

Innovative Curriculum: Evidence Based Practice For Nursing Professionals

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ABSTRACT:

Introduction: Evidence based medicine and practice needs to have a robust and reliable curriculum. This curriculum has been designed keeping in mind the latest technology and teaching strategies. There has been a major shift in context to the patient physician relations, care and utilisation of best available evidence in making informed decisions about the various treatment options and approaches to patient care. Nurses form an integral component of the healthcare delivery system and of the health system itself. There has been substantial research in the nursing principles and indexed nursing journals are publishing articles pertaining to the various disciplines and components of nurse practitioners and related patient care services.

Methodology: It is a cross sectional study and total of 50 registered nurses were recruited from a public hospital to engage in the evaluation for statistically meaningful and valid results or interpretations. A self-administered questionnaire was distributed among 62 registered nurses; 12 registered nurses did not fill the questionnaire therefore 50 registered nurses were recruited.

Result: Pie chart shows the major differences in frequency of all themes, the junior registered nurses have more knowledge about EBM as compared to their seniors 70% and 10% respectively but when asked about doing post-graduation the seniors showed more interest as compared to junior nurses 67% and 2% respectively. The junior nurses showed more counselling ability and also practiced EBM. Overall there was significant decline in senior nurses' performance when compared with junior nurses p-value is 0.001

Conclusion: Evidence based medicine is based on three components; utilising prior knowledge based on clinical experience, searching systematically evidence and acknowledging patient's preferences. Junior registered nurses understand evidence based medicine and are eager to apply EBM in their career whereas senior nurses were more interested in obtaining higher degree and were less interested in patient care

Key words

Nursing, EBM, curriculum, patient, physician

Introduction:

There has been a paradigm shift in the last few decades in context to the patient physician care and utilisation of best available evidence or evidence based medicine in making informed decisions about the various treatment options and approaches to patient care^{1, 2, 3}. Nurses form an integral component of the healthcare delivery system and of the health system itself⁴⁻⁷. There has been substantial research in the nursing principles and indexed nursing journals are publishing articles pertaining to the various disciplines and

components of nurse practitioners and related patient care services⁸⁻⁹. The application of evidence based practice no longer only implies to medical practitioners but has become relevant from nursing practitioners' perspective as well. In the developed nations nursing has evolved as a speciality with nursing specialities and specialized training programs run by leading academic institutes and universities^{10, 11}. In a developing country like Pakistan which is resource limited and there is a scarcity of healthcare professionals to meet the ever-increasing need of the communities, capacity building of nurses is the need of time. Therefore, a 12 weeks' curriculum is proposed for the capacity building of nursing in developing essential skills pertaining to adopting an evidence based approach. Evidence based medicine is based on three components; utilising prior knowledge based on clinical experience, searching systematically evidence and acknowledging patients preferences^{1,2}. The Construction Curriculum perspective is based on not just receiving information but to interpret and relate it to other information¹². Moreover, it emphasizes on building skills not only to perform the desired actions but having the ability to perform in varied circumstances building on the existing knowledge¹². The perspective complements the essential components of evidence based practice which is also based on building on

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previous clinical knowledge which is supplemented by a systematic search of the best available scientific evidence supplemented by patients perceptions and informed decisions^{1,2,12}.

The curriculum is constructed based on the six-step approach for curriculum development proposed by Patricia A. Thomas¹³ which are namely; Problem identification and general needs assessment, Targeted Needs Assessment, Goals and Objectives, Implementation and Evaluation and Feedback¹³.

1. Problem Identification and General Needs Assessment

i) Defining the healthcare problem:

Evidence based practice or medicine (EBP) ensures that clinical experience is amalgamated with best evidence and patients perceptions^{1,2}. Currently, EBP is relatively a newer concept with some healthcare professionals adopting the concept in tertiary care settings in urban cities of the country¹⁴.¹⁵ introduction of the concept of evidence based medicine and its practical application will ensure quality of patient care, safety and improved healthcare delivery services which will be in accordance with best available evidence aiming for professional development and capacity building of the nurses.

ii) General Needs Assessment

General needs assessment will primarily focus on assessment on the current and the ideal approach of capacity building of nurses in evidence based medicine. To collect the relevant information about the present knowledge, perceptions, practices of nurses pertaining to evidence based medicine a comprehensive review of the available information will be done. The following steps will be taken to assess the gaps in knowledge and skills required for evidence based practice among nursing professionals;

i) Review of published literature or reports pertaining to evidence based practice among nurses in Pakistan or a developing country's perspective

ii) Inspection of reports by professional organisations or government agencies pertaining to EBM

iii) Extracting views of experts in the field and importantly collection of new information to build a knowledge base for outlining objectives in the proposed curriculum in the form of surveys and focus group discussion to assess the existing knowledge and skills of nurses¹⁶.

iv) A pre-test should be conducted among the targeted nursing professionals containing structured questions pertaining to the basic concepts of EBM to assess the baseline knowledge of the nurses. The sample will be selected by systematic random sampling in the selected tertiary care hospitals.

v) Qualitative methods such as focus group discussions and in depth interviews will be conducted among targeted

nurses' cohort by convenience sampling to highlight the perceptions of the nurses towards EBM, baseline knowledge and expectations from the proposed concept in the curriculum.

2. Targeted Needs Assessment

This step involves the following strategies:

i) identification of targeted learners:

The nursing staff should be enrolled for 12-weeks of teaching and application of the innovative evidence based curriculum. The regions which would be included in the cohort of nurses will be specified for devising a targeted approach. The regions will be selected on the basis of patient load and availability of tertiary care hospital facilities. For EBM a tertiary care setting is ideal although not mandatory. Initially the tertiary care hospitals will be selected by lottery method for recruiting the nursing practitioners in the EBM training program. A total of 100 nurses will be trained, 10 from each hospital, encompassing 10 tertiary care settings in total in the province of Punjab.

Content of the targeted learners:

Information about the cohort included for the training will be obtained in context to their previous qualifications, skills and experiences in practicing evidence based medicine or competencies or skills associated with it. This information will be useful in understanding the targeted levels, their baseline knowledge and level of competencies, so the curriculum is designed catering to their needs¹⁷.

The criteria for selection of a nursing professional into EBM course would include;

i) The nurse recruited in the 12 weeks training are graduate nurse and not an undergraduate nurse.

ii) Be able to demonstrate at least intermediate level English reading and writing skills.

Content of the targeted learning environment:

Previous similar curriculum aiming to enhance evidence based practice will be searched and it will be ensuring whether a curriculum already exists addressing the aspects the proposed curriculum wants to address. Furthermore, need of stakeholders other than the learners such as faculty and management that will be involved in the program will be incorporated^{18,19}.

Objectives:

By the end of the 12 weeks training program of evidence based medicine each trained nurse will be able to:

i. Achieve cognitive proficiency to apply prior knowledge during patient assessment of signs and symptoms pertaining to the presenting complains

ii. Develop competence to address the key issues and terms relating to the disease condition of the part

iii. Develop psychomotor behaviour to incorporate feedback from patients by sharing scientific knowledge into daily practice.

Competencies	Knowledge	Comprehension	Attitude	Demonstration of skills	Total
Detailed patient history and diagnosis	2	3	2	3	10
Using prior knowledge	4	2	2	2	10
Knowledge of self- role and collaboration	1	2	2	5	10
Investigatory and analytic approach	2	2	3	3	10
Generating key terms	2	4	2	2	10
Literature search/Boolean technique	2	1	4	3	10
Application of search engines	1	2	3	4	10
Basic understanding of study designs	4	1	3	2	10
Basic understanding of Hierarchy of evidence	5	1	2	2	10
Understanding basic descriptive statistical analysis	2	2	2	4	10
Basic appraisal of literature	2	1	3	4	10
Incorporating patient feedback	1	1	7	1	10
Total	28	22	35	35	120

Table of specifications:

The table of specifications using the competencies highlighted in table below are weighted in knowledge, comprehension, application and analysis.

Furthermore, the objectives of the proposed curriculum from individual learner and the program are comprehensively presented in a tabulated form below:

The educational methods will mainly include lectures, Small and Large Group Discussions; Problem Based Learning, Peer teaching, Role plays and Demonstration in computer lab sessions.

i) Methods for achieving cognitive objectives:

The educational methods to achieve cognitive objectives will include; lectures, Problem Based Learning, Peer teaching and discussions²¹. the introduction to the terminologies and basic concepts pertaining to evidence based medicine will be achieved through lectures. The use of targeted readings will also be incorporated²¹.

ii) Methods for achieving psychomotor objectives:

The methods utilized to achieve psychomotor objectives will encompass demonstration²¹ of applying search strategies and scientific literature extraction from the specified search engines. This will aim to develop skills within the nursing staff to conduct a systematic search.

iii) Methods for achieving affective objectives:

To assess attitudes and behaviours is a daunting task. It represents debriefing of experiences in context of acquired knowledge and its internalization²¹. Role plays will be

conducted to simulate patient interactions and referring to an evidence based approach. This will be substantiated by reflective writing²¹ in which nurses will be assigned task to reflect on their previous interactions with patients and the approach in making decisions in best interests of patients aiming to achieve standard quality of care. This will reinforce the acquired skills of evidence based medicine in context to the previous gaps in knowledge and approach.

iv) Assessment of Learning:

Formative and summative assessment is done at the individual level for identification of areas of improvement or highlighting specific suggestions or improvement in formative aspect of the assessment. The summative aspect is more inclined towards verification of achievement of nursing professionals and the various aspects of the efficacy and success of the program. The schedule of the formative and summative assessment of the curriculum is described below.

i) Formative assessment

The formative assessment of the nursing students is an ongoing process during the 12-weeks course. The students are provided formative feedback after group activities and individual oral presentations regarding the content of EBM that is being taught and the concepts introduced. Role plays were conducted and feedback provided on the ideal way of approaching patients to help them make informed decisions.

The computer sessions and tasks assessed by tutors and feedback provided of systematic literature search and how to practically make use of the up to date information.

ii) Summative assessment

The nursing students participating in the 12 weeks will be required to sit in a two-hour multiple choice exam followed by a marked computer exercise after successfully completing

in nursing and practiced in a hospital attached to a teaching institute; 12 registered nurses did not fill the questionnaire therefore 50 registered nurses were recruited. Of which 25 were junior nurses with 2-3 years of experience and mean age group of 24.201 years. Twenty-five were senior registered nurses of mean age 404.63 and experience of more than 10 years' experience; figure 1

	Individual Learner	Aggregate or Program
Learner Cognitive (Knowledge)	By the end of the curriculum each nurse will be able to systematically search published literature using search engines, review basic information in the evidence base to effectively apply in their daily practices	By the end of this curriculum = 70% of nurses will be able review and search published literature, and =90% will be able to efficiently use search engines to find scientific articles pertaining to their discipline
Affective (attitudinal)	By the end of this curriculum each nurse will rank evidence based medicine as a step forward and best clinical practice (=3 on a 4-point scale)	By the end of the curriculum, there will have been a statistically significant increase in how nurses rate the significance of evidence based medicine and its role in improving the quality of care and implementing best clinical practices.
Psychomotor (behavioural or performance)	By 12 weeks after completion of the curriculum, each nurse will have developed a systematic framework of the steps in conducting a systematic literature search and general review of evidence	By 12 weeks after completion of the curriculum there will be a statistically significant increase in the percentage of nurses who have a formulated framework for conducting and reviewing a systematic literature search
Process	Each nurse will have attended all sessions of the evidence based medicine interactive learning sessions and workshops	=80% of nurses will have attended all sessions of the evidence based medicine interactive learning sessions and workshops
Patient outcome	By 12 months after completion of the curriculum, the application of evidence based medicine by trained nurses in daily practices of patient care and healthcare service delivery of the will be =40%	By 12 months after completion of the curriculum there will have been a statistically significant increase in the percentage of nurses who would be applying evidence based practice in their daily practices for improved patient care.

the program. 50% marks will be required in the written exam and in the computer exam to be awarded certification of Evidence Based Medicine training.

The process of implementation will involve identification of resources, support for curriculum, development of administrative mechanisms, anticipation and identification of barriers and introduction of curriculum which are summated in the table below with subsequent subheadings.

METHODOLOGY:

Although non-coercive methods have been used, it is a cross sectional study; recruited randomly after informed consent. A total of 50 registered nurses were recruited from a public hospital to engage in the evaluation for statistically meaningful and valid results or interpretations.

A self-administered questionnaire was distributed among 62 registered nurses with complete 4-year bachelor's degree

The quantitative data collected has been analyzed using SPSS 21. Frequencies and percentages have been reported for the responses and bar charts and pie charts have been created for subsequent responses. For categorical data Chi square test has been applied

RESULT:

Pie chart shows the major differences in frequency of all themes the junior registered nurses have more knowledge about EBM as compared to their seniors 70% and 10% respectively but when asked about doing post-graduation the seniors showed more interest as compared to junior nurses 67% and 2% respectively (figures 2 and 3). The junior nurses showed more counselling ability and also practiced EBM. Of all the 50 nurses 39 (78%) agreed that EBM curriculum must be introduced however 11 (22%) were of neutral opinion. Majority were not interested in doing

Steps of implementation	Proposed requirements
A-Identify Resources ²¹	Facilitators to conduct lectures, interactive discussions and computer lab sessions. Administrative staff for record keeping, attendance, arranging classroom schedules and managing formative assignments of nurses attending the course.
Personnel	Formulation of time table of the 12 weeks courses, with allotted time for the educational activities and teaching time slots of facilitators and administrative staff.
Time	Classrooms for lectures and interactive discussions. A computer lab with internet facility. A proposed cost of 10, 00,000 rupees (10 Lac) for the computers, lecturers and administrative costs combined per facility where this program will be implemented.
Facilities	Internal support will be from the management staff of the tertiary care settings where this course will be conducted along with external support in the form of active involvement of governmental health authorities directly involved in capacity building, management and training of nurses in the selected district, province or region.
B-Support for Curriculum ³	Complete roles will be defined in terms of the administrative responsibilities and the teaching and higher management of the proposed program. The goals, objectives and ongoing evaluation of the program will be communicate throughout to all the stakeholders involved in the planning, management and implemented of the program.
C-Developing administrative mechanisms ⁴	Arranging staff with experience of practicing evidence based medicine and proficient in latest literature searching techniques will be a challenge. Certification from provincial health authorities and a attractive pay package can resolve this issue in attracting qualified staff. For lab session's high quality internet with efficient computers is mandatory and any technology failure can lead to disruption of smooth conduction of the program. Test running and affiliating with reliable national companies for technology supply should be assured to avoid any future inconvenience. Teaching space should be identified within the health facilities for training of the nurses. This can be scheduled accordingly coordinating both the administrative staff of the program and management of the health facility.
D-Anticipated barriers and mechanisms to address the complexities ²	
E-Introducing the curriculum ²¹	The curriculum will be pilot tested within a health setting where nurses are to be trained in the proposed skills. The teaching space can be assessed particularly computer sessions and its feasibility.

active research; only 8 showed enthusiasm in doing research. Forty eight nurses agreed that refresher courses must be held to introduce new practices to them, only 2 thought the course would not be very useful and disagreed. Almost all nurses agreed that that they may be sent abroad by their university/ hospital to acquire education and training. Strongly and agree responses were put into one category, neutral as another category whereas strongly disagree and disagree as the first category, all the points were added to determine the responses. Overall there was significant decline in senior nurse's performance when compared with junior nurses p-value is 0.001 (Table) All questions were positively stated with no negative question so as to determine the Chi-square.

DISCUSSION:

Evaluation of the curriculum has been carried out in the following; Identifying users, identifying uses, identifying resources, identifying evaluation questions, identifying

evaluation design, choosing measurement methods and construct instruments, addressing ethical concerns, collecting data, analyzing data and reporting results. The stakeholders involved in the implementation of the curriculum, the teaching staff, learners and external collaborators will all be actively involved in the evaluation process to ensure continuous improvement and further development highlighting gaps and addressing the unmet needs or deficiencies proposed in the formulated curriculum.

The proposed evaluation will involve the nursing participating in the program, faculty and the curriculum developers. The evaluation will involve both summative and formative types of the individuals and the program²¹. The specific uses of the evaluation will involve feedback on and improvement of individual performances, judgements regarding individual performance, judgements regarding program success, justification for the allocation of the resources, stratification

of internal and external requirements, demonstration of popularity and presentations, publications, and adoption of curricular components by others. The resources for the evaluation and feedback generated will be proposed before implementation of the curriculum to ensure funding availability²¹.

Evaluation questions structured validated questions to access the learning objectives by the end of the individual teaching sessions and end of program. The questionnaire generated quantitative data pertaining to the indicators of the criteria of objectives previously outlined. The questions are congruent with the related curricular objectives and its processes^{21,4}. The evaluation design will be primarily post-test which the most commonly used evaluation design²¹. Measurement methods and construct instruments were used. A randomized

controlled post-test only was utilized for the evaluation.

Ethical concerns:

The ethical issues have been addressed in the evaluation process. The needs of the program participants and stakeholders are in the centre eliciting suggestions for program improvement. Informed consent has been obtained with adequate informed provided to the participants about the purpose of the evaluation maintaining confidentiality and anonymity of the participants. Transparency will be insured and a fair presentation of the strengths and weaknesses of the program has been highlighted.

Conflict of interest: None

CONCLUSION: In a developing country like Pakistan which is resource limited and there is a scarcity of healthcare professionals to meet the ever-increasing need of the communities, capacity building of nurses is the need of time. Junior registered nurses understand evidence based medicine and are eager to apply EBM in their career whereas senior

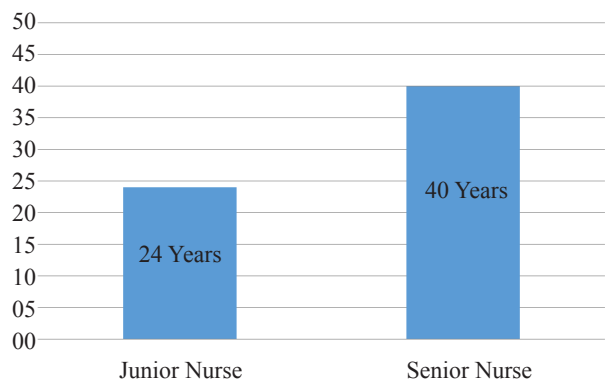


Figure 1: Age difference between Junior & Senior Registered Nurse

Group	DA n (%)	N n (%)	A n (%)	P-Value
Senior RN	18(72)	1(0.04)	6(24%)	0.001
Junior RN	07(28%)	0(0%)	18(72)	

Table: Response of Senior and Junior RN

RN = Registered Nurses
 DA = Disagree
 N = Neutral
 P = Value Highly Significant

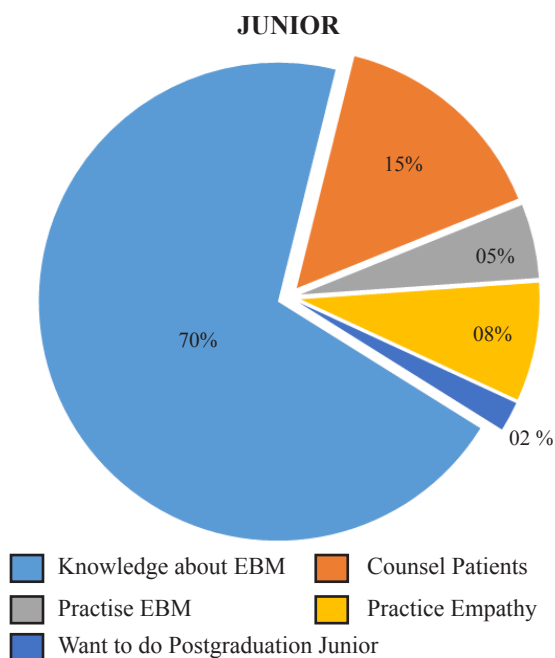


Figure 2: Responses of Junior registered nurses

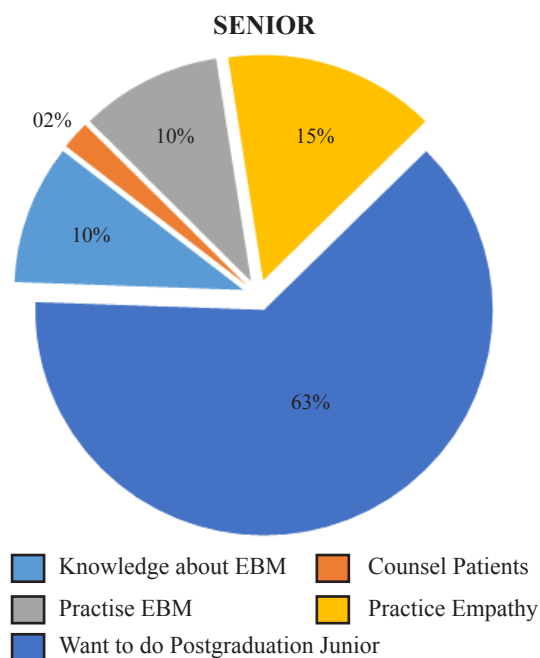


Figure 2: Responses of Senior registered nurses

nurses where more interested in obtaining higher degree and were less interested in patient care and changing the curriculum to cater to better nursing care.

REFERENCES:

1. Sackett DL, Rosenberg WM, Gray JM, Haynes RB, Richardson WS. Evidence based medicine: what it is and what it isn't.
2. Bates DW, Kuperman GJ, Wang S, Gandhi T, Kittler A, Volk L, Spurr C, Khorasani R, Tanasijevic M, Middleton B. Ten commandments for effective clinical decision support: making the practice of evidence-based medicine a reality. *Journal of the American Medical Informatics Association*. 2003;10(6):523-30.
3. Guyatt GH, Haynes RB, Jaeschke RZ, Cook DJ, Green L, Naylor CD, Wilson MC, Richardson WS, Evidence-Based Medicine Working Group. Users' guides to the medical literature: XXV. Evidence-based medicine: principles for applying the users' guides to patient care. *Jama*. 2000;284(10):1290-6.
4. Cho SH, Ketefian S, Barkauskas VH, Smith DG. The effects of nurse staffing on adverse events, morbidity, mortality, and medical costs. *Nursing research*. 2003;52(2):71-9.
5. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse education today*. 2004;24(2):105-12.
6. Leape LL, Berwick DM, Bates DW. What practices will most improve safety?: evidence-based medicine meets patient safety. *Jama*. 2002;288(4):501-7.
7. Adams A, Bond S. Hospital nurses' job satisfaction, individual and organizational characteristics. *Journal of advanced nursing*. 2000;32(3):536-43.
8. Lok CK, Chan MT, Martinson IM. Risk factors for citation errors in peer-reviewed nursing journals. *Journal of Advanced Nursing*. 2001;34(2):223-9.
9. Kim SJ, Kim KB, Yi MS, Lee KJ, Ahn YH, Kim HS, Park YJ, Koh MS, Sohng KY. The trends of nursing research in the journals of seven branches of the Korean Academy of Nursing. *Journal of Korean Academy of Nursing*. 2002;32(1):114-30.
10. Castledine G. The development of advanced nursing practice in the UK. *Advanced nursing practice*. 2003;2:8-16.
11. DiCenso A, Cullum N, Ciliska D. Implementing evidence-based nursing: some misconceptions. *Evidence-Based Nursing*. 1998;1(2):38-9.
12. Thompson K. Constructivist curriculum design for professional development: A review of the literature. *Australian Journal of Adult Learning*. 2001;41(1):94.
13. Thomas PA. Curriculum Development for Medical Education. In: Curriculum development for medical education: a six-step approach. JHU Press. 2015; P.7
14. Shaikh BT, Hatcher J. Complementary and alternative medicine in Pakistan: prospects and limitations. *Evidence-Based Complementary and Alternative Medicine*. 2005;2(2):139-42.
15. Zaidi Z, Hashim J, Iqbal M, Quadri KM. Paving the way for evidence-based medicine in Pakistan. *JPMA*. 2007;57(11):556-60.
16. Thomas PA. Curriculum Development for Medical Education. In: Curriculum development for medical education: a six-step approach. JHU Press. 2015;14-24
17. Thomas PA. Curriculum Development for Medical Education. In: Curriculum development for medical education: a six-step approach. JHU Press. 2015;31
18. Thomas PA. Curriculum Development for Medical Education. In: Curriculum development for medical education: a six-step approach. JHU Press. 2015;34
19. Sleezer, CM, Russ-Eft DF, Gupta K. A Practical Guide to Needs Assessment, 3RD ED. San Francisco: Jhon Wiley and Sons.2014;24
20. Tanner D, Tanner L. Curriculum Development: Theory into Practice, 4th ed. Upper Saddle River, N.J: Pearson.2007;116-23, 186-87
21. Thomas PA. Educational strategies. In: Curriculum development for medical education: a six-step approach. JHU Press. 2015;70-80