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Team-Based Learning as a Teaching Strategy of Community Health Nursing Course forUndergraduates

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Abstract: Team- Based Learning (TBL) isan instructional technique that promotes small-group learning andoffersan alternate to lectures in large-group settings. It consists of out-of-class preparation after that in-class readiness assurance tests and group application activities.The aim of this studywas to decide the efficiency of TBL in an undergraduate nursing course as regards the outcomes of academic performance, accountability of learning, predilection for lecture or TBL, and studentcontentment with TBL.A quantitative randomized controlled trial design was carried on 248 nursing undergraduates partaken in the TBL group andtraditional lecture control group at theFaculty of Nursing, Fayoum University, Egypt, during the second semester/academic year 2016-2017.A self-administered structured questionnairesform covering demographic data, academic performance was measuredusing the community health nursing exam. In TBL group, accountability of learning,predilection for lecture or TBL, and studentcontentment was measured usingStandardized anonymous Survey Monkey of the TBL-SAI (Student Assessment Instrument questionnaire).The resultsshowed that in comparing TBL to lecture, TBL studentsrecorded significantly higher and TBL studentsconveyedmodest to highest standards of accountability, and higher predilection for TBL than lecture, contentmentwith TBL, and high levels of positiveunderstandings with TBL.Conclusions and recommendation,results showed that TBL is a satisfactory and effective instructional approach in teaching nursing undergraduatesas well as it is one of the self-directed learning methods that ensure better analytical and clinical-reasoning skills and needed to apply in all of the nursing courses.

Keywords: Team-based learning, Teaching Strategy, Community health nursing, Undergraduates.

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I. Introduction

Community health nursing courseenables nursing students to deliver comprehensive health care for individuals, families, and communities in collaborating with other professionals and groups in community health settings[1]. In light of this, teaching and learning of community health nursingcourse in the nursing curriculum would need a novel, effective andholistic models to motivate students to learn the general public, health,basicfor effective management of the diseases in the community in the context of perceived health determinant [2].The course content is mainly delivered in the form of lectures for large groupsof 100-170 students that continuethe most common method of obtaining knowledge. Lecturing is lessfor managing problem-solving or lifelonglearning skillswith very little or no contacts between the teachersor among the student themselves [3].The medical teaching in numerous countries,raisingemphases on improving teachingapproaches that assistundergraduatesto attain higher levels of learning with easyinlet to web-based learning resources, classrooms may not be the area where undergraduates get their first experience with novel content. The flipped classroom model now being trained in many campuses to foster students learning to analyze, apply, and evaluate conceptions in the classroom from material they have learned and understood outside or previously class [4].Involvementwith a great number of students.The approach promotes low memorization of facts and high critical thinking and analytic skills[2]. It advocates self-directed learning of course content. TBL is a guidance strategy thatpermits aloneconductor to manage doubledfewgroups together in the schoolroom[5].Also,TBLis a cooperative learning design that was introduced to fosterundergraduates to be active learners rather than inactivereceivers of information. Collaborative learning designs are mostly based on the principle that students working together as a coherent team are able to attain higher levels of learning. The design builds on the powerof individual

students by permittingthem to work jointly as a team to reach a common goal line [6]. Team-based learningseekspersistentstudent planning, attendance, and participation and allowsthe undergraduatesto learn from peers as they work and negotiate with teams in disparityto traditionalsessions that concentrate oncoverage content and therefore fostering low-level learning[7].It include four main elements: teams, accountability, feedback, and assignment design. TBL motivateundergraduates to be more responsible for their particular learning course. The instructor's role fundamentallyconveys from being a primary instructor to a facilitator andpracticed. Also, in team-based learning, students are systematic into small groups encompass 5 -7 members [8].TBL has been effectively utilized in medical-nursing and health sciences education and the benefits areinclusive,promote student performance; engagement;improve critical thinking, collaborative, analytical, team-building skills; enhancing student-to-student and student-to-faculty interaction [9].The procedure of TBLincludes a definiteseriesof pre-class activities, personal and group act in the lecture hall, and instantfeedback.Before every class students are allocated a particular learning objective and shouldreadpertinent articlesabout thesubjects [10].

1.1 Aim of the study and hypothesis

The aimof the study was to assess the effectiveness ofTBL over the current traditional lecture to teach community health nursing course for undergraduates.It was hypothesizedthat is TBL strategy would foster self-directed learning andalso facilitate understanding of the basics ofcommunicable diseases as compared to learn bylecture.As for, the TBL group would have high levels of accountability,predilections for lecture, and contentment with the TBL process.

II. Materials & Methods

2.1 Research design

A randomized controlled trial design was utilized to conduct this study.

2.2 Technical design

The technical design involves setting, participants,and tools of data collection.

2.3 Setting

The study was carried outin theFaculty of Nursing, Fayoum University, Egypt, duringthe second semester/academic year 2016-2017.ParticipantsStudents of 2nd semester of 4th years BSN (248) were first randomly divided into two groups by asking the students to pick up sealed packets with either TBL or lecture written in it. The number of the students of team-based learning strategy 134 while 114 for lecture group. Students did not have prior experience with the mechanics of TBL.

Data collection tool

Data collection composed of three tools inorder to fulfill the aim of this study. Tool 1:Self-administered structured questionnaires sought data relating to demographics of the university's students such as age, gender, andprevious score. The Second tool:Standardized anonymous Survey Monkey of the TBL-SAI (Student Assessment Instrument) questionnaire, a 39-clause, closed-ended questionnaire that evaluate subscales accountabilityto assesses undergraduateelaboration for class and contribution to the group,(8 clauses) , extreme score 40**,** predilectionforTBL16 clauses, extreme score 80, and learner contentment with the TBL, 9 clauses, extreme score 45using a five point Likert scales with responses ranging from strongly disagree to strongly agree approach where 1= strongly disagree, 2= disagree, 3= unsure, 4= agree, and 5= strongly agree andhighermarksrepresenting higher agreement. The total markvarieties from 33 to 165 points. The TBL-SAI demonstrates accepted levels of validity and reliability (Mennenga, 2012) [11]. Third tool: Student academic performance evaluation was measured using the community health nursing exam administered at the termination of the semesterand consist of 30-items multiple choice question.

Methods, Administrative and Ethical Considerations: An approval consentwas obtained from Community Health Nursing Department Committee, Dean of the Faculty of Nursing, Fayoumuniversity to permit the researcher to apply the team -based learning strategy and collects the required data.

TBL strategy

The TBL strategywas used in the community health nursing content.Learners were directed to TBLon the first day of class. Teaching sessions for both groups were conducted on similar topics of thecommunicable disease.The topics were selected from communicable disease module: epidemiological triadof communicable disease,types of illeness, a mode of transmission, prevention and control, responsablities of community health nurse. The students who entered into the TBL group were then assigned into teams of 5 -7 in each by the instructorby asking the students to pick up the team numberfrom the basket.Thesame team keeps for the whole sessions of team-based learning.Students were notified of pre-class preparation, reading material for the selected topicsthrough recommended community health nursing textbooks 15days in advance. In the TBL group, students individually answered 10 MCQ Individual Readiness Assurance Test (IRAT) beside the pre-reading material. Question emphasized on the content of the topics 15 minutes of time wasfixed for this test at the end of which the undergraduates were requested to submit their answer papers.The students required to rearrange theirplaces to facilitate group discussion and then worked together in theirassigned teams on the same MCQ's, discussedthe questions and reached a consensus for acorrect answerusing placards. This constituted theTeam Readiness Assurance Test (TRAT)students were given 30 minutes for the TRAT. Later the teams presented their answer to thewhole group verbally with the justification fortheir answer. Any related concerns wereclarified by the faculty.The students were guided not to incoming study material in any form during the complete period of the IRAT and GRAT lectures.However, scores of IRAT and TRAT were not included in their systematic curriculum evaluation. Each such session was conductedin 1.5-2 hours. The entire module went on for 2 weeks. By contrast, in a traditional lecture, group the discussion of the topic was mainly dominated by the lecturer who discussed thecontent of the same topics in the moduleusing PowerPoint presentations. At the end of the entire community health nursing course,a theory examination in the form of 30 MCQ'sout of 10 MCQs was from the topics insured in the TBL sessions was conducted for both groupsthat also assessed whether the content matter was retained andanalysed if TBL supplementation had an effect. On student performance, the scores obtained in these 10 MCQs were compared between the TBL and non-TBL groups. All 10 assessed questions in the MCQ paper were applied-based questions and not of recall type. Every correct response in the MCQ test was awarded a score of one with no marks awarded for an incorrect response. Ultimately of the TBL session, the students were asked to complementa questionnaire that was prepared to assess their accountability forlearning, predlication for lecture or TBL, and learner contentment with TBL.

III. Statistical Analysis

The collected data were analyzed using the Statistical Package for Social Sciences (SPSS) version 16.0.The data were offered using descriptive statistics in the form of frequencies, percentages, means and standard deviations.

IV. Results

Regarding demographic characteristics of the subjects results showed that 86 (64.1%) of the TBL group their age more than 22 years of the mean age was 21.89±0.77 while in the lecture group 64 (56.1%). Meanwhile, 87 (64.9%) of the TBL group were female and 59(51.8) of the lecture group were also female. Concerning the previous score, it was found that 56 (41.8 %) of the TBL group had very good while, only 20(17.5) of the lecture group(Table 1).As regards subjects, preparation for the class results showed that 60 (44.8%), 55 (41.0%), 51 (38.1%), and 49 (36.6%) of the subjects had strongly agreed regarding the contribution to the team, respectively. Meanwhile, 73 (54.5%) had agreed about the accountability for the team member. On the other hand,65 (48.5%), 62 (46.3%), and 57 (42.5%) of them had agreed regarding the preparation for class and the ability to assist teams in their learning, respectively (Table 2).Concerning subjects' predilecationwith team-based learningfindings revealed that similar percentages 68 (50.7%), 68 (50.7%), 64 (47.8%), 64 (47.8%), 63 (47%), and 61 (45.5%), of the subjects agreed, are among the preference for lecture or team -based learning, respectively (Table 3).In relation tosubjects'contentmentwith team-based learning, elaborated that 53%, 49.3%, 44.8%, and 41.8%, of the subjects, strongly agreed among their satisfaction with team-based learning, respectively. Meanwhile, 25.4% and 19.4% of them strongly disagreed regarding their satisfaction with team-based learning (Table 4) Regarding the subjects'

scores on team- based learning, the mean accountability was (31.8 ± 4.5) while, preference was (60.5 ± 8.8).On the other hand, the mean of learner satisfaction represented that (35.7 ± 4.7). Meanwhile, the mean of the total score (128.1± 15.8) indicated that moderate to high level of the subjects favorable for a team based learning as a methods' of teaching(Table 5).As for the academic performance,finding revealed that 110 (82.1%) were very good otherwise 16 (11.9%) were excellent and only 8 (6.0%) were good. A statistically significant difference was found between the two groups related to student academic performance (Table 6).

Table 1: Demographic characteristics of the studied students (n=248)

Demographic data	TBL group (No.=134) (%)	Lecture group(No.= 114) (%)
Age in years 21 2+ M ± SD	48 (35.9) 86 (64.1) 21.89±0.77	50 (43.9) 64 (56.1) 21.77± 0.89
Gender Male Female	 47 (35.1) 87 (64.9)	 55(48.2) 59(51.8)
Previous score Excellent V. Good Good Pass	 32 (23.9) 56 (41.8) 31 (23.1) 15 (11.2)	 20(17.5) 35(30.7) 30(26.3) 29(25.5)

M, mean, SD, standard deviation

Table 2: Feedback of the subjects regarding preparationfor class and contribution to the team (n= 134)

Items	SD	D	N	A	SA
	No.(%)	No.(%)	No.(%)	No.(%)	No.(%)
- I spend time on reading before class in order to be more ready.	4(3.0)	5(3.7)	23(17.2)	57(42.5)	45(33.6)
- I sense to have to prepare for this topic orderly to do well.	4(3.0)	-	13(9.7)	62(46.3)	55(41.0)
- I contribute to my team members learning.	4(3.0)	-	20(14.9)	50(37.3)	60(44.8)
- My assistance, to the team, is not important.	33(24.6)	25(18.7)	19(14.2)	41(30.6)	16(11.9)
- My team members anticipated to them in their learning.	3(2.2)	7(5.2)	15(11.2)	63(47.0)	46(34.3)
- I am responsible for my time learning.	1(0.7)	5(3.7)	11(8.2)	73(54.5)	44(32.8)
- I am proud of my power to help my team in their learning.	1(0.7)	4(3.0)	15(11.2)	65(48.5)	49(36.6)

SD: Strongly disagree, *D:Disagree, N: Neutral A: Agree, SA: Strongly Agree*

Table 3: Subjects predilection with team-based learning (n= 134)

Items	SD	D	N	A	SA
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
- Through a conventional lecture, I often discover myself thinking of non-regarding things.	8 (6.0)	10 (7.5)	18(13.4)	64(47.8)	34 (25.4)
- I feel un-concentrate during the traditional	7 (5.2)	6(4.5)	22(16.4)	68(50.7)	31(23.1)

lecture.					
- I am readily distraught during team-based learning activities.	14(10.4)	23(17.2)	23(17.4)	48(35.8)	26(19.4)
- I am more properly to fall asleep during lectures than using team-based learning activities.	16(11.9)	32(23.9)	47(35.1)	20(14.9)	19(14.2)
- I feel bored through team-based learning activities.	32(23.9)	47(35.1)	20(14.9)	19(14.2)	16(11.9)
- I speak about non-regarding things during TBL activities.	25(18.7)	38(28.4)	27(20.1)	32(23.9)	12(9.0)
- I easily remind what I understand when action in a team.	50(37.3)	63(47.0)	13(9.7)	7(5.2)	1(0.7)
- Recall article better when the instructor lectures about it.	42(31.3)	61(45.5)	26(19.4)	4(3.0)	1(.07)
- Team-based learning activities assist me to recall past knowledge.	50(37.3)	23(17.2)	14(10.4)	7(5.2)	-
- It is easier to learn the exam when the instructor has lectured over the sessions.	44(32.8)	63(47.0)	23(17.2)	2(1.5)	2(1.5)
- I am remembering information longer when I come it with team members during the GRATS used in team-based learning	43(32.1)	64(47.8)	23(17.2)	4(3.0)	-
- I remember material better after the application of practice utilized in team-based learning.	47(35.1)	61(45.5)	20(14.9)	3(2.2)	3(2.2)
- I can easily remember material from the lectures.	47(35.1)	60(44.8)	23(17.2)	1(0.7)	3(2.2)
- When the act with my team members, I find it difficult to remember what we talked about during the session.	32(23.9)	39(29.1)	21(15.7)	22(16.4)	20(14.9)
- I do better on tests when we used team-based learning to complete the material.	40(29.9)	68(50.7)	16(11.9)	7(5.2)	3(2.2)
- After listening to lecture, I find difficult to remind what the tutor talked about during class.	35(26.1)	40(29.9)	20(14.9)	14(10.4)	25(18.7)

Table 4: Subjects contentment with team-based Learning (n=134)

Items	SD	D	N	A	SA
	No.(%)	No.(%)	No.(%)	No.(%)	No.(%)
- I enjoy team-based learning activities.	2(1.5)	5(3.7)	8 (6.0)	48 (35.8)	71 (53.0)
- I learn better in a team setting.	-	4(3.0)	11(8.2)	53 (39.6)	66(49.3)
- I think team-based learning activities are an effective process to study.	6(4.5)	5(3.7)	16(11.9)	51(38.1)	56(41.8)
- I do not like to work in groups.	34 (25.4)	24(17.9)	11(8.2)	33(24.6)	32(23.9)
- Team-based learning activities are cheerful.	6(4.5)	10(7.5)	8(6.0)	58(43.3)	52(38.8)
- Team-based learning activities are lots of time.	26(19.4)	23(17.2)	16(11.9)	37(27.6)	32(23.9)
- I think team-based learning support me to improve my degree.	1(0.7)	8(6.0)	17(12.7)	56(41.8)	52(38.8)
- I have a positive attitude towards team-based learning activities.	-	6(4.5)	14(10.4)	58(43.3)	56(41.8)
- I have a good expertise with team-based	-	1(0.7)	18(13.4)	55(41.0)	60(44.8)

learning.					

Table 5: Subjects subscale and total score of team-based learning

Items	M ± (SD)
Accountability.	31.8 ± 4.5
Predilection.	60.5 ± 8.8
Learner contentment.	35.7 ± 4.7
Total Score.	128.1± 15.8

Table 6: Student academic performance

Academic performance	TBL group No.= 134		Lecture group No.= 114		X^2
	No.	%	No.	%	
Excellent	16	11.9	10	8.8	P<0.05
V. Good	110	82.1	60	52.6	
Good	8	6.0	44	38.6	

Significant: P <0.05

V. Discussion

Team-based learning is a, structured approach to enhanceeffective learning, peers teaching in a large group setting and prepared to provide students the chance to assess their learning and practice course concepts through application and problem-solving.The present study aimed to plan, implementing and evaluating effectiveness of TBL as a novel teaching, learning strategy in community health nursing course for 4th year nursing students' in Faculty of Nursing, at Fayoum University, Egypt. This is the first study describing the use of TBL in nursing courses in Egypt.

Regarding demographic characteristics, the present study findings showed that the mean age was 21.89 years and more than half of them were female. This was in agreement withBranson Boss, and Fowler (2016),[5] who mentioned that the majority of participants were female with the mean age of 28 years.Accoding to the present study findings,feedback of contribution to the team less than half of the study,subject contributesto the team members learning. This was in agreement with Middleton & Ashelford (2013), [12]who mentioned that TBL sessions were "interactive and gave the opportunity for discussion. This was also similar toRawekar et al (2013), [13] reported that 33% strongly agreed and 67% agreed TBL helped to work well together.Additionaly, around half of the studied subjects agreed and also strongly agree to prepare for the topic orderly to do well. This was in agreement with Hashilkar and Gelula (2014), [14] who reported that most students agreed that the mechanics of TBL helped them to prepare for the class.In relation tothe studied subjectscontentment with TBL the present study showed that more than half of them were strongly agreed aboutenjoying team-based learning activities and also, nearly half of them had strongly agreedabout the learning better in a team setting. On the other hand,two fifths of the studied subjects were agreed that TBL is an effective processof education and helped me improve my grade andhad a goodexpertise with team-based learning. This was in agreement with Levin et al (2004) [15] and also Hashilkar and Gelula (2014), [14] who reported that most students agreed that the mechanics of TBL helped them to share their knowledge with teammates and to understand the basics, as well as the depth of the subject - in

particular with clinical relevance. Moreover, the subjects predilection for lecture with team-based learning the present study revealed that half of them agreed theyeasily distracted during traditional lecture and betteron tests when we used team-based learning to complete the material. While, nearly half of them were strongly agreed they team-based learning activities help me recall past information easily remembers what learned when working in a team and easier to study for tests when the instructor has lectured over the material.

This was in agreement with Hashilkar and Gelula (2014), [14] who reported that most students agreed TBL is a better means of understanding the basic concepts and remembering for long as compared to conventional tutorials and learned more from TBL than conventional tutorials. As for thesubscales foraccountability, predilection for TBL than lecture and contentment with TBL the present study showed that TBL learners reported moderate to high levels of accountability, a higher predilection for TBL than lecture and contentmentwith TBL. Thus, the total scores reflected moderate to high levels of favorable experiences with TBL. This finding was similarto Branson, Boss, and Fowler (2016), [5]in a study about team-based learning: Application in undergraduate baccalaureate nursing education in a major Metropolitan city in the Southern United States. Furthermore, the academic performance of the student was higher for TBL than traditional methods. This finding was in accordance with Branson, Boss, and Fowler (2016), [5] who emphasizedthat the learners in the TBL course would perform significantly better than learners in the lecture-based course. The findings of our study were in agreement withthose of Vasan et al. (2011) [16]who found that departmental and national board of medical examiners subject examination scores over five years for TBL-based anatomy were higher than those for lecture-based anatomy. Also,similar to the study of Hashilkar and Gelula (2014), [14] who mentioned that, scores of the students were higher inthe TBL group, indicating that TBL was more effective than conventional tutorials in understanding not only the basicsthe deeper aspects of the subject and could be inferred therefore that TBL helped in long-term retention of the learned material.Meanwhile, this finding is incongruent with the study conducted by Bleske et al. (2014), [17]who found that the recall questions, students taught through traditional lectures scored significantly higher compared to students who underwent TBL sessions.On the other hand, a study conducted byMalone et al, (2012)[18]who observed that no significant difference in examination scores of TBL groups when compared to non-TBL groups. Also, this finding supports result by Nieder et al. (2005), [19]who asserted thatnot find any significant difference in examination scores of students who underwent TBL when compared to previous year examination scores.

VI. Conclusion

TBL is more effective than traditional methods and it appears to not only provide information about the subject matterbut also assist students in retaining facts and concepts for longer durations.

Recommendation

TBL strategy is one of the self-directed learning methods that ensure better analytical and clinical-reasoning skills and needed to apply in all of the nursing courses.

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