

Nursing Students' Viewpoints about Basic Sciences Education

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ABSTRACT

Introduction: Basic science knowledge is essential for clinical education of many fields including nursing. Integration is supposed to be a powerful approach to scientifically prepare students for the clinical training stage. The aim of this study was to evaluate the perception of nursing students on their basic science education.

Methods: This cross sectional study was conducted at nursing school in Mashhad/Iran. All students who took a basic science course were selected to participate the study. Their opinions were gathered thorough a 5 point Likert scale (-2 for totally disagree up to 2 for totally agree) questionnaire. SPSS version 11.5 was used for data analyses. P value<0.05 was considered statistically significant.

Results: A total of 45 students answered the questionnaire. Sixty percent (n=27) were female. Mean age was 19.7 ± 2.6 years. The statement of "Combining the theoretical and clinical topics together" achieved the highest score (1.5 ± 0.6). The least score (0.1 ± 1.1) was adopted to the level of association of current basic science education with future nursing carrier.

Conclusion: It seems that the basic science education in nursing school needs major revisions and clinical applications of basic science topics should be included. This approach may enhance students' motivation and consequently improved academic learning and performance.

Keywords: Basic science, Nursing, Education

Introduction

There are slight modifications in nursing curricula in various universities around the world. In many countries including Iran, nursing students should pass some basic courses before their clinical training. These courses in our program include: biochemistry 2 credit points, microbiology 1.5, genetic 0.5, immunology 1.5, parasitology/mycology 1.5, nutrition 1.5, physiology 3, anatomy 2, and pharmacology 2 credits points. The basic science knowledge seems to be essential for clinical education of the nurses regardless of their future working field or ward. The mission of basic science education for nursing students is scientifically preparation of them for the clinical training stage.

Integration is a popular method to achieve this goal which is defined as the organization of educational content to unify the relevant topics which are traditionally taught in separate academic courses. In medical related topics, this could be done in horizontal or vertical formats, namely the courses in basic science training could be merged with the closely relevant topics in the same academic semester (horizontally integrated) or might be integrated with clinical training phase (vertical integration) (1,2).

Besides, there is a consensus that education should be planned based on professionalism; that is, the curriculum should be established in a way in which whatever a trainee needs to know is of more importance and considered as higher priority (3).

The aim of this study was to analyze the perception of nursing students of Mashhad University of Medical Sciences on their basic science education in terms of necessity, applications, implementation of the integrated curricula and educational approach.

Methods

This cross sectional study was conducted at nursing school in Mashhad, northeast of Iran in 2014. A total of 55 students who took microbiology or biochemistry courses in one academic year were selected conveniently for participation in this study. Response rate was about 82%.

The instrument was a questionnaire which used 5 point Likert's scales including: completely agree, agree, no idea, disagree and completely disagree. There was a control question (we duplicated one of the primary questions of questionnaire at the end) which showed a reliable answering by the participants. The questions were designed to assess students' views about the condition of basic science courses of nursing students. Verbal consent was obtained prior to filling the questionnaires. This study was approved by medical education department of Mashhad University of Medical Sciences.

The collected data were analyzed with SPSS version 11.5. Independent t-test was used to analyze data. Equal non-parametric tests were performed in case of not normally distributed variables. $P < 0.05$ was considered statistically significant in all calculations.

Results

A total of 45 nursery students returned the questionnaire. Sixty percent (n=27) of all participants were female. Mean age was 19.7 ± 2.6 years which was not statistically different between the two genders.

The responses were scored based on the Likert scale, from -2 to 2 points for "totally disagree" through "totally agree" comments. First and second highest scores were pertained to "Education will be much better if clinical issues are combined with theoretical ones" and "It is better to teach more practical issues than theoretical ones" (1.5 ± 0.6 and 1.3 ± 0.9 , respectively), which was not statistically different in two genders. The least score was for "There is little association with my future carrier" (0.1 ± 1.1) and also no gender difference was found.

Table 1- Frequency and percentage of responses

	Totally Agree	Agree	No Idea	Disagree	Totally Disagree
1. Basic science is essential for clinical practice	13(28.9)*	24(53.3)	4(8.9)	4(8.9)	0(0)
2. Educational content is not suitable	10(22.7)	17(38.6)	12(27.3)	5(11.4)	0(0)
3. Horizontal aggregation is good	15(34.1)	3(29.5)	8(18.2)	8(18.2)	0(0)
4. Educational content motivate me for further studies	3(6.7)	19(42.2)	11(24.4)	9(20)	3(6.7)
5. Basic science motivates me for my carrier	3(6.7)	15(33.3)	15(33.3)	9(20)	3(6.7)
6. Classes are sometimes too long	17(37.8)	15(33.3)	9(20)	3(6.7)	1(2.2)
7. There is a little association between basic science and clinical practice	14(31.1)	24(53.3)	4(8.9)	3(6.7)	0(0)
8. There is little association with my future carrier	5(11.9)	12(28.6)	9(21.4)	15(35.7)	1(2.4)
9. Educational topics should change to be more congruent with nursing practice	21(46.7)	14(31.1)	7(15.6)	3(6.7)	0(0)
10. Education is very rigid	10(22.2)	19(42.2)	10(22.2)	5(11.1)	1(2.2)
11. It is better to teach more practical issues than theoretical ones	24(53.3)	16(35.6)	2(4.4)	1(2.2)	2(4.4)
12. Education will be much better if clinical issues are combined with theoretical ones	29(64.4)	13(28.9)	3(6.7)	0(0)	0(0)
13. Educators with MD-PhD degree can teach more efficiently	15(33.3)	18(40)	9(20)	3(6.7)	0(0)
14. Vertical aggregation is good	17(38.6)	10(22.7)	16(36.4)	1(2.3)	0(0)

* Data is represented as Frequency(Percentage)

Discussion

Basic sciences are critical for medical sciences education, but the way these topics are presented and the special selected topics to be taught for each educational field is also highly important. Lack of basic training may lead to less understanding of clinical topics. Many pathophysiologic and diagnostics as well as therapeutic issues are strongly related to basics sciences roots (4).

In this study, the majority of respondents did not believe that the basic science courses in current format is related to their future careers. Students also stated that they prefer such topics to be presented in a more clinically oriented manner.

Thus, it seems that these topics should be revised and more clinical and applicable ones should be added into the program. This means that the program should be rearranged according to the priority and necessity of the topic for a general nurse. The educator should replace some unessential topics in basic science education with more important applicable ones.

Applied and practical training in basic science has been discussed by the researchers in the field of medical education (5-8). In addition, medical students prefer practical and applicable topics to be presented in their basic science education (9). More clinically oriented basic science teaching approach have been suggested for revision of medical programs (10,11). Also early exposure to clinical issues may trigger the students' motivation and interest to the topic which consequently enhances student's learning outcome. (12,13,14) Integrated basic/clinical discussions can also potentially improve the students' performance in clinical years (15,16).

Some performed revisions to make medical and dentistry basic science curricula more clinically relevant have been reported (14,17-21). Such revisions have been mainly according to professional needs and tendency for early exposure to clinical issues (17,22,23). However, studies for such revisions in nursing program seems to be much fewer (24).

Student generally agreed to implement horizontal or vertical curricular integration. In other words, only 11% of participants disagreed with integration.

Some limitations to this study should be noted. The number of participants completing the survey was relatively small, though this was due to small number of nursing students who are annually admitted by the university. The results of current study suggest the revision of basic science education to more clinical relevant manner. Such revisions should be done with opinions of both students and clinical as well as basic science educators of nursery schools.

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