Identify the teaching learning methodologies and its perceived effectiveness in achievement of educational objectives among final year undergraduate students

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Abstract:

Background: *Teaching is an ever evolving process, which requires the teacher and students needs to continually update themselves. Most educational institutes have adopted new methods of teaching and learning in varying degrees. The challenge of imparting quality health care related education requires multimodal teaching and learning methods.*

Aim: *To identify the teaching and learning methodologies and its perceived effectiveness in achievement of educational objectives of undergraduate students.*

Material and Methods: *A non experimental, descriptive study with cross sectional survey was conducted among 135 final year undergraduate students of constituent units of Pravara Institute of Medical Sciences (Deemed University). A validated and pre tested structured questionnaire was used to collect data, from the randomly selected participants. Based on obtained scores, the achievement of educational objectives was assessed on cognitive, affective and psychomotor domains. The data was analyzed with descriptive and inferential statistics wherever required.*

Results: *The findings revealed that all (100%) of students had traditional lecture method as teaching method followed by seminar (68%), group discussion (64%), symposium (47%), problem based learning (38%) and computer assisted learning (36%). Alongside a significant percent (42%) had tutorial study and (39%) had independent study. In relation to clinical teaching majority (76%) had case presentation, case study (73%), bed side clinic (69%), and demonstration (67%). Majority (71.2%) of students had good level of achievement of educational objectives, and the mean score is (71.2±12.03). The course of study had significant association with competencies and skills (χ^2=14.63) of students.*

Conclusion: *In conclusion, the students of medical, dental and allied health faculty have undergone variety of teaching and learning methods for development of knowledge and skill. Therefore the students had good achievement of competencies and skills on different domains of educational objectives.*

Key Words: *teaching methodologies, perceived effectiveness, educational objectives and under graduate students*

I. Introduction

The act of acquisition of knowledge, skills and attitude is fundamental to a person's development. The common objective of education is to bring out permanent change in individual behavior. Learning takes place through the steps of attention, perception and conceptualization (individual's own understanding). The learner needs to undergo symbolic, iconic and enactive learning experiences, and the quality of learning is related to process of learning[1].

Bloom's Taxonomy is a convenient way to describe the degree to which we want our students to understand and use concepts, to demonstrate particular skills and to have their values, attitudes and interests affected. It is critical that we determine the levels of student expertise that we are expecting our students to achieve. Further, the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, are reflected in the professionalism of health care personnel for the benefit of the individuals and communities being served[2].

There is growing concern among medical community that conventional models of teaching medical and allied health students are becoming out dated and neither it encourages right qualities in students nor impart a lifelong learning. Undergraduate medical education, as with any other education programme needs ongoing improvement to meet changing demands of 21 st century. The health personal has to develop competencies necessary to render healthcare to people at varying capacities based on the faculty of healthcare as medical, dental, nursing or physiotherapy[3].

Educational innovations are complex and extensive and its measurement and description is made more difficult by confounding and complicating effect of each stage in continuous curriculum. Medical education is

of course replete with outcome measurements of student's achievement of knowledge, skill, attitude and behaviors. The challenge ahead is to assemble these components in to matrix from which integrated judgement can be made about program quality[4].

Numerous evidences highlights that the students of various discipline wants seminars, group discussion, clinically oriented case study as the methods of learning. It was noticed that the most helpful teaching behavior of higher grade students was answering and discussing questions, and providing information through feedback. Alongside students were expressed problem solving technique as the most effective method of teaching and learning[5, 6, 7].

Medical, dental and allied faculties of medical education are expected to achieve the objectives of education in all cognitive, affective and psychomotor domains. Present study is an attempt of investigator to identify the teaching learning methodologies underwent and perceived effect of those methodologies in acquisition of learning objectives at cognitive, affective and psychomotor domains.

II. Material And Methods

It was a non experimental descriptive cross sectional study, and was carried out in the constituent units of Pravara Institute of Medical Sciences (Deemed University), Loni (Bk), Maharashtra. A sample comprising of 135 final year undergraduate students studying at medical, dental, physiotherapy and nursing colleges were selected by using a probability method, stratified random sampling technique. In lieu of intake capacity a proportionate i.e. 60% of sample in each course was selected for study. The expert validated and pre tested structured questionnaire was used to collect the data (reliability of tool is 0.86). It consists of part: A – demographic data, part: B – questionnaire to identify teaching methods and part: C – rating scale to assess the achievement of educational objectives. Based on scores the level of achievement of educational objectives was categorized as 'Poor, Satisfactory, Good and Very good'.

The study was approved by Institutional Ethics/Review Committee (IRC/IEC) of PIMS (DU), Loni. A written permission was sought form the Head of Institutions and informed consent was obtained from all participants. The questionnaire was administered individually, after the completion questionnaires were collected back with appreciation. The collected data was analyzed by using descriptive statistics such as mean, Standard Deviation (SD) and mean percent for continuous variables; and frequency, percentage for categorical variables. These were to understand the distribution of subjects on demographic data and other variable (assess the teaching methods underwent). The inferential statistics like chi square test was used to find the association between the variables. $P < 0.05$ was considered statistically significant level. The statistical software SPSS version 10 was employed for the data analysis.

III. Results

Demographic data of final year under graduates: Most (98%) of students were 21 – 25 years of age, more than half (56%) were female, higher percent (49%) of students were pursuing MBBS course while 33% had BDS. Majority of students had 71%, 67% and 64% of results in I, II and III year of study respectively.

Class room teaching methods underwent by final year under graduates: It was noticed that all (100%) of students had traditional lecture method as teaching method followed by seminar (68%), group discussion (64%), symposium (47%), problem based learning (38%), computer assisted learning (36%) and project method (35%). Alongside a significant percentage (42%) and (39%) of students had tutorial study and independent study respectively. However, it was depicted that the nursing students underwent higher percentage of various class room teaching methods than other courses. Table No. 1

Clinical teaching methods underwent by final year under graduates: Results revealed that majority (76%) had case presentation followed by case study (73%), bed side clinic (69%), demonstration (67%) and field visit (50%). Bed side clinic (82%) was a most common method of clinical teaching for MBBS students, whereas demonstration was the common teaching method for BDS (73%) and B.Sc Nursing (100%) students respectively. However, among all final year under graduates only a mere percent (<12%) underwent advanced clinical teaching methods like individual patient conference, clinical care conference and health team conference. Table No.2

Competencies and skills acquired at different domains of educational objectives: More than half (54%), and significant portion (39%) of students had good, and very good level of achievement of competencies and skills at different domains of educational objectives. The overall mean score was (71.2±12.03) which is 71% of total score indicates good level of achievement of educational objectives. The mean percent of cognitive, psychomotor and affective domain was >70% (i.e. good level of achievement). However the competencies and skills acquired at different domains of educational objectives of significant items was depicted in the Table No.3

The co relation between competencies and skills acquired with course of study highlights that the BPT and B.Sc Nursing students had higher mean scores in these areas than others (medical/dental) students. There was a statistically significant association found between competencies and skills acquired and the course of study (χ^2=14.63) at p< 0.05 level.

Perception on methods of teaching: Majority of students viewed that the lecture method was an effective method for imparting medical education, because it helps to connected with teacher, better understanding and focused on specific topic, and have opportunity to clear the concepts or doubts. Alongside sizable students echoed that the group discussion was another best method of class room teaching. The rationale given was discussion stimulates thought process, gets inputs from all members, develops communication, makes the concept clear and has better remembrance. In relation to clinical teaching methods, majority of students expressed that the bed side clinic, case presentation and demonstration were the most preferred way of teaching, where these methods offers exposure to clinical materials, and learning by seeing (comparing with text books/literature) and practicing which is very essential for health care professionals. Overall everyone was agreed that they attained the various domains of educational objectives through different teaching and learning methods.

IV. Discussion

The study showed that all (100%) of respondents underwent lecture as teaching and learning method, further the common methods of teaching underwent by under graduate students are seminar, group discussion, symposium, problem based learning, and computer assisted teaching and learning etc. A significant percent had tutorial and independent study as one of the teaching and learning methods. It was consistent with study carried out by Ismail S, Rahman NA, Mohamad N, Jusoh NM, Hood AB, Arif AB et al that majority (72%) of respondents chose lecture as the most preferred teaching method, and (10%) preferred tutorial as best method of teaching and learning in medical sciences[8].

In support of these facts, Sarkar and Majumdar also noted that lecture is considered as one the oldest method of teaching and learning in all type of education including medical science. Further Medical Council of India has considered it one of prime method of teaching[9].

In lieu of clinical teaching, findings highlights that majority of them had case presentation, case study, bed side clinic, demonstration and field visit. It was well supported by Mahmood A, Khatoon F, Ali M, Ejaz S and Qureshi MA that more than half (52.8%) of medical students choose case studies to be the reliable teaching method than other methods like Problem Based Learning (PBL). The students viewed the case study method is more interactive and interesting method of teaching and learning[10].

In this study among all final year under graduates only a mere percent underwent advanced clinical teaching methods like individual patient conference, clinical care conference and health team conference. Similar finding have been revealed by Radhwan A and Bobryshev YV, where students expressed inadequate advanced pre clinical teaching[11].

A significant association was found between competencies and skills acquired and the course of study at p< 0.05 level. Results of this study provide important implication for understanding the significance and needs for utilization of variety of methods of teaching and learning in medical education.

V. Conclusion

The students of medical, dental and allied health faculty have undergone variety of teaching and learning methods for development of knowledge and skill. Therefore the students had good achievement of competencies and skills on different domains of educational objectives. It is considered through research that students are the best resource about quality of teaching, which needs to be productive, informative, satisfying or worthwhile. Again when students perform better and even more than expected, it is thought academic faculty is more effective and the quality teaching is ensured.

The students preferred an active participation during class room and clinical teaching methods. Further some improvement in teaching and learning methodologies like Problem Based Learning (PBL), Peer Review Learning (PRL), Computer Assisted Learning (CAL), Advanced Clinical Learning (ACL), e learning and modular learning/training etc need to be done in order to contribute towards the development of knowledgeable and highly skilled healthcare professionals in future. Hence the prospective research in Teaching and Learning process is advocated to ensure better quality medical and other allied health graduates who will serve India and rest of the world on basis of science and humanity.

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Reference

[1]. Neeraja KP. Textbook of nursing education. First edition, New Delhi, Jaypee Brothers medical Publishers, 2003.
[2]. Basavanthappa BT. Nursing education. First edition, New Delhi, Jaypee Medical publication (p) Ltd; 2003.
[3]. Shankar PR, Jha N, Bajracharya O, Gurung SB, Singh KK. Feedback on and knowledge, attitude, and skills at the end of pharmacology practical sessions. J Educ Eval Health Prof, 2011; 8:12
[4]. Oshikoya KA, Bello JA and Ayorinde E O. Medical students view on the methods of teaching pharmacology at the Lagos state university college of medicine, Nigeria. Nigerian quarterly journal on hospital medicine, 2007; 17(3):101 – 107
[5]. Mandeep S and Meenakshy S. Effectiveness of a five step method for teaching clinical skills to students in a dental college in India. Journal of dental education, 2011; 75 (11): 38 – 41
[6]. Wang JJ, Kao CH, Ku YK. A study on Problem solving strategies integrated in to nursing process to promote clinical problem solving abilities in RN-BSN students. Nurse education today, 2004; 24 (8): 589 – 594
[7]. Wilkes M and Blingh J. Evaluating educational interventions. BMJ, 1999; 8 (3): 134 – 39
[8]. Ismail S, Rahman NA, Mohamad N, Jusoh NM, Hood AB, Arif AB et al. Preference of teaching and learning methods in a new medical school of Malaysia. Journal of Applied Pharmaceutical Science, 4 (2); 2014: 48 – 55
[9]. Sarkar AP and Majumdar G. Perception on lecture class in Community Medicine among MBBS students of West Bengal in India. Reviews of Progress, 2013; 1(17): 1 – 7 Available from http://reviewsofprogress.org/UploadedArticle/39.pdf (Accessed on 11/11/2014)
[10]. Mahmood A, Khatoon F, Ali M, Ejaz S and Qureshi MA. Perceptions and Preference of Contemporary Teaching Methods among University Students of Pakistan- A Cross-Sectional Survey. IOSR Journal of Nursing and Health Science, 2012; 1(1): 6 – 10
[11]. Radhwan A and Bobryshev YV. Satisfaction from Academic Activities among Medical Students in Malaysia. European Journal of Educational Research, 2013; 2 (1): 17 – 24

Table No.1 Description of class room teaching methods underwent by final year undergraduate students

SN	Teaching methods	MBBS		BDS		BPT		BSc (N)		Total	
		No	%	No	%	No	%	No	%	No	%
I	**Expository Method**										
	Lecture	66	100%	44	100%	10	100%	15	100%	135	100%
II	**Group Method**										
	Group discussion	38	58%	25	57%	09	90%	15	100%	87	64%
	Seminar	33	50%	37	84%	08	80%	14	93%	92	68%
	Symposium	21	32%	24	55%	04	40%	14	93%	63	47%
	Panel discussion	02	03%	06	14%	05	50%	13	87%	26	19%
	Conference	09	14%	13	30%	08	80%	15	100%	45	33%
	Workshop	12	18%	15	34%	07	70%	13	87%	47	35%
	Peer group learning	10	15%	06	14%	0	0%	0	0%	16	12%
	Project method	18	27%	13	30%	04	40%	12	80%	47	35%
	Tutorial strategy	43	65%	11	25%	02	20%	01	07%	57	42%
III	**Discovery Method**										
	PBL	34	52%	05	11%	02	20%	11	73%	52	39%
	Problem solving strategies	08	12%	03	07%	0	0%	02	13%	13	10%
	Brain storming	09	14%	03	07%	05	50%	08	53%	25	19%
IV	**Individual Method**										
	Programmed instruction	00	00%	08	18%	00	0%	02	13%	10	07%
	Independent study	20	30%	24	55%	01	10%	08	53%	53	39%
	Assignment	12	18%	17	39%	05	50%	12	80%	46	34%
	Computer assisted learning	22	33%	13	30%	03	30%	10	67%	48	36%
	Telemedicine	01	02%	02	05%	0	0%	0	0%	03	02%
V	**Encounter Method**										
	Role play	06	09%	01	02%	0	0	13	87%	20	15%
VI	**Inspirational**										
	Simulation	01	02%	02	05%	01	10%	0	0	04	03%
	Microteaching	01	02%	04	09%	01	10%	10	67%	16	12%

Table No.2 Description of clinical teaching methods underwent by final year undergraduate students

SN	Teaching methods	MBBS		BDS		BPT		BSc (N)		Total	
		No	%	No	%	No	%	No	%	No	%
I	**Traditional Method**										
	Demonstration	38	58%	32	73%	06	60%	15	100%	91	67%
	Case study	44	67%	31	70%	09	90%	14	93%	98	73%
	Case presentation	52	79%	26	59%	10	100%	14	93%	102	76%
	Bedside clinic	54	82%	19	43%	06	60%	14	93%	93	69%
	Clinical rounds	32	48%	13	30%	06	60%	14	93%	65	32%
	Field visit	31	47%	16	36%	06	60%	14	93%	67	50%
	Drug study	06	09%	08	18%	03	30%	12	80%	29	21%
	Process recording	0	0%	0	0%	01	10%	11	73%	12	09%
II	**Advanced Method**										
	Individual patient conference	07	11%	05	11%	04	40%	0	0%	16	12%
	Clinical care conference	02	03%	02	05%	01	10%	03	20%	08	06%
	Health team conference	02	03%	03	07%	04	40%	07	47%	16	12%
	Clinical care map	02	03%	01	02%	01	10%	0	0%	04	03%

Table No. 3 Item wise comparison of competencies and skills acquired in relation to educational objectives

SN	Items	Never %	Rarely %	Sometime %	Often %	Always %
I	**Cognitive domain**					
1	The teaching – learning activity imparted adequate level of knowledge	02%	06%	40%	41%	11%
2	The teaching –learning activity helped to apply the previously learned knowledge and utilize for the level above	00%	13%	29%	40%	18%
3	The teaching learning method helped in application of new knowledge to new situations	02%	10%	31%	41%	14%
4	The teaching method helped to judge and take appropriate action in a particular situation	02%	12%	39%	37%	10%
5	The teaching method motivated to gather facts from multiple sources and determine possible course of action	02%	15%	33%	41%	10%
6	The teaching learning method helped to reveal the understanding of material by explaining it in own words and discriminate among the terms	04%	08%	38%	32%	19%
7	The teaching learning methods stimulated critical analysis of a situation and take appropriate action	01%	10%	38%	39%	11%
8	The teaching learning methods helped to judge and evaluate a course of action on the basis of its outcome and make an alternative course of action if necessary	03%	12%	28%	42%	15%
II	**Psychomotor domain**					
1	The clinical learning helped to develop a pattern of behavior that becomes a routine part of activity	02%	09%	30%	36%	24%
2	The teaching methods helped you in solving clinical problems	01%	07%	30%	39%	24%
3	The clinical teaching helped in performing the clinical activities automatically with precision and accuracy	02%	10%	30%	39%	18%
4	The clinical teaching helped to develop adequate clinical skill and competency	02%	06%	22%	47%	23%
5	The teaching has helped in practicing clinical activities to the extent of perfection and smoothness	02%	09%	39%	32%	19%
6	The clinical teaching helped you to perform clinical skill and adapt them to special circumstances with necessary meant for adjustment to make desirable behavior	04%	10%	28%	39%	19%
7	The clinical teaching methods helped you in initiating a clinical action, to start, finish and follow up through	02%	11%	34%	36%	16%
III	**Affective domain**					
1	The teaching methods could inculcate an automatic response to situation that, affective behavior is a part of general behavioral pattern	04%	13%	34%	36%	12%
2	The teaching methods helped in recognizing value of behavior and establishes a system of desired behavior	01%	15%	33%	41%	11%
3	The teaching learning process helped to develop attitudes and traits and recognizes how it can be important	02%	10%	31%	40%	17%
4	The teaching learning process helped in participating group discussions, working with others, react by answering and following instructions	01%	11%	32%	44%	13%
5	It helped to develop a value system by bringing together different values and resolving conflicts	02%	09%	33%	33%	22%