Views of Nursing Students on Basic Medical Sciences Courses

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Abstract

Background: Basic Medical Sciences courses are theoretical and applied courses given in health sciences usually in the first or second year. This study determined the views of nursing students on basic medical sciences courses.

Methods: 332 students in their 2nd, 3rd, and 4th years between 6 and 26 February 2017 participated in this cross-sectional descriptive-analytic study. Data was collected using a form prepared by the researchers according to literature, questioning their socio-demographic characteristics and views on basic medical sciences courses. In statistical evaluation percentages, mean values, standard deviation, and one-way ANOVA test were used. In statistical evaluation, the level of statistical significance was accepted to be $P < 0.05$.

Results: The students stated that the courses on pharmacology and anatomy contributed to nursing education most. The students felt most sufficient in the anatomy and physiology courses. 53.6% of the students stated that basic medical sciences courses should be given by academicians in the field of nursing, 59.6% stated that these courses should be given with the help of mannequins or models. 51.5% of the students suggested that these courses should be evaluated through tests while 26.8% suggested that evaluation should be done through laboratory application.

Conclusion: The students' views on the necessity of basic medical sciences courses were insufficient and that the students didn't see themselves as proficient in those courses. It is suggested that the importance of basic medical sciences courses should be stressed starting from the first year, that these courses should be applied courses, and students should be asked for feedback on the effectiveness of these courses.

Keywords: Attitude, Education, Nursing, Student

1. Introduction

Living in the information age and the constant increase in the information, skills, attitudes, and behavior that should be gained through learning make it mandatory for an individual to learn about effective learning. Contemporary success can be achieved only through efficient learning. Efficient learning in turn can be provided through the application of education programs prepared according to individual learning types (1). Education programs being evaluated only through success levels in tests do not constitute an indicator. The evaluation of an education program should determine the effectiveness of the program and which factors cause possible negative effects, as well as guide the lecturers on interventions to correct those mistakes (2).

Nursing education that prepares students for the nursing profession is a changing profession (3). The macro-level nursing education programs are aimed to produce competent nursing graduates who create positive change in the caring environment and proceed to promote the quality of life of individuals, families and the community (4). For this reason, according to the changing health care requirements of the modern age, the roles and functions of nurses need to change, with nursing education programs and applications following. From this aspect, the evaluation of the effectiveness and results of nursing education curricula are important in renewing education, according to increasing requirements, and providing high quality and effective education (5). Since feedback from the students can show the areas lacking and errors in the education process, it can contribute to the preparation of curricula.

Basic Medical Sciences Courses are theoretical and applied courses given in health sciences, usually in the first or second year (6, 7). These courses in nursing help students to relate knowledge to diseases and conditions in clinical practice (8). Thus, these courses are aimed at increasing the academic success of nursing students and are impor-

tant in the safe and practical application in nursing care after graduation (3, 9). Many studies have been carried out to improve anatomy and physiology courses in health sciences and especially medical education (10-13). However, there are no studies in the literature on the what nursing students gain from basic medical sciences courses, their feedback, problems, and efforts to improve those courses. In light of this information, we think that studies on the problems and gains of basic medical sciences education in faculties and vocational schools providing nursing education are needed. Thus, this study aimed to determine the views of nursing students on basic medical sciences courses. We think that the study will contribute to the development of education techniques and effectiveness in basic medical science courses, as well as increase the quality of education.

2. Methods

This study was planned as a cross-sectional, descriptive-analytic study to determine the views of nursing students on basic medical sciences courses. The study sample consisted of 376 sophomore, junior, and senior students studying at the Cumhuriyet University Susehri health high school department of nursing between 6 and 26 February 2017. Since the students took all the basic medical sciences courses (anatomy, physiology, microbiology-parasitology, histology, biochemistry, pathology and pharmacology) in their freshman year and the first semester of their sophomore year, 142 freshmen were excluded from the sample. Without any sample selection, the whole of the universe was attempted to be reached. In this context, 332 students who agreed to participate in the study and filled out the data collection forms completely were included in the study.

Data was collected using a 16-item form prepared by the researchers according to literature questioning their socio demographic characteristics (age, gender, year of study), information on nursing education (studying at a different department previously, willingly chose the nursing occupation, and being satisfied with nursing education) and views regarding basic medical sciences courses (6, 7, 10, 11). The first two questions on student's views on basic medical sciences courses (the contribution of the courses to nursing education and the level of the student's sufficiency in those courses) were scored from "0" to "10,"where "0" was no contribution and sufficiency, and "10" was extreme contribution and sufficiency. The other 7 questions on views on basic medical sciences courses (course success, time of the course in the curriculum, type of evaluation, courses that were thought not to contribute to nursing education) were evaluated using mul-

tiple choices. Content validity ensured the validity of the form, in which the opinions of four academics on content validity were obtained. The validity and comprehensibility of the form were tested in a pilot study with a sample group of 20 students. During the pilot study, the content validity of the form was investigated, and similar questions were excluded. In addition, the form was administered to the students three weeks later, and the test-retest reliability of the measure was checked. All ambiguities were corrected before the form was administered to the final sample. The evaluation of their results showed no problems in the clarity and implementation of the form. To determine the validity of the form, support was obtained from specialists who worked in the department of statistics in Cumhuriyet University. The validity was confirmed after revisions. The reliability was calculated as 0.79 through estimation of internal consistency of Cronbach's alpha.

Data collection tools were applied to the students within one course hour. Before data collection, the students were given information on the aim and importance of the study, and their verbal consent was taken. The students filled out the forms themselves, and gave them to the researchers.

Data were statistically evaluated using the SPSS 22.0. The socio demographic characteristics of the students and their views on basic medical sciences courses were evaluated using descriptive statistical methods (percentages, mean values, standard deviation). In the comparison of the contribution of the courses to nursing education and the sufficiency levels of the students according to the years of study, one-way ANOVA was used with an additional Tukey honestly difference significant (HDS) test to find the group responsible for the difference. In statistical evaluation, the level of statistical significance was $P < 0.05$.

Before data collection, written permission from the institution where the study was carried out and the Cumhuriyet University non-invasive clinical studies board of ethics was taken (Decision no: 06/22). Each student to be included in the study was informed verbally and gave written consent.

3. Results

The mean age of the students was 20.81 ± 1.77 (min = 19, max = 33), 210 were female (63.3%), 112 sophomores (33.7%), 128 juniors (38.6%), and 92 seniors (27.7%). 21 students (6.4%) stated that they previously studied in another department, 222 students (66.9%) stated that they chose the nursing occupation willingly, and 177 students (53.3%) stated that they were satisfied with their choice.

Given the range of scores that can be taken from the form (min = 0, max = 10), students stated that the courses

Table 1. The Mean ± SD (Range 0 - 10) of the Scores Regarding the Contribution of Basic Medical Sciences Courses to Nursing Education and the Sufficiency Levels of the Students

Courses	The Contribution	Sufficiency Levels
Anatomy	8.06 ± 2.34	6.25 ± 2.50
Physiology	7.59 ± 2.56	5.90 ± 2.37
Microbiology-parasitology	5.55 ± 2.91	5.63 ± 2.59
Histology	5.34 ± 3.07	5.64 ± 2.58
Biochemistry	5.39 ± 3.02	5.58 ± 5.27
Pathology	6.24 ± 2.93	5.86 ± 2.62
Pharmacology	8.13 ± 2.49	5.89 ± 2.71

Table 2. Success Rates of Students in Basic Medical Sciences Courses

Course	No.	Success Rate, %
Anatomy	86	25.9
Physiology	48	14.5
Microbiology-parasitology	89	26.8
Histology	75	22.6
Biochemistry	78	23.5
Pathology	88	26.5
Pharmacology	89	26.8

on pharmacology (8.13 ± 2.49) and anatomy (8.06 ± 2.34) contributed to nursing education most whereas histology (5.34 ± 3.07) and biochemistry (5.39 ± 3.02) contributed least. The students stated that they felt most sufficient in the courses on anatomy (6.25 ± 2.50) and physiology (5.90 ± 2.37) while they felt least sufficient in the courses on biochemistry (5.58 ± 5.27) and microbiology-parasitology (5.63 ± 2.59) (Table 1).

Students were found to be most successful in the courses on microbiology-parasitology (26.8%) and pharmacology (26.8%) and least successful in the course on physiology (14.5%) (Table 2).

53.6% of the students stated that basic medical sciences courses should be given by academicians in the field of nursing, 64.2% stated that these courses should be given in the first semester of the first year, and 59.6% stated that these courses should be given with the help of mannequins or models. 51.5% of the students suggested that these courses should be evaluated through tests while 26.8% preferred laboratory applications (Table 3).

Table 4 shows the comparison of the contribution of basic medical sciences courses to nursing education and the sufficiency levels of the students according to their year of study. Accordingly, the contribution to nursing education scores of seniors for the courses of microbiology-parasitology (6.70 ± 2.96), histology (6.48 ± 3.36) and

pathology (7.02 ± 2.92) were higher compared with students in other years of study (P < 0.001). The contribution to nursing score of the pharmacology course (7.59 ± 2.95) was lower in the junior year (P < 0.05). The sufficiency of juniors in the anatomy course (6.85 ± 2.33) and sophomores in the courses on biochemistry (6.14 ± 2.64) and pathology (6.58 ± 2.57) were higher (P < 0.05). Additionally, the sufficiency of sophomores and seniors in the courses on pharmacology (6.24 ± 2.70 and 6.22 ± 2.52) appear to be equal, and the sufficiency of juniors is lower (5.37 ± 2.78) (P < 0.05).

4. Discussion

In our study, when the scores on the contribution of basic medical sciences courses to nursing education and the sufficiency levels of the students on the courses were evaluated, it was found that the courses on anatomy and pharmacology contributed to nursing education most and the courses on histology and biochemistry contributed least. The students saw themselves as most sufficient in the course on anatomy and least sufficient in the courses on biochemistry and microbiology-parasitology. In Clancy et al. (14) study, 92.1% of the students expressed that the biological sciences (e.g., anatomy and physiology) were important to nursing practice. In the same work 97.6% of the students reported that more education in the biological sciences would benefit them in future practice (14). In Friedel and Treagust (15) study, 73% of students saw the relevance of anatomy and physiology to nursing practice. In a study where Kunt (16) determined the views of faculty of education students on the courses on human anatomy and physiology, students in the anatomy and physiology departments had difficulties in both courses. However, there were positive differences in the way they viewed real life after taking the course, and the students stressed the importance of attendance to be successful and a desire for the course to have an application part. In a study by Otag and Otag (17), 60.7% of the students stated that they attended the courses on human anatomy and physiology regularly. In the same study, 59.6% of the students stated that they had difficulty in learning the course (17). Students learned terminology information intensively in these courses, practice and because of limited factors such as limited laboratory space, basic medical sciences courses we think that success and learning willingness to be affected negatively.

Basic science will continue to be difficult, particularly for students who have a poor basic background, unless appropriate strategies are put in place both within the course and prior to entry (13). In our study, the students were found to be most successful in the courses

Table 3. Views of Students on the Application of Basic Medical Sciences Courses

	No. (%)[a]
Who should take the basic medical sciences courses?	
Academicians in the field of medicine	118 (35.5)
Academicians in the field of nursing	178 (53.6)
No matter	36 (10.8)
When should the basic medical sciences courses be given?	
In the first semester of the first year	213 (64.2)
In the second semester of the first year	66 (19.9)
In the first semester of the second year	27 (8.1)
In the second semester of the second year	26 (7.8)
How can you give the basic medical sciences courses?	
With classical education (with slide)	98 (27.5)
With interactive training (online training)	46 (12.9)
With the use of mannequins or models	212 (59.6)
How should you evaluate the basic medical sciences courses?	
With an open-ended exam	61 (18.4)
With a closed-end exam (with test)	171 (51.5)
With oral examination	11 (3.3)
With laboratory applications	89 (26.8)

[a]Number has changed.

Table 4. Comparison of the Contribution of Basic Medical Sciences Courses to Nursing Education and the Sufficiency Levels of Students, According to Their Year of Study

	Sophomore	Junior	Senior	Test/P[a]
Contribution of basic medical sciences courses to nursing education				
Anatomy	7.86 ± 2.31	8.18 ± 2.22	8.11 ± 2.53	F = 0.602/0.548
Physiology	7.46 ± 2.46	7.32 ± 2.74	8.11 ± 2.38	F = 2.781/0.063
Microbiology-parasitology	5.02 ± 2.63	5.19 ± 2.91	6.70 ± 2.96	F = 10.554/0.000[b]
Histology	4.82 ± 2.62	4.98 ± 3.03	6.48 ± 3.36	F = 9.186/0.000[b]
Biochemistry	5.34 ± 2.92	5.04 ± 3.02	5.94 ± 3.10	F = 2.406/0.092
Pathology	6.60 ± 2.76	5.37 ± 2.86	7.02 ± 2.92	F = 10.093/0.000[b]
Pharmacology	8.52 ± 1.84	7.59 ± 2.95	8.40 ± 2.38	F = 5.026/0.007[c]
Sufficiency levels for basic medical sciences courses				
Anatomy	5.92 ± 2.61	6.85 ± 2.33	5.80 ± 2.45	F = 6.264/0.002[c]
Physiology	5.90 ± 2.39	6.14 ± 2.33	5.59 ± 2.41	F = 1.398/0.249
Microbiology-parasitology	5.74 ± 2.58	5.60 ± 2.56	5.52 ± 2.66	F = 0.177/0.838
Histology	5.70 ± 2.65	5.26 ± 2.47	5.22 ± 2.64	F = 1.155/0.316
Biochemistry	6.14 ± 2.64	4.94 ± 2.62	4.90 ± 2.54	F = 8.049 0.000[b]
Pathology	6.58 ± 2.57	5.21 ± 2.64	5.90 ± 2.44	F = 8.503/0.000[b]
Pharmacology	6.24 ± 2.70	5.37 ± 2.78	6.22 ± 2.52	F = 3.981/0.020[c]

[a]One-Way ANOVA.
[b]$P < 0.001$.
[c]$P < 0.05$.

on microbiology-parasitology (26.8%) and pharmacology (26.8%), and least successful in physiology (14.5%). In a study where Tuygar et al. [18] examined the satisfaction levels of medical school students with their anatomy training, satisfaction was found to be on a medium level, with the satisfaction of sophomores being higher than of freshmen. The findings of the study show that to increase student satisfaction and education quality, there is a need to stress on the importance of basic courses such as physiology, and to better efforts in operating the course.

In the education of basic medical sciences courses, model, atlas, cadaver and visual content-based programs will be more effective. With these methods learners learn more permanently and the in next profession they can re-

member what they had learned in their lives more quickly (19) In our study, more than half of the students stated that basic medical science courses should be given through the use of mannequins or other materials. In Durai et al. (8) study, 70% of students were not satisfied with the way these subjects were conducted and 40% wanted different teaching strategies. In a study performed by Kunt (16) with Faculty of Education students, it was seen that the use of audiovisual materials and applications was important for learning. In the same study, when the answers to the reasons why the courses on anatomy and physiology were not being understood were examined, 44.2% of the students stated that not using audiovisual tools in the learning process had negative effects on learning, while 77.2% stated that no applications had such an effect and 89.9% stated that memorization-based learning had such an effect (16). Despite this, in a study performed by Oner (7) to determine the views of lecturers assigned to basic medical sciences courses on basic medical sciences education, it was found that 25% of lecturers suggested education through the classical education system. However, in the same study, it was stressed that the classical system should be improved, and that to attain this, most of the lecturers should use methods such as asking questions in theoretical courses according to interactive education principles, and opening discussions to provide active participation for the students in the course presentation. In a study by Mikkelsen (20), 18% of nursing students preferred the traditional teaching approach. In a study by Montayre and Sparks (8), nursing students found laboratory sessions unnecessary to pass the anatomy and physiology courses. Generally viewed, interactive learning methods allow learners to learn, and increase their willingness and effort. In this context, basic medical sciences courses in the planning of training content, we think that it will be useful to emphasize the methods of education.

In our study, most students stated that the basic medical sciences courses should be given in the first semester of the first year. In a study performed by Ari et al. (21) with medical school students, when the students were asked at which year anatomy courses should be given, 69.6% (n = 133) preferred the first and second years. Because nursing-specific field courses are extensive and comprehensive, we think that students want to learn these courses in the first semester.

In our study when the contribution levels of the basic medical sciences courses to nursing education were compared, senior students stated that the courses on microbiology-parasitology, histology, and pathology contributed most to nursing education. In a study by Khorshid et al. (22), graduated alumni found the skills and information given to them during undergraduate education

as "somewhat sufficient," course content as "medium," course presentation as "insufficient," lecturer characteristics as "insufficient," and application quality as "insufficient". In a study by Tosun et al. (23), at the end of the internship program students stated that they were satisfied with the education experience, seeing themselves as having improved both theoretically and practically. The findings of the study show that in nursing education, which is half application training, basic medical sciences courses constitute an important factor in success in nursing courses. In this context, during the teaching of nursing-specific field courses, basic medicine we think it would be useful to repeat the science courses briefly.

5. Conclusion

From these findings, the students' views on the necessity of basic medical sciences courses were insufficient and that the students didn't see themselves as sufficient in those courses to the desired level. More application is needed for course effectiveness. In this context, to increase the success of students in nursing education and to decrease insufficiency, it is suggested that the importance of basic medical sciences courses should be stressed starting from the first year, that these courses should be applied courses and reinforced through field courses, and that feedback should be sought from students on the effectiveness of these courses.

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Footnote

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