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Introduction of case based learning (CBL) method on protein energy malnutrition among third year basic B. SC nursing students

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Jaya John Varghese
Department of Nursing, Sadhu Vaswani College of Nursing, India

Correspondence: Jaya John Varghese, Department of Nursing, Sadhu Vaswani College of Nursing, India,
Email jayajohnvarghese@gmail.com

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Introduction

The main aim of education is to help students to acquire knowledge, develop attitudes and achieve clinical skills therefore, teaching methodology is very essential to cultivate a good learning experience. Learning results from individuals own experience based upon interaction with the environment. In case of lecture the role of learners is passive and there is less or no interaction of the student with teacher. Recently various innovative teaching methods like interactive lecturing, problem based learning (PBL) and case based learning (CBL) are adopted by many medical institutes to enhance the understanding of subject.

CBL is a pedagogical method that uses case studies as active learning tools. It aims to develop reasoning skills based on clinical case scenarios which allows medical student to learn the basic medical science subjects in context of a medical problem. The present study was conducted with an aim to determine the perceptions of students to various aspects of CBL.

Globally, PEM continues to be a major health burden in developing countries and the most important risk factor for illnesses and death especially among young children. The World Health Organization estimates that about 60% of all deaths, occurring among children aged less than five years in developing countries, could be attributed to malnutrition. The improvement of nutrition therefore, is the main prerequisite for the reduction of high infant and under five mortality rates, the assurance of physical growth, social and mental development of children as well as academic achievement. PEM is also associated with a number of co-morbidities such as lower respiratory tract infections including tuberculosis, diarrhoea diseases, malaria and anaemia. These co-morbidities may prolong the duration of hospital stay and death among affected children.[1]

Infection and under nutrition are prevalent in developing countries and demonstrate a synergistic relation. Under nutrition increases infection-related morbidity and mortality.[2] The acute phase response (APR) is an innate, systemic inflammatory reaction to a wide array of disruptions in a host's homeostasis, including infection. Released from immune cells in response to deleterious stimuli, proinflammatory cytokines act on distant tissues to induce behavioural (e.g., anorexia, weakness, and fatigue) and systemic effects of the APR. Cytokines act to increase energy and protein requirements to manifest fever and support hepatic acute phase protein (APP) production. Blood concentrations of glucose and lipid are augmented to provide energy to immune cells in response to cytokines. Additionally, infection decreases intestinal absorption of nutrients and can cause direct loss of micronutrients. Traditional indicators of iron, zinc, and vitamin A status are altered during the APR, leading to inaccurate estimations of deficiency in populations with a high or unknown prevalence of infection.[3–5]

Context of the study

Program approaches for addressing acute malnutrition and those for addressing chronic malnutrition have grown in different directions. Their specialization has led to productive advances in the efficacy of specific interventions but has also created divergences in implementation. Greater convergence and integration between the 2 sets of approaches would help programs respond to the diversity of conditions faced in the field and enable a more comprehensive continuum of care from prevention to treatment.[6]

So idea of introduction of case based learning for third year basic B.Sc. Nursing students came to my mind when actual situation in the community services and hospital care needs a lot of co-ordination and direct observation regarding assessment, diagnosis, nursing care, social and psychological support and feedback of their performance. To achieve this, the nurses have to develop critical analytical skills so I had undertaken present study.[7]

Materials and methods

The approach used for the study is quantitative, Quasy experimental study of two group. Non-probability sampling technique is used the class (24students) is divided into two groups, Randomization is done for assigning experimental and control group. Experimental group is introduced with CBL and the controlled group with traditional method of didactic lecture.[8]

The study was conducted in the Department of pediatrics, YCM hospital, Pune from September-November, 2015. All the students who were posted in above mentioned duration were asked to volunteer for the study if interested. Before starting the students were assigned to pediatric ward as per rotation .each students are assigned to PEM cases and allowed them to interact with patients and develop the skills for interviewing, physical examination, professionalism/ humanistic qualities, counseling, clinical judgment, organization/ efficiency and overall clinical competence. Clinical instructors were available with them thorough out the posting to enhance their learning and performance skills clinical teaching on assessment of

PEM classification or grading of PEM Planning of care Nutritional supplementation, feeding techniques parental education Follow up care and awareness of community services were discussed in detail. This motivated self learning in students.[9]

After the clinical posting (case based learning) of 3 months the students knowledge on PEM were assessed with a structured questionnaire. 40 items for analytical skills of nursing care planning were constructed. Evaluation criteria for the knowledge questionnaire were one mark for correct answer and zero mark for the wrong answer. attitude of students and faculty were assessed by self constructed Likert scale of three criteria and the scoring for that is two for agree, one for neutral and zero for disagree.

Results

In the present study, the knowledge score of both the groups were assessed by the questionnaire and attitude of the study group students and faculty were assessed by likert scale and the data collected were analyzed with descriptive and inferential statistics. The first objective of the present study is to assess the knowledge level of students after the CBL method of learning. Analysis of knowledge score is done by using unpaired t-test which shows significance of retention of knowledge and enhancement of critical analytical skills in students.[10]

Above Table 1 show that the comparison of knowledge scores regarding PEM management on both the groups. CBL group shows significant increase of enhancement and retention of knowledge and analytical skills. The table value is 19.18 which is 5.6 times higher than the p valve of 3.39 at 0.0001 level.

Table 1 comparison of knowledge scores regarding PEM

Groups	Mean	SD	SE	Table value	P value 0.0001
CBL	37.6	1.37	0.04	19.18	3.39
Lecture	27.7	1.21	0.34		

N-24

The second objective of the study is to assess the attitude of student and faculty regarding CBL. The descriptive analysis shows that both the groups are having almost equal and positive attitude regarding CBL Table 2. They felt the overall exercise were very helpful to get a specific feedback of their performance. They experienced improved confidence in concluding clinical diagnosis, improvement in communication skills and increased trust from patient's side.

Table 2 Comparison of students and faculty attitude regarding case based learning method

Items	Student's attitude N-12		Faculty's attitude N-10	
	f	%	f	%
Ability to learn the material will be improved	24	100%	20	100%
opportunities to demonstrate the materials learned	24	100%	20	100%
Less stressful learning environment	17	70%	10	50%
focused on the real situation, more relevant to the interest	24	100%	20	100%
Enhance the ability to find information by using library /internet	20	83%	16	80%
Adequate feedback to guide their learning will be provided	24	100%	20	100%
Able to focus on learning rather than getting a good grade	24	100%	20	100%
Helps to reinforce the material presented in class more than studying alone	24	100%	20	100%
CBL module is helpful in development of critical thinking.	24	100%	20	100%
Improve problem solving ability	17	70%	10	50%
Increases independent learning and developing communication skills.	16	66%	13	65%
Enhance opportunity to express the management skills	17	70%	10	50%
Help to perform better in formative & summative exams.	24	100%	20	100%
Useful in terms of future application of knowledge in clinical fields	24	100%	20	100%
Can teach other topics as well by this method	24	100%	20	100%
This strategy takes more time than conventional methods	12	50%	10	50%
Can be conducted for other batches	24	100%	10	50%
More useful in understanding particular topic as compared to didactic lecture.	24	100%	20	100%
Can be used along with lectures	24	100%	20	100%
Role of facilitator in CBL is important	24	100%	20	100%

N-22

Discussion

Malnutrition among children especially in young and growing age is a vital problem for all the developing countries. It is well known to the health department that prevention is the best strategy than treating it. Nurses play many vital roles in the community as well as hospital for promotion of health. During the training period, nursing students are interacting with such cases in the hospital and community but the method of traditional teaching is not giving the impact of real problem and what are the roles of nurses to prevent it. Introduction of Cased based Learning method gave this opportunity to the students and they recommended it for other cases and batches.

Project summary

Introducing case based learning in nursing curriculum as a trial and assessing the performance of students in the clinical setup was challenging. Performance assessments of students were done as ongoing assessment. Student's judgment & analytical skills were assessed in clinical presentation as well as summative assessment with structured questionnaire. As an added benefit, communication skills of the students also showed marked improvement.

Attitude of faculty and students were assessed after the introduction of Case Based Learning, which shows both the groups were having almost equal opinion and positive attitude about Case based learning. They recommended it for other cases and batches.

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Conflict of interest

The author declares no conflict of interest.

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