimental group,26(47.2%)incontrol group, 10(18.1%) gained average knowledge in experimental group ,15(27.2%) in control group,5(9%) students have poor knowledge in experimental group, 14(25.4%) in control group. Increase in knowledge in experimental group suggest of effectiveness of the jigsaw technique.
Insert table no. 3

Table: 3: Mean standard deviation,standard Error of Difference ,Degree of freedom and t value of pre test and post test knowledge scores.

	MEAN ±SD		SE	DF	P VALUE
	PRE TEST	POST TEST			
EXPERIMENTAL GROUP	13.09±6.99	22.56±7.92	11.6		
CONTROL GROUP	12.18±6.18	17.61±6.17	8.8	54	0.05

The above table depicts that effectiveness of jigsaw technique on nursing students determined by mean and standard deviation of pretest score 13.9±6.99 in experimental group 12.18±6.18 in control group and post test score 22.56±7.92 in experimental group ,17.61±6.17 in control group which explains that jigsaw method is quite effective in enhancing students engagement in class room.

DISCUSSION

Active learning strategies engage students in the learning process and encourage them to reflect on their learning. Although nursing students in many programs prefer to be passive learners, nursing faculty are integrating active learning in their courses.

The results of the present study were analyzed in the two stages of pretest and posttest in the intervention and control groups in medical education regarding various outcomes of learning, skills, motivation, perception, and satisfaction. As in the most of the studies in this regard, the jigsaw group showed improvement in the comparison of the pretest and posttest outcomes with the control group. Several studies have been focused on medical education in terms of the tremendous impact of various methods of cooperative learning, demonstrating effective learning outcomes. For instance, Karimi Moonaghi and Bagheri(Karimi Moonaghi H, Bagheri M 2017)reported the impact and enhancement of the jigsaw cooperative approach on various outcomes of learning, satisfaction, motivation, management, and perception in different countries.The review study conducted by Jadhav et al. Aimed to compare different teaching methods with the jigsaw method by presenting several studies, and the researchers also examined various educational outcomes, such as learning, self-motivation, and self-esteem and were influenced by this teaching method (Jadhav V, Jadhav N). In the field of nursing, Kritpracha et al. demonstrated the impact of the jigsaw method on enhancing self-directed learning outcomes and success of nursing academic achievements in the students of Prince of Songkla University (Thailand) (Kritpracha C, Sae-Sia W, Nukaew O, J).In another study, Leyva-Moral and Riu Camps reported the increased satisfaction of nursing students (Leyva-Moral JM, Riu Camps M.). In addition, the study by Buhr et al. was conducted on the medical students at Duke University to assess the impact of the jigsaw method on sub-acute and prolonged clinical care in patients. In the mentioned study, the jigsaw training method was reported to be effective in enhancing clinical skills (Buhr GT, Heflin MT, White HK, Pinheiro SO.). The study by Cho regarding simulated training indicated increased learning, perception, motivation, and satisfaction. As suggested by the author, jigsaw is an effective training strategy in simulated training (Cho H.2015-16). In a study of pharmacy, Phillips and Fusco demonstrated the effects of this method on pharmacy students at the Chicago School of Pharmacy (Phillips J, Fusco J), while Oludipe and Awokoy observed the reduction of anxiety in the students using cooperative learning strategies (Oludipe D, Awokoy)

CONCLUSION:

Present study reveals that Jigsaw as an alternative learning strategy done outside from the traditional learning set up is an effective strategy when tested to nursing students. The study is in consonance to the claim of other experts that tested Jigsaw in over four decades that it is an effective strategy for learning and developing other skills such as leadership and social engagements. This study suggests proliferating the idea of Jigsaw to other programs of the college as a new dimension of learning.

A student's motivation to learn depends on many factors like interesting classroom sessions, active learning in the classroom, passion for the subject learnt, approachable teachers who can simplify complexities using teaching strategies. Researchers claim that "teacher led classrooms" result in the traditional methods like non- interactive lectures and blackboard teaching are the reasons for creating passive students. Teaching methodology slowly moved from the "Chalk and Board" system to the Microsoft slide presentation program.The Power Points. Two researchers found that students rated high the lectures those had Power Points but contradictory to this most studies found

students reported having learnt more from the traditional lectures than sometimes boring, densely packed slides resulting in content overload and coverage in short span of time.11,12 Technology has taken its dominance in the classroom with arrival of the virtual classrooms and smart boards but yet nothing like the student direct involvement would improve the attention focus of the students. This study was also an attempt to promote cooperative learning among nursing students which is not a usual trend. Students found the technique as beneficial in helping them learn better. It gave them a sense of leadership and accomplishment apart from gaining and refining their knowledge on the concepts in normal labour. Thus the study concluded that jigsaw learning technique is effective educational learning tool for the nursing students and it can be implemented in daily teaching-learning activities. The only limitation being the time constraint to implement the activity in the routine class sessions.

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