



# A Comparative Analysis of the Sexual Culture and Behavior of Nursing Students from the Medical University of Plovdiv in the Period 2009-2019

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## Abstract

**Introduction:** Population reproduction and family planning are highly dependent on sexual culture and sexual behavior. In this study, we seek to determine whether, over a ten-year period from 2009 to 2019, there have been any changes in the sexual culture of nursing students in relation to the knowledge of risk factors for unintended pregnancies and subsequent abortions.

**Materials and methods:** A group anonymous survey was used to gather primary data from 219 nursing students from the Medical College at the Medical University of Plovdiv in 2009 and 210 nursing students from the Faculty of Public Health at the same institution in 2019. The studies in both cohorts were cross-sectional.

**Results and discussion:** We found that students' perceptions of sexual culture did not change significantly in the study period. There were some changes in the students' attitudes toward voluntary abortion in the ten years between 2009 and 2019. Age and marital status were found to be essential factors in determining whether an unplanned pregnancy would be maintained or aborted. Future medical professionals are aware of how having an abortion affects a woman's health and ability to reproduce.

**Conclusions:** In promoting sexual and reproductive health, medical professionals play a crucial role. It is, therefore, essential that a course on sexual health be added to the curriculum of medical universities training healthcare professionals.

## Keywords

health culture, health professionals, sexual behavior

## INTRODUCTION

Scientific management of social and economic processes is an important condition for the development of modern society. The management of demographic processes is the key element of conscious social development regulation. Demographic behavior plays an important role in these processes. Population reproduction and family planning are highly dependent on sexual culture and sexual behavior. Models and concepts of sexual culture and behavior have been provided at several World Health Organization, UNICEF, and regional centers.<sup>[1-3]</sup> Sexual culture is part of people's general culture. The basis of this culture is the sexual education of children and adolescents. The institutions that are called to participate in sex education are the family, the school, and the healthcare institutions.<sup>[4]</sup>

Analyzing the results of Cairo Conference, Ashford<sup>[5]</sup> noted that the family is indebted to the development of children's sexual culture. A similar conclusion draws S. Donnan in a study covering a period of 40 years concerning Europe and Asia.<sup>[6]</sup> In the present study, we aimed to find whether the health (sexual) culture of healthcare students (nurses) had changed in the ten years between 2009 and 2019. This is important because they are the specialists who will play an active role in educating the population on the prevention of early pregnancies, induced abortions, sexually transmitted infections, and HIV/AIDS.

## AIM

To evaluate nursing students' knowledge of the risk factors that lead to unwanted pregnancies in student nurses between 2009 and 2019 and to conduct a comparative analysis of nursing students' knowledge of abortion and its consequences over a ten-year period.

## MATERIALS AND METHODS

This is a parallel study of the changes of sexual behavior of healthcare nursing students from the Medical University of Plovdiv over a period of ten years. The primary information was collected through a group anonymous survey conducted with 219 and 210 nursing students from the Medical College of Medical University of Plovdiv in 2009 and the Faculty of Public Health at the Medical University of Plovdiv in 2019, respectively. The studies in both cohorts were cross-sectional. Independent (factorial) variables were age, year of study, permanent residence, and marital status. Dependent variables were related to sexual culture and sexual behavior.

### Statistical analysis

The nonparametric methods of Mann-Whitney and Kruskal-Wallis were used to determine statistical relationship

between ordinal variables and variables that did not have a normal distribution. The Pearson's chi-square test was used to determine if there was a significant relationship between two nominal variables. Spearman's method was used to determine the correlation between specified variables. We set the significance level  $\alpha$  at 0.05. SPSS v. 22 was used to analyze the collected database.

## RESULTS

The students in the three-year programme of study were equally represented by numbers. The age of students in both studies correlated with the year of study to some extent. The majority of participants in the survey were first year students; the difference between the surveys conducted in 2009 and 2019 failed to reach statistical significance. Most of the students participating in the study were 20-24 years old since the predominant part of both cohorts were second-year students. We found that the proportion of married women increased along with the study year. The difference between the two cohorts was not statistically significant. Analysis of the data on permanent residence in both studies showed that female students of urban origin predominated (80.00%±2.00 in 2009 and 84.30%±2.51 in 2019). It was important for us to find to what extent the students were aware of the risk factors for unwanted pregnancies. In both years of the study, the majority of respondents said that "low sexual culture" and "irregular use of contraceptives" were to blame for the increasing likelihood of unintended pregnancies. The fact that just 20% of the students polled in both survey years identified 'sexual violence' as a factor that can cause unintended pregnancy and subsequent abortions raises alarm. The factorial variables - age, year of study, and place of residence did not have a statistically significant effect on the structure of answers given by the participants. Most respondents indicated that abortion was harmful to women's health (92% in 2009 and 92.34% in 2019). According to the survey results, factorial variables were not necessary for forming students' opinions on the harm that abortion causes to women's health ( $p < 0.0001$ ). The answers given by married students were quite unexpected. Only two-thirds of these students indicated that abortion was harmful to their health, while 5.00%±5.58 answered that it was not harmful, and 12.50%±5.25 did not know whether it was harmful. The difference with the unmarried students was statistically significant ( $p < 0.0001$ ).

We found that the students' attitudes toward voluntary abortion had undergone some changes in the ten years of the study (2009–2019). The age of the students participating in the study was crucial in solving the problem of 'unwanted pregnancy'. In the 2009 survey, there were no statistically significant differences between the first two age groups in the choice to have an abortion, but the proportion of respondents over the age of 25 who planned to have an abortion to end an unwanted pregnancy was higher by almost 20%. In 2019, the most serious increase in the pro-

portion of students intending to have an abortion in case of unwanted pregnancy was among the 19-year-olds – by about 10%. In the other age groups, the increase compared to the data from 2009 was not statistically significant. The number of students under 19 who would not have an abortion rose by nearly 15% (from 14.93% in 2009 to 28.57% in 2019). The intriguing, albeit worrying, finding worth noting here is that almost 60% of this group claimed they “did not think” of this issue. The permanent place of residence is a factor that has certain influence in solving the problem of unwanted pregnancy - the voluntary abortion. The alternative hypothesis is determined by the larger number of urban girls who indicated that they would have an induced abortion in both studies. It is impressive how many female students living in rural areas said they would not get an induced abortion in an unwanted pregnancy. The difference between the two categories of urban and rural populations was statistically significant ( $p < 0.0001$ ). Logically, marital status is expected to be an essential factor in deciding the outcome of an unwanted and unexpected pregnancy. The comparative analysis we conducted showed that the proportion of married students who would not terminate the pregnancy was higher in the first period of the study, while in 2019, the proportion of unmarried students who would not have an abortion increased (Fig. 1). Statistical analysis showed that there was no difference between the two cohorts. However, for young, single women, the situation was drastically different because choosing to have an abortion was a complex issue with psychological, social, and health implications. The study found that 44.66% in 2009 and 40.78% in 2019 of unmarried participants did not think about what they would do in an unwanted pregnancy (Fig. 1).

## DISCUSSION

The comparative analysis of the two cross-sectional studies conducted in 2009 and 2019 with the nursing students in the Medical University of Plovdiv showed that there were no significant changes in the knowledge concerning the students’ sexual culture. What the sources of information are regarding the strategies to prevent unexpected pregnancies, the risks of induced abortion, STD infections, HIV/AIDS, and other sexually transmitted diseases is of the utmost importance in helping young people create a proper sexual culture. The analysis of the data from the research showed that low health culture was one of the reasons for the occurrence of unwanted pregnancies and voluntary abortions. In the study by Hristova-Atanasova et al., women in fertility age thought the Internet and their obstetrician-gynecologist were their only sources to learn about getting pregnant. All of them highlighted the necessity for a web-based educational platform to provide future families with health information.<sup>[7]</sup> According to the results of the study conducted in 2009, friends (27.66%) and literary sources (19.39%) were the two main places where students looked for information, with schools and medical services coming in third and fourth, respectively. The results from 2019 suggested that the family was the main source of providing pertinent information, followed by school and literary sources. However, informal sources of sexual education such as parents, friends, or other family members, were often insufficiently prepared and competent in topics such as contraception or sexually transmitted diseases. In 2014, Lally et al. surveyed 419 Irish students on awareness and knowledge of sexual health and sexually transmitted infections and their relationship to risky sexual behavior. As a main source, the

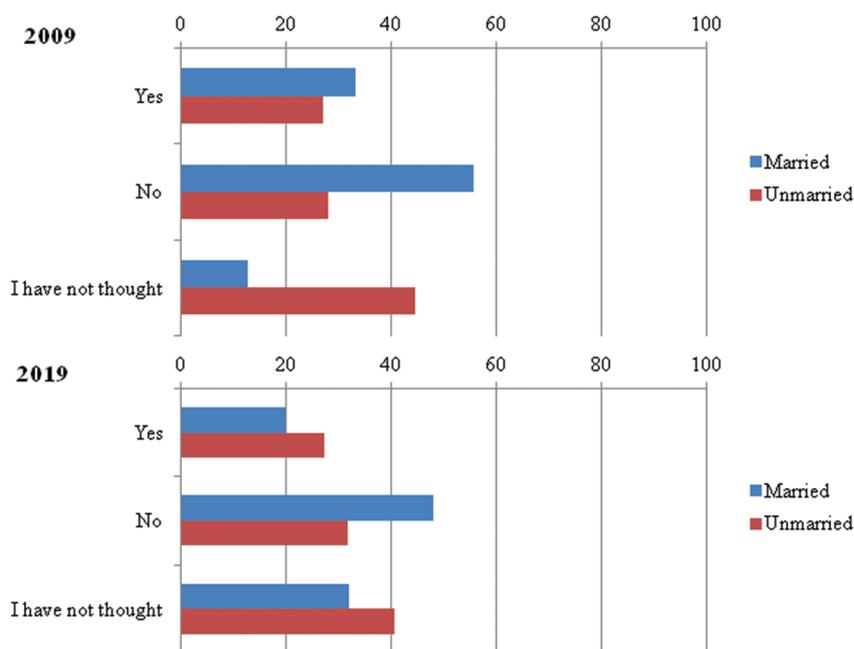


Figure 1. Abortion decision in unwanted pregnancy according to marital status.

respondents indicated high school (56.1% of the women and 78.1% of the men).<sup>[8]</sup> Similar results are reported in a sociological survey conducted in England by French et al. among young people aged 13 to 21, taking into account the effect of the school medical service and the Medical Centers for Family Planning on contraceptive use, an effect that led to a significant reduction of unwanted pregnancies as well as a reduction in HIV-seropositive results. This shows how important it is for young people to consult reliable sources such as school.<sup>[3]</sup> The results of a study conducted in 2018 by Sandeva and Kuzmanov among midwifery students were similar. They put in the first place the “low sexual culture”, followed by “non-use of contraceptives”, “risky sexual behavior” and “early sexual intercourse.”<sup>[9]</sup> In 2011, at Wolaita Sodo Amha University, Gelaye et al. conducted a study on the risk factors for induced abortion. Of the surveyed students, 37.3% indicated low health culture as the main reason for unwanted pregnancy. They noted that about 44.8% of the students stated that sexual violence was one of the main reasons for abortion.<sup>[10]</sup> It is worrying that about 20% of our respondents also mentioned “sexual violence” as a factor that can lead to unwanted pregnancies with a subsequent abortion. According to a UNESCO study in 2017, 56% of unwanted pregnancies worldwide end in induced abortion.<sup>[1]</sup>

Sandeva et al. pointed out in their study in 2016 that Bulgaria was among the countries with the highest number of voluntary abortions. The same study proved that a woman’s age and marital status influence her decision to have a voluntary abortion in an unplanned pregnancy.<sup>[11]</sup>

In 2017, Boeva studied the attitude of midwifery students to the use of contraceptives. The results were alarming – 23% of the future healthcare professionals did not use protective means.<sup>[12]</sup> The ten-year period of our study (2009–2019) showed that there were some changes in students’ attitudes towards abortion in unwanted pregnancies. In 2009, students in the age group over 25 were most likely to have an abortion. The results in 2019 were interesting – the proportion of respondents in the age group up to 19 increased by nearly 10% – from 25.37 to 34.20%.

In their report entitled “Medico-Social Aspects of Optional Abortion”, Sandeva et al. pointed out that more than half of the abortions were in women in the 20-29 age group, with a declining age.<sup>[11]</sup> In twelve of seventeen surveyed countries with official statistics, the age at which a woman is most susceptible to have an abortion is 20-24 years.<sup>[1]</sup> In addition to age, marital status is a factor that is essential in deciding the outcome of an unwanted and unexpected pregnancy – maintaining the pregnancy or abortion. Kortsmitt et al. in *Abortion Surveillance, the United States, 2018*, reported that the proportion of induced abortions performed in married women was 8.8 times lower than that in unmarried women.<sup>[13]</sup> It was important for us to understand how much future medical professionals are aware of the consequences of an abortion on a woman’s health and reproductive functions. 95% of the respondents are aware that abortion can have a serious impact on both health

(physical and mental) and a woman’s fertility. The results of a survey of medical trainees in Maharashtra, India are similar. According to their respondents, abortion is a serious health and reproductive issue.<sup>[14]</sup> The report for 2019 on the implementation of the Updated National Strategy for Demographic Development of the Republic of Bulgaria (2012 – 2030) highlights the fact that abortion is one of the significant factors influencing women’s reproductive health.<sup>[15]</sup>

## CONCLUSIONS

The analysis of the two studies conducted in 2009 and 2019 with students in the Medical University of Plovdiv showed that there is almost no change in the students’ knowledge about the risk factors for unwanted pregnancies and attitudes to induced abortions. According to a WHO report, the role of the nurse is to take an active part in prevention. At present, there is no sexual health course in the nurses’ curriculum. The medical professional plays a key role in promoting reproductive and sexual health. Therefore, it is necessary to introduce a course on sexual health in the training of health care professionals at medical universities. Thus, after completing their higher education, nurses and midwives will be sufficiently trained to be active participants in sexual health prevention.

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## Competing Interests

The authors have declared that no competing interests exist.

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# Сравнительный анализ сексуальной культуры и поведения студентов по специальности „Сестринское дело“ Медицинского университета в Пловдиве в период 2009-2019 гг.

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## Резюме

**Введение:** Воспроизводство населения и планирование семьи в значительной степени зависят от сексуальной культуры и сексуального поведения. В данном исследовании мы стремимся определить, произошли ли за десятилетний период с 2009 по 2019 годы какие-либо изменения в сексуальной культуре студентов по специальности „Сестринское дело“ в связи со знанием факторов риска нежелательной беременности и последующих абортов.

**Материалы и методы:** В ходе группового анонимного опроса первичные данные были получены от 219 студентов по специальности „Сестринское дело“ Медицинского колледжа при Медицинском университете в Пловдиве в 2009 г. и 210 студентов по специальности „Сестринское дело“ факультета общественного здравоохранения того же учебного заведения в 2019 г. Обе когорты были поперечными.

**Результаты и обсуждение:** Мы обнаружили, что представления студентов о сексуальной культуре существенно не изменились за период исследования. За десять лет с 2009 по 2019 год произошли некоторые изменения в отношении студентов к добровольному аборту. Было установлено, что возраст и семейное положение являются важными факторами в определении того, будет ли незапланированная беременность сохранена или прервана. Будущие медицинские работники знают, как аборт влияет на здоровье женщины и на её репродуктивную способность.

**Заключение:** В пропаганде сексуального и репродуктивного здоровья медицинские работники играют решающую роль. Поэтому крайне важно, чтобы курс по сексуальному здоровью был добавлен в учебную программу медицинских университетов, готовящих медицинских работников.

## Ключевые слова

культура здравоохранения, медицинские работники, сексуальное поведение