



# OPEN Does education increase ethical sensitivity a semi-experimental study

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Ethics education plays a crucial role in enhancing the ethical sensitivity of nursing students. This study aimed to assess the impact of an ethics course on the ethical sensitivity levels of nursing students. In this study, one-group pretest-posttest semi-experimental design method is used. The mean total score of the Ethics Sensitivity Scale for Nursing Students before education was determined as 4.93 (neutral), while the mean score increased to 5.62 (significant) after education. There was a statistically significant difference between the pre-education and post-education mean scores of students who reported encountering ethical problems during clinical practice. The findings underscore the importance of ethics education in fostering the ethical sensitivity and awareness of nursing students. They also highlight the need for high-quality ethics education that integrates theoretical knowledge with engaging content, real-life case studies, and practical applications to enhance students' learning experiences.

**Keywords** Ethics education, Ethical sensitivity, Nursing students, Effectiveness of education

Nursing is a critical profession dedicated to safeguarding individuals' health, treating illnesses, and enhancing the quality of life. In this regard, it is essential for nurses to uphold ethical values and standards in their professional practice to ensure the delivery of high-quality and dependable care. Due to their prolonged and direct interactions with patients, nurses play a pivotal role in healthcare and often encounter a variety of ethical challenges in their practice<sup>1–3</sup>. Healthcare services inherently involve a range of ethical challenges. Nurses, who play a central role in healthcare, frequently encounter ethical dilemmas such as privacy, patient confidentiality, the allocation of limited resources, justice, autonomy, and advocacy due to their prolonged and direct interactions with patients<sup>4,5</sup>. The ethical issues faced by nurses may both overlap with and differ from those encountered by other healthcare professionals. For instance, while physicians often confront ethical dilemmas related to treatment decision-making, nurses are more likely to face ethical challenges concerning the delivery of patient care.

Ethical decision-making ability, ethical thinking skills, ethical competence, and the level of ethical sensitivity are crucial in the nursing profession<sup>6,7</sup>. Ethical sensitivity is defined as the ability of an individual to recognize ethical issues and generate appropriate ethical solutions to these challenges. Ethical competence, on the other hand, refers to an individual's capacity to make ethical decisions and implement them, resulting from the integration of knowledge, skills, and attitudes in managing ethical dilemmas. This concept extends beyond ethical sensitivity, encompassing the conscious application of ethical principles and the making of sound decisions. Education plays a critical role in the development of both ethical sensitivity and competence, which are fundamental components of high-quality healthcare services<sup>8–12</sup>.

Nursing education is structured to include both theoretical and practical components. The aim of nursing education is to integrate scientific knowledge with clinical practice while preparing students for real-world scenarios they may face in their professional careers. Through pre-graduation training, students' awareness of potential ethical challenges in both their academic and future professional lives is heightened, and their ability to address these ethical issues is developed. Ethical education plays a crucial role in cultivating morally sensitive nurses<sup>13–16</sup>.

Education has a responsibility to prepare nurses for the ethical challenges of clinical practice. Therefore, high-quality ethical education should be an essential component of nursing education<sup>17</sup>. Studies indicate that students who do not receive ethical education do not develop awareness of the ethical problems they encounter during their clinical internships. Even students who recognize the problems may resort to unethical methods or may not actively participate in solving the problem<sup>13,18</sup>. Some studies indicate that nursing students are not trained

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about dealing with certain ethical challenges in patient care<sup>19</sup>. Other studies suggest that education can increase ethical sensitivity and foster a positive ethical climate<sup>20–23</sup>.

It has been frequently highlighted across various platforms that the ethics education provided in nursing undergraduate programs in Türkiye is inadequate, lacks standardized frameworks, and faces several challenges. In response to these concerns, one of the authors of this study, Dr. Yılmaz, who holds a Ph.D. in ethics, established the Department of Nursing History and Ethics within the Faculty of Health Sciences at “Duzce” University in 2019. The establishment of this department represented a significant step toward professionalizing and structuring ethics education in nursing<sup>24,25</sup>. In this context, this study was designed to determine the impact of the ethics education provided to nursing students by the newly established Department of Nursing History and Ethics on their levels of ethical sensitivity.

## Methods

### Design and subjects

This study used a one-group pretest–posttest semi-experimental design method. The population of the study consists of 90 third-year students studying in the Nursing Department of “Duzce” University Faculty of Health Sciences in the spring semester of the 2021–2022 academic year. The study was conducted between 01.02.2021 and 30.06.2021. A total of 86 students participated in the study, resulting in a participation rate of 95%.

In the third year, the nursing ethics course was conducted over a total of 14 weeks, with 3 theoretical hours and 2 practical hours per week. In the country where the study was carried out, nursing ethics courses are typically taught in a theoretical format for 2 h by faculty members who are not specialized in nursing ethics. However, in this study, the course was delivered by a nurse faculty member with expertise in medical ethics.

The nursing ethics course covered a wide array of topics, including ethics and related concepts, human rights, health rights, patient rights, current laws and regulations, ethical dilemmas and decision-making processes, ethical theories, medical errors in nursing, ethics in nursing practice (common ethical dilemmas and decision-making processes), ethics in the beginning of life (abortion, assisted reproductive technologies, etc.), ethics at the end of life (euthanasia, etc.), and ethics in advanced technologies and related fields (organ transplantation, stem cell research, etc.).

Active teaching methods were employed in the course, such as lectures, question-and-answer sessions, discussions, examples, case analyses, film analyses, group work, literature reviews, and visual aids. The course structure is outlined in the “Education Plan for Nursing Ethics” (Appendix).

### Data collection tools

Data were collected both before and after the training using the “Data Collection Form” and the “Adapted Ethical Sensitivity Scale for Nursing Students.” The data collection form was developed by the researcher to determine the socio-demographic characteristics of the students.

**Ethical Sensitivity Scale Adapted for Nursing Students:** The scale is used to assess the ethical sensitivity levels of nursing students. There are two different Turkish scales available for measuring ethical sensitivity levels. However, one of these scales was developed specifically for nurses, while the other was designed for nursing students. In this study, the scale specifically adapted for nursing students was selected. Originally developed by Kim Lutzen, the scale was later adapted for nursing students by Rhonda W. Comrie. The Turkish validity and reliability study of the scale was conducted by Yılmaz Şahin et al. in 2015<sup>21</sup>. Permission to use the scale was obtained from Yılmaz Şahin.

**Ethical Sensitivity Scale Adapted for Nursing Students:** The scale is a seven-point Likert type scale consisting of 30 items, and the statements in the scale are evaluated between 1 point (strongly disagree) and 7 points (strongly agree). Items 8, 24, and 29 of the scale are scored in reverse. The total score that can be obtained from the scale ranges from 30 to 210. A high score indicates high sensitivity, while a low score indicates low sensitivity from an ethical standpoint. The scale score is considered very important between 7 and 5.9, significant between 5.8 and 5, neutral between 4.9 and 3.1, and insignificant below 3.1.

The scale has six sub-dimensions. The subdimension of interpersonal orientation refers to finding ways to establish a trusting relationship with the patient and assisting in meeting the patient’s identified needs (items 1, 2, 4, and 28). Modified autonomy refers to the awareness of the principle of enabling the patient to make their own decisions while restricting the autonomy of the patient or others in situations where physical or psychological protection is generally required (items 10, 12, 13, 15, and 27). Altruism involves performing acts of kindness and acting in the best interest of the patient (items 5, 7, 19, 21, 22, 23, 25, and 26). Ethical meaning-making refers to the process of reflecting on and interpreting decisions and actions that may restrict the patient’s autonomy (items 6, 8, 14, 18, 20, and 29). The subdimension of experiencing an ethical dilemma involves first recognizing the existence of the dilemma, followed by defining emotions and intuitions, cognitively perceiving the ethical problem, and understanding the necessary actions to address it (items 9, 11, and 15). The subdimension of seeking expert knowledge involves consulting an expert to address certain patient care problems (items 16, 24, and 30).

In the study conducted by Yılmaz-Şahin et al. (2015), the Cronbach’s alpha reliability coefficient was found to be 0.73, while in this study, the Cronbach’s alpha reliability coefficient of the scale was determined as 0.794 before education and 0.941 after education.

### Data analysis

The study data were analyzed using the IBM SPSS Statistics 22 program. Descriptive statistics were used for data analysis, including frequency distributions for categorical variables and descriptive statistics (mean ± SD) for numerical variables. Scores were obtained by calculating the average of the relevant items to calculate the scale

and sub-dimension scores of the participants. The data were evaluated using descriptive statistics and the paired samples t-test for dependent groups.

### Ethical considerations

The study was performed according to the ethical standards of the Helsinki Declaration. This study has been reviewed and approved by a university's Non-Interventional Ethics Committee (Protocol Code: 2021/44). The voluntary participants of the study were provided with detailed information about the purpose and procedures of the research. The personal information and privacy of the participants are of utmost importance, and the confidentiality of this information is rigorously maintained. Written and verbal consent was obtained from participants. Those who agreed to fill out the form first gave their consent and then answered the questions. The anonymity and confidentiality of the participants' information were ensured. This reflects our commitment to adhering to ethical principles and protecting the rights of the participants.

### Results

The average age of the students in the study was  $20.94 \pm 1.15$  (minimum 19-maximum 25). It was found that 76.7% of the students were female, 14% were graduates of health vocational high schools, 89.5% did not receive ethical education before, 65.1% felt partially competent in ethics before the education, 67.4% chose nursing willingly, 66.3% had a positive opinion about nursing, and 91.9% did not work in any healthcare institution before (Table 1).

The students' average scores on the Adapted Ethics Sensitivity Scale for Nursing Students (ESQ-NS) were evaluated, and it was determined that the total score average of the scale before the education was 4.93 (neutral), while the average score after the education increased to 5.62 (significant). Similarly, the average score of the "interpersonal orientation" sub-dimension increased from 5.74 to 6.16; the average score of the "experiencing ethical dilemmas" sub-dimension increased from 3.97 to 4.86; the average score of the "altruism" sub-dimension increased from 4.69 to 5.49; the average score of the "constructing ethical meaning" sub-dimension increased from 4.97 to 5.62; the average score of the "modified autonomy" sub-dimension increased from 4.75 to 5.43; and the average score of the "consulting expert knowledge" sub-dimension increased from 5.06 to 5.78. It was found that the post-education ESQ-NS scale total scores and sub-dimension scores being higher than pre-education

Socio-demographic characteristics of the students	n	%
Gender		
Female	66	76.7
Male	20	23.3
Graduated High School		
Health Vocational High School	12	14.0
Other High Schools	74	86.0
Ethics education status		
Received	9	10.5
Not received	77	89.5
Perceived education adequacy		
Adequate	3	3.5
Insufficient	27	31.4
Partial	56	65.1
Preference for choosing nursing		
Yes	58	67.4
No	28	32.6
Current attitude towards nursing		
Positive	57	66.3
Negative	1	1.2
Undecided	28	32.6
Current employment in healthcare		
Yes	7	8.1
No	79	91.9
Encountered ethical issues in clinical practice		
Yes	18	20.9
No	68	79.1
Age $\bar{x} \pm SD$ : $20.94 \pm 1.15$		
Total	86	100

**Table 1.** Socio-demographic characteristics of the students ( $n = 86$ ).

Measure	Test	Mean	SD	t-value	p-value
Total score	Pre	4.93	0.535	- 7.0383	0.000
	Post	5.62	0.848		
Interpersonal orientation	Pre	5.74	0.802	- 3.705	0.000
	Post	6.16	0.706		
Experiencing ethical dilemmas	Pre	3.97	0.945	- 5.104	0.000
	Post	4.86	1.572		
Altruism	Pre	4.69	0.774	- 6.266	0.000
	Post	5.49	0.982		
Creating ethical meaning	Pre	4.97	0.659	- 5.832	0.000
	Post	5.62	0.917		
Modified autonomy	Pre	4.75	0.818	- 5.335	0.000
	Post	5.43	1.059		
Consulting expert knowledge	Pre	5.06	0.708	- 5.468	0.000
	Post	5.78	0.992		

**Table 2.** Comparison of pretest and posttest scores of nursing students on the adapted ethics sensitivity scale and its sub-dimensions. SD, standard deviation; t, paired sample t-test.

Variable	Pretest mean $\pm$ SD	Posttest mean $\pm$ SD	F-value	p-value
Gender				
Female	4.90 $\pm$ 0.55	5.56 $\pm$ 0.84	0.206	0.650
Male	5.04 $\pm$ 0.42	5.82 $\pm$ 0.84		
Graduated High School				
Health Vocational High School	4.81 $\pm$ 0.44	5.74 $\pm$ 0.86	0.807	0.370
Other High Schools	4.95 $\pm$ 0.54	5.62 $\pm$ 0.84		
Ethics education status				
Received	4.85 $\pm$ 0.50	5.91 $\pm$ 0.97	1.377	0.240
Not received	4.94 $\pm$ 0.53	5.58 $\pm$ 0.83		
Perceived education adequacy				
Insufficient	4.77 $\pm$ 0.58	5.58 $\pm$ 0.78	0.559	0.456
Partial + Adequate	5.00 $\pm$ 0.48	5.64 $\pm$ 0.87		
Preference for choosing nursing				
Yes	4.91 $\pm$ 0.44	5.58 $\pm$ 0.87	0.032	0.858
No	4.98 $\pm$ 0.67	5.69 $\pm$ 0.79		
Current attitude towards nursing				
Positive	5.00 $\pm$ 0.50	5.78 $\pm$ 0.89	1.318	0.253
Negative + Undecided	4.79 $\pm$ 0.56	5.31 $\pm$ 0.66		
Current employment in healthcare				
Yes	4.62 $\pm$ 0.20	5.46 $\pm$ 1.11	0.181	0.671
No	4.96 $\pm$ 0.54	5.63 $\pm$ 0.82		
Encountered ethical issues in clinical practice				
Yes	4.84 $\pm$ 0.52	5.99 $\pm$ 0.86	4.84	<b>0.029</b>
No	4.95 $\pm$ 0.53	5.52 $\pm$ 0.82		

**Table 3.** Comparison of pretest and posttest mean scores based on some variables. The bold values indicate p-values less than 0.05. F, two-way ANOVA.

were statistically significant ( $p=0.000$ ) (Table 2). These findings indicate that ethics education is effective in increasing students' ethical sensitivity.

The study examined whether there was a significant difference in pretest and posttest mean scores based on certain variables, and the results are presented in Table 3. There was a statistically significant difference between the pretest and posttest mean scores of students who reported encountering ethical issues during clinical practice. However, no statistically significant difference was found for other variables.

## Discussion

According to the findings of the study, when the effect of ethics education formally trained to students was evaluated, it was determined that the ethical sensitivity of students was at a moderate level before the education, and it increased after the education. This finding indicates that the ethics education provided has a positive effect on the ethical sensitivity of nursing students. These results emphasize the importance of ethics education in nursing education and indicate the potential to help students cope more effectively with ethical challenges they may encounter in professional practice.

When comparing the pre-test and post-test mean scores based on the students' sociodemographic characteristics, a statistically significant difference was found only among students who encountered ethical issues during clinical practice. No significant difference was observed regarding other sociodemographic characteristics. However, although no statistically significant difference was found, it was observed that the mean ethical sensitivity score of female students increased from  $4.90 \pm 0.55$  before the training to  $5.56 \pm 0.84$  after the training, while the mean score of male students increased from  $5.04 \pm 0.42$  to  $5.82 \pm 0.84$ .

Studies indicate that women are generally more inclined towards ethical behaviors, while men may be more affected by ethical education and become more sensitive to ethical behaviors after such training<sup>26–29</sup>. Although the findings of our study were not statistically significant, the mean ethical sensitivity scores increased in both genders. Tural Büyük and Ünalı Baydın<sup>30</sup> state that gender does not affect the effectiveness of ethical education. These results emphasize the necessity and importance of applying ethical education to all students, regardless of gender.

The ages of the students who participated in our study ranged from 19 to 25, with a mean age of  $20.94 \pm 1.15$ . Our study was conducted with nursing students, so the training was provided to a group with similar ages. Some studies suggest that ethical sensitivity decreases as age increases<sup>31,32</sup>, while others show that ethical sensitivity increases with age<sup>33–35</sup>. It is believed that the training will be effective for all age groups. Furthermore, continuing such training after graduation is of great importance in terms of enhancing ethical awareness and ensuring its continuity.

One of the important findings of our study is that there is a statistically significant difference between the pre-test and post-test mean scores of students who reported encountering ethical problems during the clinical practice process. Similarly, other studies also indicate that students are likely to encounter ethical problems during their professional practice<sup>9,18,30,36–38</sup>. The finding we obtained in our study is interpreted as not only increasing ethical sensitivity through education but also as higher awareness among those who encounter ethical problems. These results also indicate the importance of providing education that will attract students' attention, increase their awareness, and be supported by real-life cases, rather than just theoretical lectures. In summary, students should be able to recognize how the education they receive throughout their academic training will influence their professional careers. Furthermore, the results suggest that ethics education enhances nursing students' awareness in addressing ethical dilemmas encountered in clinical practice, thereby improving their ability to manage ethical challenges in their professional endeavors.

Nursing education involves both theoretical knowledge and clinical practice. In this process, it is important to develop the ethical awareness of future nurses and increase their sensitivity to ethics<sup>13,39</sup>. Ethical sensitivity is a talent developed through education and continues with the adoption of ethical principles<sup>40</sup>. Therefore, it is important for nursing students to develop these skills<sup>9,40,41</sup>. Ethical perspectives can be gained by encouraging discussions on bioethical issues during education<sup>15</sup>. In conclusion, ethics education is an indispensable part of nursing education.

In this research, it was found that students' ethical sensitivity levels were neutral (moderate) before receiving education. Şahiner et al.<sup>42</sup> interpreted the moderate moral sensitivity score of students as being unaware of ethical dilemmas. Studies on the ethical sensitivity of nursing students have yielded different results<sup>42</sup>. For example, Ahn and Yeom<sup>43</sup> stated that Korean nursing students had a low level of ethical sensitivity. However, studies by Borhani et al. (2016), Karimi et al. (2016), Borhani et al. (2013), Şahiner et al. (2019), Aykan et al. (2019), Dülgerler et al. (2020), Haçerlioğlu et al. (2020), and Külekçi (2022) show that nursing students have a moderate level of ethical sensitivity<sup>8,11,16,22,42,44–46</sup>. Additionally, studies by Gürdoğan Paşlı et al.<sup>9</sup> and Suntur and Duran<sup>47</sup> reported that nursing students have a high level of moral sensitivity. This diversity indicates that the ethical sensitivity of nursing students is a complex issue that can be influenced by different factors.

In our study, it was determined that the ethics education provided to students significantly increased their ethical sensitivity. In a study conducted on nursing students, the pre-test and post-test mean scores of students' ESQ-NS were compared to evaluate the effect of the case analysis method used in ethics education on their ethical sensitivity. The results show that while the average scores of students before education were  $4.48 \pm 0.50$ , they were  $5.05 \pm 0.68$  after education, and this difference is statistically significant ( $p < 0.001$ )<sup>30</sup>. Studies in the literature show that students who receive ethics education have higher levels of ethical decision-making and sensitivity<sup>21,22,36,48,49</sup>. Furthermore, the view that the ethical sensitivity of nursing students can be further developed through education, as stated by Baykara et al., supports the results of our study.

In our study, a statistically significant increase was observed in the total and subscale scores of the ethical sensitivity scale following ethics education. Similarly, in the study conducted by Boz and İnce<sup>21</sup> with students who participated in a care ethics course, significant differences were found in the total score and all subscales of the scale after the training compared to before. Another study reported a statistically significant increase in all subscales except for "beneficence" and "modified autonomy," as well as in the total score of the scale<sup>30</sup>. Furthermore, research by Yeom et al.<sup>15</sup> observed a significant increase in the total score and the "patient-oriented care" subscale after the training compared to pre-training levels, while no significant differences were found in the other subscales. The differences in students' ethical sensitivity levels may stem from their sociocultural characteristics, and the variation in subscale improvements could be attributed to both sociocultural factors and the diversity of the educational content delivered.

Ethical sensitivity is of critical importance in the nursing profession. Therefore, it is imperative to initiate ethics education during the pre-graduation period to ensure that nursing students are adequately prepared for their professional careers.

Education enhances students' ethical sensitivity, enabling them to recognize ethical dilemmas and, consequently, improve the quality of care. Ordu<sup>13</sup> highlights that, despite the inclusion of ethics education in many curricula, students may sometimes face challenges in identifying ethical issues or generating effective solutions when confronted with such problems. In the study conducted by Yeom et al.<sup>15</sup>, it was concluded that there was no significant change in students' ethical sensitivity following ethics education. This situation may stem from the manner in which ethics education is delivered, the quality of the education, and the possibility that it is taught by individuals who lack expertise in the field. In addition to incorporating ethics education into the curriculum, it is crucial to ensure its delivery is both effective and of high quality. Appropriate environments should be created in nursing students' ethics education to identify ethical issues and develop effective solutions. Furthermore, there is a need to improve both the delivery methods and the quality of ethics education.

## Conclusion and recommendations

This study demonstrates that ethics education significantly enhances the ethical sensitivity of nursing students. Post-education assessments revealed a statistically significant increase in the total and sub-dimension mean scores of the Ethical Sensitivity Scale Adapted for Nursing Students compared to pre-education assessments.

Ethics education plays a pivotal role in equipping students to address the ethical challenges they encounter in their professional journey. Supporting nursing students—who represent the future of the profession—with ethics training during their preparatory period ensures that they approach ethical dilemmas with heightened awareness and competence. Based on these findings, the following recommendations are proposed:

- Integrating ethics education into both the theoretical and clinical components of the nursing curriculum,
- Adopting case-based and clinically focused approaches alongside theoretical courses,
- Developing the content of ethics education by nurses holding a doctoral degree in the field of ethics,
- Delivering the training by these expert nurses,
- Ensuring the continuity of ethics education and sustaining it through in-service training programs after graduation are recommended.

## Limitations of the study

The limitations of the study include being conducted in only one institution, not comparing different education programs, and being limited to a specific date.

## Data availability

Data is provided within the manuscript or supplementary information files.

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## References

1. Rızalar, S., Baltacı, N., Yıldızeli Topcu, S. & Samioğlu, G. Ethical decision-making among intensive care unit and operating room nurses. *Arch. Heal. Sci. Res.* **7**, 129–136 (2020). <https://archhealthscires.org/en/ethical-decision-making-among-intensive-care-unit-and-operating-room-nurses-13315>.
2. Uncu, F. & Güneş, D. The importance of moral sensitivity in nursing education: a comparative study. *Nurs. Forum* **56**, 635–639. <https://doi.org/10.1111/nuf.12584> (2021).
3. Asare, P., Ansah, E. W. & Sambah, F. Ethics in healthcare: knowledge, attitude and practices of nurses in the Cape Coast Metropolis of Ghana. *PLoS One* **17**, e0263557. <https://doi.org/10.1371/journal.pone.0263557> (2022).
4. Sarıkaya Karabudak, S., Gerçek, E. & Yıldırım, B. Yenidoğan yoğun bakım ünitesinde çalışan hemşirelerin yaşadığı sorunlar: nitel bir araştırma. *Adnan Menderes Üniv Sađl Bilim Fakültesi Derg.* **4**, 144–153. <https://doi.org/10.46237/amusbfd.651264> (2020).
5. Andersson, H. et al. Ethics education to support ethical competence learning in healthcare: an integrative systematic review. *BMC Med. Ethics.* **23**, 29. <https://doi.org/10.1186/s12910-022-00766-z> (2022).
6. Gholami, K. & Tirri, K. The cultural dependence of the ethical sensitivity scale questionnaire: the case of Iranian Kurdish teachers. *Educ. Res. Int.* **1-9**, 2012 (2012).
7. Milliken, A. Nurse ethical sensitivity: an integrative review. *Nurs. Ethics* **25**, 278–303. <https://doi.org/10.1177/0969733016646155> (2018).
8. Hançerliođlu, S., Toygar, İ. & Gül, İ. Ethical sensitivity levels of nursing students and affecting factors. *Turk. Klin. J. Med. Ethics-Law Hist.* **28**, 330–336 (2020). <https://www.turkiyeklinikleri.com/article/en-ethical-sensitivity-levels-of-nursing-students-and-affecting-factors-88349.html>.
9. Paşlı Gürdođan, E., Aksoy, B. & Kınıcı, E. The relationship between moral sensitivity levels and professional values of nursing students. *Sađlık ve Hemşirelik Yönetimi Derg.* **5**, 147–154 (2018). <http://www.shydergisi.org/jvi.aspx?pdire=shy&plng=tur&un=SHYD-59144&look4=>.
10. Sabancıođlu, S. & Dođan, S. Derleme profesyonel kimlik gelişimi ve hemşirelik. *Anadolu Hemşirelik ve Sađlık Bilim Derg.* **15**, 275–282 (2012).
11. Borhani, F., Abbaszadeh, A. & Mohsenpour, M. Nursing students' understanding of factors influencing ethical sensitivity: a qualitative study. *Iran. J. Nurs. Midwifery Res.* **18**, 310–315 (2013). <http://www.ncbi.nlm.nih.gov/pubmed/24403928>.
12. Lechasseur, K., Caux, C., Dollé, S. & Legault, A. Ethical competence: an integrative review. *Nurs. Ethics* **25**, 694–706. <https://doi.org/10.1177/0969733016667773> (2018).
13. Ordu, Y. Examining the studies on determining the ethical awareness levels of nursing students. *Turk. J. Bioeth. Bioeth.* **6**, 116–121 (2019).
14. Moreira, D. et al. MJM. Professional practice of nurses and influences on moral sensitivity. *Rev. Gaúcha Enferm.* **2020**, 41 (2020). [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S1983-14472020000100407&tlng=en](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1983-14472020000100407&tlng=en).

15. Yeom, H.-A., Ahn, S.-H. & Kim, S.-J. Effects of ethics education on moral sensitivity of nursing students. *Nurs. Ethics* **24**, 644–652. <https://doi.org/10.1177/0969733015622060> (2017).
16. Borhani, F., Abbaszadeh, A. & Hoseinabadi-Farahani, M. J. Moral sensitivity and its dimensions in Iranian nursing students. *J. Med. Ethics Hist. Med.* **9**, 19 (2016).
17. Hoskins, K., Grady, C. & Ulrich, C. Ethics education in nursing: instruction for future generations of nurses. *OJIN Online J. Issues Nurs.* **2018**, 23 (2018). <https://ojin.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableOfContents/Vol-23-2018/No1-Jan-2018/Ethics-Education-in-Nursing.html>.
18. Kızılırmak, A. & Calpbiniçi, P. The relation between ethical sensitivity and critical thinking disposition of nursing students. *J. Heal Sci.* **27**, 192–198 (2018).
19. Albert, J. S., Younas, A. & Sana, S. Nursing students' ethical dilemmas regarding patient care: an integrative review. *Nurse Educ. Today* **88**, 104389 (2020).
20. Baykara, Z. G., Demir, S. G. & Yaman, S. The effect of ethics training on students recognizing ethical violations and developing moral sensitivity. *Nurs. Ethics* **22**, 661–675. <https://doi.org/10.1177/0969733014542673> (2015).
21. Boz, İ. & Ince, S. The effect of caring ethics course on study nurses students? ethical sensitivity level: a comparative study. *Turk. Klin. J. Med. Ethics-Law Hist.* **27**, 40–47 (2019). <http://www.turkiyeklinikleri.com/article/en-the-effect-of-caring-ethics-course-on-study-nurses-students-ethical-sensitivity-level-a-comparative-study-83395.html>.
22. Aykan, E. B., Fidancı, B. E. & Yıldız, D. Evaluation of moral maturity and ethical sensitivity in nursing students. *Sağlık Bilim Üniv Hemşirelik Derg.* **1**, 84–91 (2019).
23. Okumoto, A., Yoneyama, S., Miyata, C. & Kinoshita, A. The relationship between hospital ethical climate and continuing education in nursing ethics. *PLoS One* **17**, e0269034. <https://doi.org/10.1371/journal.pone.0269034> (2022).
24. Yılmaz, Ş. An important development for bioethics, new nursing department: department of nursing history and ethics. *Turk. J. Bioeth.* **6**, 3–4 (2019).
25. Yılmaz, S. & Özbek Güven, G. An important development for nursing ethics: Establishment of nursing history and ethics department and developments in Turkey. *Ethics Med. Public. Heal.* **17**, 100662 (2021).
26. Ugwuozor, F. O. Students' perception of corporate social responsibility: analyzing the influence of gender, academic status, and exposure to business ethics education. *Bus. Ethics Eur. Rev.* **29**, 737–747. <https://doi.org/10.1111/beer.12306> (2020).
27. Wang, L. C. & Calvano, L. Is business ethics education effective? An analysis of gender, personal ethical perspectives, and moral judgment. *J. Bus. Ethics* **126**, 591–602. <https://doi.org/10.1007/s10551-013-1973-y> (2015).
28. Ritter, B. A. Can business ethics be trained? A study of the ethical decision-making process in business students. *J. Bus. Ethics* **68**, 153–164. <https://doi.org/10.1007/s10551-006-9062-0> (2006).
29. Beu, D. S., Buckley, M. R. & Harvey, M. G. Ethical decision-making: a multidimensional construct. *Bus. Ethics Eur. Rev.* **12**, 88–107. <https://doi.org/10.1111/1467-8608.00308> (2003).
30. Tural Büyük, E. & Ünalı Baydın, N. The effect of ethics education on the ethical sensitivity of nursing students. *Turk. Klin. J. Med. Ethics-Law Hist.* **29**, 158–165 (2021). <https://www.turkiyeklinikleri.com/article/en-the-effect-of-ethics-education-on-the-ethical-sensitivity-of-nursing-students-90494.html>.
31. Yılmaz, D., Düzgün, F., Yılmaz, D., Korhan, E. & Dikmen, Y. Examination of ethical sensitivity and related factors of nurses in internal clinics: an example of university hospital. *Dokuz Eylül Üniv Hemşirelik Fakültesi Elektronik Derg.* **11**, 157–163 (2018).
32. Tazegün, A. & Çelebioğlu, A. Ethical sensitivity levels of pediatric nurses and the factors affecting this sensitivity. *J. Dr Behcet Uz Childs Hosp.* **6**, 97–102 (2016). <http://www.behcetuzdergisi.com/jvi.asp?pdır=behcetuz&plng=eng&un=BUCHD-20982&look4=>.
33. Savcı, C. & Karaaslan, Y. Ethical sensitivity of physicians and nurses in care/treatment practices: descriptive research. *Turk. Klin. J. Med. Ethics-Law Hist.* **30**, 143–150 (2020). <https://www.turkiyeklinikleri.com/article/en-ethical-sensitivity-of-physicians-and-nurses-in-care-treatment-practices-descriptive-research-98362.html>.
34. Başak, T., Uzun, Ş. & Arslan, F. Investigation of the moral sensibility of intensive care nurses. *Gülhane Tıp Derg.* **52**, 76–81 (2010).
35. Öztürk, H., Hintistan, S., Kasım, S. & Candaş, B. Ethical sensitivity of physicians and nurses in intensive care units. *Yoğun Bakım Hemşireliği Derg.* **13**, 77–84 (2009).
36. Küçük, S. et al. Hemşirelik Öğrencilerinin etik karar verme düzeyleri ve etkileyen faktörlerin belirlenmesi. *ACU Sağlık Bilim Derg.* **3**, 157–162 (2017).
37. Korhan, E., Ceylan, B., Üstün, Ç. & Kırşan, M. Ethical problems in the clinical setting from the perspective of nursing students. *Ege J. Med.* **57**, 75–81 (2018).
38. Sinclair, J., Papps, E. & Marshall, B. Nursing students' experiences of ethical issues in clinical practice: a New Zealand study. *Nurse Educ. Pract.* **17**, 1–7 (2016).
39. Ağaçdiken, S. & Aydoğan, A. Empathic skills and ethical sensitivity relationship in nurses. *Gümüşhane Univ. J. Heal Sci.* **6**, 122–129 (2017).
40. Salar, A., Zare, S. & Sharifzadeh, E. The survey of nursing students' ethical sensitivity. *Biol. Med.* **8**, 311 (2016).
41. Esmaelzadeh, F., Abbaszadeh, A., Borhani, F. & Peyrovi, H. Ethical sensitivity in nursing ethical leadership: a content analysis of Iranian nurses experiences. *Open. Nurs. J.* **11**, 1–13 (2017).
42. Şahiner, P., Babadağlı, B. & Ersoy, N. Ebelik ve hemşirelik öğrencilerinin ahlaki duyarlılığı. *Kocaeli Üniv Sağlık Bilim Derg.* **5**, 86–90. <https://doi.org/10.30934/kusbed.522406> (2019).
43. Ahn, S. & Yeom, H. Moral sensitivity and critical thinking disposition of nursing students in Korea. *Int. J. Nurs. Pract.* **20**, 482–489. <https://doi.org/10.1111/ijn.12185> (2014).
44. Dülgerler, Ş., Durgu, N. & Güler, C. Ethical sensitivity levels of employed and student nurses and effective factors. *Türkiye Klin. J. Med. Ethics-Law Hist.* **28**, 345–353 (2020). <https://www.turkiyeklinikleri.com/article/en-ethical-sensitivity-levels-of-employed-and-student-nurses-and-effective-factors-88036.html>.
45. Külekci, E., Yılmaz Şahin, S. & İyigün, E. Hemşirelik Son Sınıf Öğrencilerinin Etik Duyarlılıklarının İncelenmesi. *Ankara Eğitim Araştırma Hastan Tıp Derg.* **55**, 195–199. <https://doi.org/10.20492/aeahd.1107049> (2022).
46. Noghondar, M. K., Tavakoli, N., Borhani, F. & Mohsenpour, M. Ethical sensitivity: a comparison between the nursing students and nurses of Azad University. *Iran. J. Med. Ethics Hist. Med.* **8**, 69–76 (2016).
47. Suntur, Ş. & Duran, S. Hemşirelik Öğrencilerinin Etik Duyarlılık Düzeylerinin Belirlenmesi. In *17 Ulus Hemşirelik Öğrencileri Kongresi Bildir Kitabı* 255 (2018).
48. Park, M., Kjørvik, D., Crandell, J. & Oermann, M. H. The relationship of ethics education to moral sensitivity and moral reasoning skills of nursing students. *Nurs. Ethics.* **19**, 568–580. <https://doi.org/10.1177/0969733011433922> (2012).
49. Gül, Ş., Duru-Aşiret, G., Bayrak-Kahraman, B., Devrez, N. & Örnekbüken, N. Investigating ethical decision-making levels of nursing students who did and did not take ethics courses. *Hemşirelikte Araştırma Geliştirme Derg.* **1**, 23–31 (2013).

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## Author contributions

ŞY and GÖG conceived and designed the study, ŞY prepared figures, collected the data and wrote the manuscript, ŞY and GÖG reviewed and approve it for publication.

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### Competing interests

The authors declare no competing interests.

### Ethics approval and consent to participate

This study has been reviewed and approved by a university's Non-Interventional Ethics Committee (Protocol Code: 2021/44). The voluntary participants of the study were provided with detailed information about the purpose and procedures of the research. The personal information and privacy of the participants are of utmost importance, and the confidentiality of this information is rigorously maintained. Written and verbal consent was obtained from participants. Those who agreed to fill out the form first gave their consent and then answered the questions. The anonymity and confidentiality of the participants' information were ensured. This reflects our commitment to adhering to ethical principles and protecting the rights of the participants.

### Additional information

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