

Comparison of first and fourth-year nursing students in terms of their knowledge on methods for preventing infectious diseases

 Muge Ozguler¹,  Aliye Bulut²,  Gulay Celik²

¹Elazig Fethi Sekin City Hospital, Department of Infectious Diseases and Clinical Microbiology, Elazig, Turkey

²Bingol University, Faculty of Health Sciences, Department of Nursing, Bingol, Turkey

Copyright © 2020 by authors and Annals of Medical Research Publishing Inc.

Abstract

Aim: The purpose of this study is to compare the first- and fourth-year nursing students in terms of their knowledge on methods for preventing infectious diseases.

Material and Methods: While the population of the study was composed of 143 students studying in the first and fourth years of the Nursing Department in Bingol University Faculty of Health Sciences, the sample of the study consisted of 117 students who supported the implementation of the study and were voluntary to participate in the study (Response rate: 81.8%).

Results: When the responses of the first and fourth-year students were compared in 3 of the items given about the definition and characteristics of infectious diseases, the difference between them was found to be significant ($p < 0.05$). When the answers of the first- and fourth-year students were compared in 5 of the 6 items given about sexually transmitted infections. The difference between them was found to be significant ($p < 0.05$). In all items, the percentage of giving correct answer was higher in fourth-year students compared to the first-year students.

Conclusions: It was observed in the present study that general knowledge levels of the nursing students about infectious diseases and their knowledge levels about Sexually Transmitted Infections were not sufficient. When the knowledge levels of the first-year students were compared with those of the senior students, it was determined that the knowledge levels increased with education, but it was still not sufficient.

Keywords: Infectious diseases; knowledge level; nursing students; sexually transmitted infections

INTRODUCTION

The health of the individuals constituting the community must be protected in order to ensure the community health. For this reason, people should be protected from diseases and early diagnosis and treatment services should be provided to sick ones (1). Morbidity and mortality of infectious disease are among the important health indicators showing the health level of the society. Mortality of infectious disease in underdeveloped and developing countries is about thirty-five times higher compared to developed countries (2). Although countries realize many interventions in this issue depending on their social and economic status, it is seen that the world cannot be protected from new diseases such as AIDS and re-emerging diseases such as tuberculosis.

In addition to surveillance, epidemic investigation and control, examining and monitoring those who contacted,

and vaccination and screening in protection and control of infectious diseases, community education also plays an important role (3). One of the first steps to be taken for community education is to reveal the knowledge level of the society.

The purpose of this study is to compare the first- and fourth-year nursing students in terms of their knowledge on methods for preventing infectious diseases.

MATERIAL and METHODS

This descriptive study was conducted in order to compare the knowledge levels of the first- and fourth-year students from the Department of Nursing in Bingol University, Faculty of Health Sciences about methods for preventing infectious diseases. While the population of the study was composed of 143 students studying in the first and fourth years of the Nursing Department in Bingol University Faculty of Health Sciences, the sample

Received: 18.12.2019 **Accepted:** 12.04.2020 **Available online:** 23.05.2020

Corresponding Author: Muge Ozguler, Elazig Fethi Sekin City Hospital, Department of Infectious Diseases and Clinical Microbiology, Elazig, Turkey **E-mail:** mugeozguler@gmail.com

of the study consisted of 117 students who supported the implementation of the study and were voluntary to participate in the study (Response rate: 81.8%)

A "Questionnaire" consisting of 42 questions prepared by the researchers was used to collect the data. In the questionnaire prepared upon the literature review, there were questions about the socio-demographic characteristics of the students as well as knowledge levels of students concerning the definition of infectious diseases and prevention methods. The questions included in the questionnaire consisted of 'yes-no', 'right-wrong', multiple choice and open-ended questions.

The data obtained from the study were evaluated using Statistical Program for Social Sciences (SPSS) for Windows 22 program. Descriptive statistics were given as number, percentage, minimum and maximum values, mean and standard deviation in the data analysis. Significance was evaluated at the level of $p < 0.05$.

RESULTS

The mean age of the participants was found as 21.33 (18-28). 54% of the participants were female and 45% were male. The majority of the participants (52.2%) stated that they lived in the city center. It was found that the educational status of the fathers was mostly secondary school (63.3%) and the mothers' educational status was mostly illiterate (47.9%). 55% of the students participating in the study had moderate income level. 52.1% of the participants were the first-year students and 47.9% were the fourth-year students (Table 1).

When the responses of the first and fourth -year students were compared in 3 of the items given about the definition and characteristics of infectious diseases according to Table 2, the difference between them was found to be significant ($p < 0.05$). In all items, the percentage of giving correct answer was higher in fourth-year students compared to the first-year students.

Table 1. Distribution of the participants in terms of some of their characteristics (N=117)

| Characteristics | Number (n) | Percentage (%) |
|---------------------------------------|------------|----------------|
| Age 21.33±2.11 (18-28) | | |
| 22 and younger | 80 | 68.3 |
| 23 and over | 37 | 31.7 |
| Gender | | |
| Female | 64 | 54.7 |
| Male | 53 | 45.3 |
| Place of the longest residence | | |
| Village | 26 | 22.2 |
| District | 30 | 25.6 |
| Province | 61 | 52.2 |
| Mother's educational level | | |
| Illiterate | 56 | 47.9 |
| Literate | 17 | 14.5 |
| Primary school | 38 | 32.5 |
| Secondary school -High school | 6 | 5.1 |
| Father's educational level | | |
| Illiterate | 15 | 12.8 |
| Literate | 3 | 2.6 |
| Primary-Secondary school | 74 | 63.3 |
| High school and higher | 25 | 21.3 |
| Family Type | | |
| Nuclear | 79 | 67.5 |
| Extended | 38 | 32.5 |
| Number of siblings | | |
| 2 and less | 20 | 17.1 |
| 3-4 | 49 | 41.9 |
| 5 and more | 48 | 41.0 |
| Economic status | | |
| Income more than expense | 8 | 6.8 |
| Income equal to expense | 65 | 55.6 |
| Income less than expense | 44 | 37.6 |
| Year | | |
| 1 | 61 | 52.1 |
| 4 | 56 | 47.9 |

Table 2. Distribution of Opinions about Definition and General Characteristics of Infectious Diseases

| Definition and General Characteristics of Infectious Diseases | | Correct | Incorrect | Total | p |
|---|----------------------|--------------|-----------|-------|--------|
| They are diseases emerging upon the entering of disease-causing microbes or parasites that have the ability to infect humans in any way. | 1 st Year | Number 61 | 0 | 61 | 0.137 |
| | | % 52.1 | 0.0 | 52.1 | |
| | 4 th Year | Number 54 | 2 | 56 | |
| | | % 46.2 | 1.7 | 47.9 | |
| It is a disease caused by the direct or indirect transmission of a specific infectious agent or its toxic products from a source to a susceptible person. | 1 st Year | Number 54 | 7 | 61 | 0.009* |
| | | % 46.2 | 6.0 | 52.1 | |
| | 4 th Year | Number 56 | 0 | 56 | |
| | | % 47.9 | 0.0 | 47.9 | |
| All infectious diseases are contagious. | 1 st Year | Number 22 | 39 | 61 | 0.027* |
| | | % 18.8 | 33.3 | 52.1 | |
| | 4 th Year | Number 10 | 46 | 56 | |
| | | % 8.5 | 39.3 | 47.9 | |
| Infectious diseases are transmitted directly or indirectly. | 1 st Year | Number 57 | 4 | 61 | 0.785 |
| | | % 48.7 | 3.4 | 52.1 | |
| | 4 th Year | Number 53 | 3 | 56 | |
| | | % 45.3 | 2.6 | 47.9 | |

| | | | | | | |
|---|----------------------|--------|------|------|------|--------|
| All infectious diseases are transmitted from person to person through contact. | 1 st Year | Number | 19 | 42 | 61 | 0.096 |
| | | % | 16.2 | 35.9 | 52.1 | |
| | 4 th Year | Number | 10 | 46 | 56 | |
| | | % | 8.5 | 39.3 | 47.9 | |
| Infectious diseases are very important because they are common and widespread, cause deaths, other diseases or disabilities, and lead to labor and material losses. | 1 st Year | Number | 57 | 4 | 61 | 0.464 |
| | | % | 48.7 | 3.4 | 52.1 | |
| | 4 th Year | Number | 54 | 2 | 56 | |
| | | % | 46.2 | 1.7 | 47.9 | |
| Persons with infection should be isolated. | 1 st Year | Number | 45 | 16 | 61 | 0.879 |
| | | % | 38.5 | 13.7 | 52.1 | |
| | 4 th Year | Number | 42 | 14 | 56 | |
| | | % | 35.9 | 12.0 | 47.9 | |
| Since infectious diseases spread easily, they affect a lot of people. | 1 st Year | Number | 52 | 9 | 61 | 0.038* |
| | | % | 44.4 | 7.7 | 52.1 | |
| | 4 th Year | Number | 54 | 2 | 56 | |
| | | % | 46.2 | 1.7 | 47.9 | |
| Infections from animals spread easily from person to person. | 1 st Year | Number | 41 | 20 | 61 | 0.169 |
| | | % | 35.0 | 17.1 | 52.1 | |
| | 4 th Year | Number | 44 | 12 | 56 | |
| | | % | 37.6 | 10.3 | 47.9 | |
| Infectious diseases disrupt social order, lead to deaths and disabilities, affect economic structure and increase the risk of spreading diseases worldwide. | 1 st Year | Number | 58 | 3 | 61 | 0.093 |
| | | % | 49.6 | 2.6 | 52.1 | |
| | 4 th Year | Number | 56 | 0 | 56 | |
| | | % | 47.9 | 0.0 | 47.9 | |

Table 3. Distribution of Opinions about the most common transmission ways of infectious diseases

| Transmission Ways | | | Correct | Incorrect | Total | p |
|---------------------|----------------------|--------|---------|-----------|-------|--------|
| Water and nutrients | 1 st Year | Number | 46 | 15 | 61 | 0.520 |
| | | % | 39.3 | 12.8 | 52.1 | |
| | 4 th Year | Number | 45 | 11 | 56 | |
| | | % | 38.5 | 9.4 | 47.9 | |
| By air | 1 st Year | Number | 38 | 23 | 61 | 0.017* |
| | | % | 32.5 | 19.7 | 52.1 | |
| | 4 th Year | Number | 46 | 10 | 56 | |
| | | % | 39.3 | 8.5 | 47.9 | |
| By blood | 1 st Year | Number | 34 | 27 | 61 | 0.048 |
| | | % | 29.1 | 23.1 | 52.1 | |
| | 4 th Year | Number | 21 | 35 | 56 | |
| | | % | 17.9 | 29.9 | 47.9 | |
| Vectors | 1 st Year | Number | 31 | 30 | 61 | 0.766 |
| | | % | 26.5 | 25.6 | 52.1 | |
| | 4 th Year | Number | 30 | 26 | 56 | |
| | | % | 25.6 | 22.2 | 47.9 | |
| Sexual intercourse | 1 st Year | Number | 31 | 30 | 61 | 0.778 |
| | | % | 26.5 | 25.6 | 52.1 | |
| | 4 th Year | Number | 27 | 29 | 56 | |
| | | % | 23.1 | 24.8 | 47.9 | |
| By contact | 1 st Year | Number | 39 | 22 | 61 | 0.809 |
| | | % | 33.3 | 18.8 | 52.1 | |
| | 4 th Year | Number | 37 | 19 | 56 | |
| | | % | 31.6 | 16.2 | 47.9 | |

When the answers of the first and fourth-year students in the item of infection by air were compared based on Table 3, the difference between them was significant ($p < 0.05$). The percentage of giving correct answers in all items was higher for fourth-year students compared to the first-year students.

When the answers of the first- and fourth-year students were compared in 5 of the 6 items given about sexually transmitted infections According to Table 4, the difference between them was found to be significant ($p < 0.05$). In all items, the percentage of giving correct answer was higher in fourth-year students compared to the first-year students.

When the answers of the first and fourth-year students in items 4 of 6 related to sexually transmitted diseases were compared according to Table 5, the difference between

them was found to be significant ($p < 0.05$). In all items, the percentage of giving correct answer was higher in fourth-year students compared to the first-year students.

Table 4. Knowledge Level on Sexually Transmitted Infections

| Sexually Transmitted Diseases | | | Correct | Incorrect | Total | p |
|---|----------------------|--------|---------|-----------|-------|--------|
| All infectious diseases can be sexually transmitted. | 1 st Year | Number | 12 | 49 | 61 | 0.007* |
| | | % | 10.3 | 41.9 | 52.1 | |
| | 4 th Year | Number | 2 | 54 | 56 | |
| | | % | 1.7 | 46.2 | 47.9 | |
| We can be protected from sexually transmitted diseases by using condoms in any suspicious contact. | 1 st Year | Number | 42 | 19 | 61 | 0.00* |
| | | % | 35.9 | 16.2 | 52.1 | |
| | 4 th Year | Number | 54 | 2 | 56 | |
| | | % | 46.2 | 1.7 | 47.9 | |
| Monogamy reduces risk factors. | 1 st Year | Number | 56 | 5 | 61 | 0.029* |
| | | % | 47.9 | 4.3 | 52.1 | |
| | 4 th Year | Number | 56 | 0 | 56 | |
| | | % | 47.9 | 0.0 | 47.9 | |
| After a contact with a risky sexual partner, a physician should be visited for the necessary prophylaxis. | 1 st Year | Number | 53 | 6 | 61 | 0.025* |
| | | % | 46.9 | 5.3 | 54.0 | |
| | 4 th Year | Number | 52 | 0 | 52 | |
| | | % | 46.0 | 0.0 | 46.0 | |
| I do not think diseases can transmit sexually. | 1 st Year | Number | 16 | 45 | 61 | 0.006* |
| | | % | 13.7 | 38.5 | 52.1 | |
| | 4 th Year | Number | 4 | 52 | 56 | |
| | | % | 3.4 | 44.4 | 47.9 | |
| I think that trainings about sexually transmitted diseases should be given before starting sexual life. | 1 st Year | Number | 60 | 1 | 61 | 0.951 |
| | | % | 51.3 | 0.9 | 52.1 | |
| | 4 th Year | Number | 55 | 1 | 56 | |
| | | % | 47.0 | 0.9 | 47.9 | |

Table 5. Participants' Status of Knowing Sexually Transmitted Diseases

| Diseases | | | Correct | Incorrect | Total | p |
|---------------------|----------------------|--------|---------|-----------|-------|--------|
| HIV | 1 st Year | Number | 59 | 2 | 61 | 0.931 |
| | | % | 50.4 | 1.7 | 52.1 | |
| | 4 th Year | Number | 54 | 2 | 56 | |
| | | % | 46.2 | 1.7 | 47.9 | |
| HBV (Hepatitis B) | 1 st Year | Number | 34 | 27 | 61 | 0.231 |
| | | % | 29.1 | 23.1 | 52.1 | |
| | 4 th Year | Number | 25 | 31 | 56 | |
| | | % | 21.4 | 26.5 | 47.9 | |
| HCV (Hepatitis C) | 1 st Year | Number | 27 | 34 | 61 | 0.049* |
| | | % | 23.1 | 29.1 | 52.1 | |
| | 4 th Year | Number | 15 | 41 | 56 | |
| | | % | 12.8 | 35.0 | 47.9 | |
| Syphilis | 1 st Year | Number | 20 | 41 | 61 | 0.00* |
| | | % | 17.1 | 35.0 | 52.1 | |
| | 4 th Year | Number | 45 | 11 | 56 | |
| | | % | 38.5 | 9.4 | 47.9 | |
| Gonorrhea | 1 st Year | Number | 22 | 39 | 61 | 0.00* |
| | | % | 18.8 | 33.3 | 52.1 | |
| | 4 th Year | Number | 45 | 11 | 56 | |
| | | % | 38.5 | 9.4 | 47.9 | |
| HPV (Genital warts) | 1 st Year | Number | 32 | 29 | 61 | 0.006* |
| | | % | 27.4 | 24.8 | 52.1 | |
| | 4 th Year | Number | 43 | 13 | 56 | |
| | | % | 36.8 | 11.1 | 47.9 | |

DISCUSSION

Deaths related with infectious diseases were reported as 16 million in 1990 and 15 million in 2010 worldwide. World Health Organisation (WHO) predicts that 13 million people will die in 2050 due to infectious diseases (4). Sexually transmitted infections (STIs) covering an important area among infectious diseases are defined as the diseases caused by bacteria, viruses, parasites, and fungi and diseases transmitted from person-to-person through sexual intercourse (5). According to the estimations of WHO, more than 1 million new STIs develop every day (6). A major part of the infectious diseases constituting an important place in the global burden of disease can be prevented by knowing prevention methods, taking various measures, and vaccination (7).

In the present study, various questions were asked to evaluate the general knowledge levels of the students about infectious diseases and their knowledge about STI. Their knowledge levels were tried to be measured by evaluating the general description questions asked to define infectious diseases.

It was observed that those who defined infection diseases as "a disease caused by direct or indirect transmission of a specific infectious agent or its toxic products from a source to a susceptible person", those who believed that "infectious diseases are mostly transmitted by air" and "the infectious disease are easily spread and therefore affect a lot of people" were mostly 4th-year students. On the other hand; the rates of thinking that all infectious diseases were contagious were significantly higher in first-year students than fourth-year students. These results did not only suggest that the theoretical and practical trainings related to infectious diseases were effective during the education of students but also suggested that the knowledge levels of the students about the transmission ways of STIs in particular and other infectious diseases were not at the desired level.

In the present study, when the questions asked to students about sexually transmitted diseases were assessed, the rates of thinking that "all infectious diseases can be transmitted sexually" were determined to be significantly higher in 1st-year students compared to the 4th-year students. The rate of the students who did not think that infections can transmit through sexual contact was 17%. It was observed that 13.7% of them were 1st-year students and 3.4% were 4th-year students. The rate of students stating that "*I think that trainings about sexually transmitted disease should be given before starting sexual life*" was 98.3% and 51.3% of them were 1st-year students and 47% were 4th-year students. The results of the present study suggested that the education of the students was insufficient in terms of STIs. It was determined in the study by Artan et al., (8) that while 27.1% of the students had adequate knowledge about STI, 72.9% of them had inadequate knowledge about STI. In this study, the need to obtain information about STI was shown as 67.4%. It was stated in the literature that 57.4-77% of the university students said that they did not

feel sufficient about STI (8-11). It was reported in a study investigating the knowledge and attitudes of nursing students in Turkey about HIV/AIDS that there was a lack of information about HIV/AIDS in nursing (12). The results of these studies point out that university students including those studying in health departments in Turkey need for training about sexually transmitted infections. In the international studies investigating the knowledge levels of nursing students about HIV/AIDS, it has been found that a great part of the university students had a high level of knowledge about sexually transmitted infections (13,14). The rate of training needs (98.3%) obtained in the present study is higher than these studies. This may be due to the educational, sociocultural, and economic differences between the populations included in the study.

In the present study, the rate of those thinking that monogamy is important for STI was determined as 95.8%. While all 4th-year students thought that monogamy can prevent sexually transmitted diseases, this rate was lower among 1st-year students. In the present study, the rate of students thinking that STIs can be prevented by using condoms was 82%. It was found that most of the first-year students did not think that "*we can be protected from sexually transmitted infections with the use of condoms*". The rate of 4th-year students thinking that after a contact with a risky sexual partner, a physician should be visited for the necessary prophylaxis was significantly higher than 1st-year students. In the literature, there are many studies reporting that those who think that condom is the most common method of preventing STI are the majority (8,15,16). The results of the present study were found to be similar with these studies.

It was observed in the present study that a great majority of nursing students thought that HIV was a sexually transmitted disease but on the contrary, a great majority of students did not think that HBV and HCV are transmitted through sexual intercourse and this rate was significantly higher for HCV in 4th-year students. The students' knowledge levels about sexually transmitted diseases were determined as 96.6% for HIV (50% were 1st-year and 46% were 4th-year), 50.5% for HBV (29.1% were 1st-year and 21.4% were 4th-year), 45.9% for HCV (23.1% were 1st-year and 12.8% were 4th-year), 55.6% for Syphilis (17.1% were 1st-year and 38.5% were 4th-year), 57.1% for Gonorrhoea (18.8% were 1st-year and 38.5% were 4th-year), 64.4% for HPV (27.4% were 1st-year and 36.8% were 4th-year). It was found that first-year students did not think syphilis and gonorrhoea were sexually transmitted diseases, the majority of 4th-year students knew that syphilis and gonorrhoea were sexually transmitted diseases and the difference between them was statistically significant. Similarly, the level of knowledge about that HPV is sexually transmitted disease was statistically significantly higher in 4th-year students. Artan et al., (8) presented the distribution of STI factors known by the students participating in their study as 32.9% for Hepatitis B, 29.5% for Syphilis, 18.7% for Hepatitis C, 85.1% for AIDS, and 34.0% for Gonorrhoea. The rates we found in the present study were higher than

in this study. This may be associated with the content and frequency of the training activities applied on the study population. In addition, sociocultural differences and educational status of family members may be the cause of the difference between the studies.

CONCLUSION

It was observed in the present study that general knowledge levels of the nursing students about infectious diseases and their knowledge levels about STIs were not sufficient. When the knowledge levels of the first-year students were compared with those of the senior students, it was determined that the knowledge levels increased with education, but it was still not sufficient. The fact that a great majority of the students thought that infections are transmitted by air supports that they did not have enough knowledge about other transmission ways of infection and young people need to be informed especially about the importance of STIs and protection from them. It also increases the risk of getting STIs among young people. Although the fact that the knowledge levels of the fourth-year students about Syphilis, Gonorrhea, and HIV from STIs were high shows the contribution of education, the lack of sufficient knowledge of both groups about other STIs such as Hepatitis B, Hepatitis C, and HPV suggests that further education studies should be conducted on this issue in the universities. It has been shown in the literature that educational programs increase the rates of preventing infection and reduce the rates of being infected (17). We think that multidisciplinary studies should be conducted on the necessity of receiving training about STIs by adolescents and young people before they start active sexual life.

Competing interests: The authors declare that they have no competing interest.

Financial Disclosure: There are no financial supports.

Ethical approval: This study was approved by the Institutional Ethics Committee and conducted in compliance with the ethical principles according to the Declaration of Helsinki.

REFERENCES

- Bertan M, Akın L. Bağışıklama. Eds.: Bertan M, Güler Ç. Halk Sağlığı Temel Bilgiler. 2. baskı. Ankara. Güneş Kitabevi, 1997;349-56.
- Beaglehole R, Bonita R, Kjellström T, WHO. Basic epidemiology, Updated reprint. World Health Organization, 1993. <https://apps.who.int/iris/handle/10665/36838> access date: 31.05.2019
- Rutherford GW. Public health, communicable diseases and managed care: Will managed care improve or weaken communicable disease control? Am J Prev Med 1998;14:53-9.
- World Health Organization. Mortality and global health estimates. Geneva, Switzerland: World Health Organization. https://www.who.int/healthinfo/global_burden_disease/en/ access date: 31.05.2019
- Wagenlehner FME, Brockmeyer NH, Discher T, et al. The Presentation, Diagnosis, and Treatment of Sexually Transmitted Infections, Dtsch Arztebl Int 2016;113:11-22.
- World Health Organization. Sexually transmitted infections (STIs). Geneva: World Health Organization. <http://www.who.int/mediacentre/factsheets/fs110/en> access date: 31.05.2019
- Institute for Health Metrics and Evaluation (IHME). Findings from the Global Burden of Disease Study 2017. Seattle, WA: IHME, 2018. http://www.healthdata.org/sites/default/files/files/policy_report/2019/GBD_2017_Booklet.pdf access date: 31.05.2019
- Artan MO, Baykan Z. The Evaluation of Knowledge and Influential Factors of Sexually Transmitted Diseases of Health Services Vocational College Students. Turkish Bulletin of Hygiene and Experimental Biology 2010;67:127-33.
- Elkin N. Investigation on the knowledge of undergraduate students' about sexually diseases, Mersin University Journal of Health Sciences 2015;8: 63-8.
- Temiz G, Batmaz M, Akhan LU, ve ark. Üniversite öğrencilerinin AIDS ile ilgili bilgi ve tutumları. Bilim, Eğitim ve Düşünce Dergisi 2005;5:1-5.
- Ozdemir L, Ayvaz A, Poyraz O. The Level of Knowledge of Students in Cumhuriyet University about the Sexually Transmitted Diseases. Faculty of Med Cumhuriyet University 2003;25:10-4.
- Akın S, Mendi B, Mendi O, et al. Turkish nursing students knowledge of and attitudes towards patients with HIV/AIDS. J Clinical Nurs 2013;22:3361-71.
- Lohrmann C, VaĒlimaĒki M, Suominen T, et al. German nursing students' knowledge of and attitudes to HIV and AIDS: Two decades after the first AIDS case. J Adv Nurs 2000;31:696-703.
- Reis M, Ramiro L, Matos MG, et al. Nationwide survey of contraceptive and sexually transmitted infection knowledge, attitudes and skills of university students in Portugal. Int J Clin Health Psychol 2013;13:127-37.
- Uzun E, Kisioglu M. SDU Medical Faculty, Department of Public Health, Studies of Region of Education and Investigation in KeĒiborlu The status of the information concerning the sexually transmitted diseases in the students in a school of vocation. Suleyman Demirel University Faculty of Med 2007;14:7-12.
- Tan X, Pan J, Zhou D, et al. HIV/AIDS knowledge, attitudes, behaviors assessment of Chinese students: a questionnaire study. Int J Environ Res Health 2007; 4:248-53.
- DoĒu O, Karabay O. Infection Control Training Program for Nursing and Midwifery Intern Students. OTJHS. 2016;2:1-10.