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The Relationship Between the Professional Moral Sensitivity and Self-Efficacy Levels of Senior Nursing Students: A Structural Equation Modelling Study

Son Sınıf Hemşirelik Öğrencilerinin Mesleki Ahlaki Duyarlılık ve Öz-Yeterlilik Düzeyleri Arasındaki İlişki: Yapısal Eşitlik Modellemesi Çalışması

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ABSTRACT

Aim: *The objective of the research was to explore the relationship between student nurses' levels of professional moral sensitivity and self-efficacy.*

Material and Method: *This descriptive and cross-sectional study was conducted between September 15, 2020, and November 1, 2020, with senior nursing students (NSs). A total of 200 NSs participated in the study. The data were collected using a Structured Questionnaire Form, the Moral Sensitivity Questionnaire (MSQ), and the Self-Efficacy Scale (SES), which were administered online via Google Forms.*

Results: *The mean MSQ score for NSs was 98.17 ± 27.32. The mean SES score was calculated as 83.16 ± 13.42. It was found that the goodness-of-fit index values of the structural equation model were highly significant. The measurement model's factors of moral sensitivity and self-efficacy were all statistically significant ($p<0.05$).*

Conclusion: *The findings revealed that NSs exhibited moderate levels of both moral sensitivity and self-efficacy. Moreover, self-efficacy was identified as a statistically significant predictor of moral sensitivity. It is therefore recommended that nursing education curricula incorporate instructional content aimed at enhancing NSs' moral sensitivity and self-efficacy competencies.*

Keywords*: Moral Sensitivity, Self-Efficacy, Nursing Students, Structural Equation Modeling, Nursing*

ÖZET

Amaç: *Çalışmanın amacı, hemşirelik öğrencilerinin mesleki ahlaki duyarlılık düzeyleri ile öz yeterlilikleri arasındaki ilişkinin incelenmesidir.*

Gereç ve Yöntem*: Çalışma tanımlayıcı ve kesitsel tiptedir. Araştırmanın 15 Eylül 2020- 1 Kasım 2020 tarihleri arasında son sınıf hemşirelik öğrencileri ile gerçekleştirilmiştir. Çalışmaya toplam 200 hemşirelik öğrencisi katılmıştır. Veriler, Google Forms aracılığıyla çevrimiçi olarak Yapılandırılmış Anket Formu, Ahlaki Duyarlılık Anketi (MSQ) ve Öz Yeterlilik Ölçeği (SES) kullanılarak toplanmıştır.*

Bulgular: *Hemşirelik öğrencileri için ortalama MSQ puanı 98.17 ± 27.32'dir. Ortalama SES puanı 83.16 ± 13.42 olarak hesaplanmıştır. Yapısal eşitlik modelinin uyum iyiliği indeks değerlerinin yüksek düzeyde anlamlı olduğu bulunmuştur. Ölçüm modelinin ahlaki duyarlılık ve öz yeterlilik faktörlerinin tümü istatistiksel olarak anlamlıdır ($p<0.05$).*

Sonuç: *Bulgular, hemşirelik öğrencilerinin hem ahlaki duyarlılık hem de öz yeterlilik düzeylerinin orta düzeyde olduğunu ortaya koymuştur. Ayrıca, öz yeterliliğin ahlaki duyarlılığın istatistiksel olarak anlamlı bir yordayıcısı olduğu belirlenmiştir. Bu nedenle, hemşirelik eğitimi müfredatının, hemşirelik öğrencilerinin ahlaki duyarlılık ve öz yeterliliklerini geliştirmeyi hedefleyen bir öğretim içeriği sunması önerilmektedir.*

Anahtar kelimeler: *Ahlaki Duyarlılık, Öz-Yeterlilik, Hemşirelik Öğrencileri, Yapısal Eşitlik Modellemesi, Hemşirelik*

INTRODUCTION

Nurses are responsible for providing individualised, humanistic, and holistic care while maintaining ethical standards (Gallagher & Warren, 2019; Haahr, Norlyk, Martinsen & Dreyer, 2020; Suazo, et al., 2020). Nurses frequently face ethical dilemmas in their clinical practice, which necessitate consideration of care outcomes (Kim, Oh, & Kong, 2020). Ethical and moral dilemmas are inherent to the nursing profession (Albert, Younas, & Sana, 2020). However, due to the impact of contemporary issues on healthcare systems, ethical dilemmas have become more prevalent (Yeom, Ahn, & Kim, 2017). Feeg et al. stated that the ethical dilemmas experienced by NSs could be categorised into three main areas: failure of impact of care on patients, patient and family dynamics and demands, and student integrity (Feeg, Mancino, Rushton, Mendez, & Baierlein, 2021). As a result, nursing associations have published numerous guidelines on ethical and moral issues over the last decade. These guidelines have significantly influenced the global nursing agenda (American Nurses Association, 2015). In recent years, nursing education has placed greater emphasis on ethics. The goal is to foster nurses' moral sensitivity (MS) and improve their ability to manage ethical dilemmas in clinical practice (Kucukkelepce, Dinc, & Elcin, 2020; Martins, Santos, Bataglia, & Duarte, 2021).

Comprehension of the ethical nature of nursing care is facilitated not only by MS but also by the ability to identify ethical dilemmas and make appropriate decisions (Amiri et al., 2019; Zhang, Li, Xu, & Gong, 2020). MS reflects individual experiences, emotional intelligence, prosocial behavior, empathic tendencies, and intuitive abilities of nurses. It also develops through professional experiences and the ethical decision-making process (Raghubir, 2018; Dalla Nora, Zoboli, & Vieira, 2019; Schallenberger et al., 2019; Suazo et al., 2020).

MS is a crucial component of the individual mechanism that enables nurses to demonstrate ethical behavior. It also plays a key role in enhancing their professional self-efficacy (SE) (Osei, Osei-Kwame, & Osei Amaniampong, 2017). It is essential that nurses provide ethically sensitive care, and nurses must be aware of the implications of their actions. Providing nursing care in this sense requires a high level of MS. However, when it comes to providing quality care, it's also vital to consider the individual's SE level, along with their MS. SE refers to an individual's confidence in their capacity to plan and execute the actions necessary to achieve specific goals. It plays a crucial role in shaping how people perceive challenges, regulate their emotions, maintain motivation, and engage in various behaviors (Bandura, 1982; Stenmark, Redfearn, Kreits, 2021). SE beliefs directly impact an individual's behavior, influencing their decisions to act appropriately or not. Additionally, these beliefs determine the level of effort a person is willing to invest when confronted with a problem (George, Locasto, Pyo, & Cline, 2017). Literature reports that as SE increases, achievement motivation also increases, external threats become easier to cope with, and depression becomes less frequent (Zhang et al., 2015). In this context, it is predicted that nurses' SE level will enable them to address moral issues more sensitively. It is essential for NSs to become aware of their own emotions, beliefs, and values before completing their education. This self-awareness will enable them to practice nursing with enhanced MS in the future.

MS and SE are two essential, complementary concepts in nursing practice, and their relationship plays a crucial role in ethical decision-making. High MS enhances NSs' ability to recognize ethical dilemmas and approach them with sensitivity. SE, on the other hand, boosts NSs' confidence in acting with this sensitivity. In other words, MS ensures that NSs are aware of ethical issues, while SE provides the confidence and determination to address these issues effectively. The interaction between MS and SE enables NSs to handle ethical challenges more effectively and make informed, responsible, and ethical decisions in their professional practice. Therefore, the development of both concepts in nursing education is critical for enabling students to deliver high-quality, ethical care in clinical settings. In light of this, several studies have investigated the SE and MS levels of NSs. However, no research has explored the causal relationship between these two variables. Hence, this study aimed to assess the MS and SE levels of senior NSs and to examine the potential causal relationship between them. Understanding how these two factors interact could provide valuable insights into improving nursing education and ultimately enhancing the quality of care provided by future nurses.

MATERIALS AND METHODS

Study Aim and Type

This study was conducted to determine the relationship between professional moral sensitivity and self-efficacy in senior nursing students. This study is a cross-sectional and descriptive study.

Research Questions

The following research questions were addressed:

1. What are the students' moral sensitivity levels?
2. What are the students' self-efficacy levels?
3. What are the factors affecting students' moral sensitivity and self-efficacy?
4. Is there a causal relationship between professional moral sensitivity and self-efficacy in nursing students?

Study Population and Sample

The study took place between September 15 and November 1, 2020. The study population included 235 senior NSs from a university. The study aimed to include the entire population through purposive sampling, where researchers selected participants based on specific criteria. The sample consisted solely of senior NSs in the final phase of their education, who were preparing to enter the profession. It was believed that their SE could be more accurately assessed due to their accumulated experience. The research involved a total of 200 NSs. This resulted in a participation rate of 85.1%.

Data Collection Tools

***Structured Questionnaire Form*:** A Structured Questionnaire Form was developed by the researchers based on a review of the relevant literatüre (Dikmen, Denat, Başaran, & Filiz, 2016; Gürdoğan, Aksoy, & Kınıcı, 2018; Kızılırmak and Calpbinici, 2018). The form included seven questions related to the NSs' characteristics, their GPA at the end of the semester, their voluntary choice of the profession, their education on professional values, and their membership in professional associations.

Moral Sensitivity Questionnaire (MSQ): The MSQ, designed by Kim Lutzen in 1994 to assess MS, was adapted into Turkish by Tosun in 2018. It uses a seven-point Likert scale, where 1 point (strongly agree) represents high sensitivity and 7 points (strongly disagree) represent low sensitivity. The scale comprises 30 items and six sub-dimensions. These sub-dimensions are: Autonomy (Items 10, 12, 15, 16, 21, 24, 27), Providing Benefit (Items 2, 5, 8, 25), Holistic Approach (Items 1, 6, 18, 29, 30), Conflict (Items 9, 11, 14), Application (Items 4, 17, 20, 28), and Orientation (Items 7, 13, 19, 22). The total score on the scale ranges from 30 to 210. A higher score indicates low MS, and a lower score indicates high MS (Tosun, 2018). In Tosun's (2018) study, the Cronbach alpha value of the scale was determined to be 0.84. In the our study, the Cronbach Alpha coefficients for the autonomy, providing benefit, holistic approach, conflict, application, and orientation subscales were found to be 0.802, 0.640, 0.805, 0.644, 0.663, and 0.882 respectively. In addition, the Cronbach Alpha coefficient of the overall MSQ was 0.926.

Self-Efficacy Scale (SES): The SES, developed by Sherer et al. in 1982 (Sherer et al., 1982), was adapted into Turkish by Gözüm and Aksayan in 1999. The SES is a 5-point Likert-type self-assessment scale. Each item on the 23-item scale is ranked as follows: 1: "Does not describe me well"; 2: "Describes me a little"; 3: "I am indecisive"; 4: "Describes me well"; and 5: "Describes me very well". The scores for items 1, 3, 8, 9, 13, 15, 19, 21, and 23 are taken as the basis of the scale, while items 2, 4, 5, 6, 7, 10, 11, 12, 14, 16, 17, 18, 20, and 22 are reverse-scored. The minimum score obtainable from the scale is 23 and the maximum score is 115. A higher score on the scale indicates stronger self-efficacy. The scale consists of four subscales. These sub-dimensions are: starting the behaviours (Items 2, 11, 12, 14, 17, 18, 20, 22), continuing the behaviours (Items 4, 5, 6, 7, 10, 16, 19), completing the behaviours (Items 3, 8, 9, 15, 23) and struggling against the obstacles (Items 1, 13, 21). The internal consistency of the Turkish version was found to have a Cronbach's alpha of 0.81 (Gözüm & Aksayan 1999). In the study, the Cronbach Alpha coefficients were found to be 0.852, 0.837, 0.751, and 0.379 for the subscales of willingness to initiate behavior, willingness to maintain behavior, willingness to expend effort to complete a task, and persistence when confronted with adversity respectively. In addition, the Cronbach Alpha coefficient for the overall SES was 0.834.

Data Collection

In this study, data were gathered using a Structured Questionnaire Form, the Moral Sensitivity Questionnaire (MSQ), and the Self-Efficacy Scale (SES). Following the COVID-19 outbreak, which led to the suspension of the education system, including universities, starting

on March 16, 2020, data collection was conducted online via Google Forms. Completing the data collection forms took participants an average of 15 to 20 minutes.

Ethical Consideration

Approval for the study was obtained from the Institutional Review Board (IRB) of the university's Human Research Ethics Committee (Date: 07.07.2020, and Approval Number: 835). Written consent was also secured from the research centre. Once these approvals were granted, NSs were informed about the purpose and scope of the study, their roles, and the voluntary nature of their participation. An informed consent form was included on the first page of the questionnaire, and only students who agreed to participate proceeded with completing the survey.

Data Analysis

The sample size was determined with a power of at least 80% and a type-1 error of 5% for each variable. The Kolmogorov-Smirnov (n>50) and Skewness-Kurtosis tests were used to test the fitness of continuous measurements in the study to normal distribution. Since the measurements were normally distributed, parametric tests were used. Descriptive statistics, mean, standard deviation, minimum and maximum were used for continuous variables; categorical variables were presented as numbers and percentages. The independent sample t-test was used in the comparison of the scales according to categorical factors. The Cronbach Alpha reliability coefficients were calculated to evaluate the reliability of the subscales of the SES and MSQ. Structural Equation Modeling (SEM) was used to examine the relationships between SE and MS. The measurement models for the subscales were first assessed. Due to a negative coefficient for item E19 in the Willingness to maintain behavior subscale, it was excluded from the analysis, and the model was reanalysed. SEM was performed using the lavaan package in R-Project software (Rosseel, 2012), and graphical representations of the models were created with the semPlot package (Epskamp & Stuber, 2017). Since the scale items were categorical, the Diagonal Weighted Least Squares (DWLS) method was applied for model estimation. All statistical analyses were conducted using R-Project software (R Core Team, 2021), with a 5% margin of error considered in the study.

RESULTS

Nursing students' characteristics

The mean age of the NSs was 21.98 ± 2.18, and their mean GPA at the end of the semester was 2.71 ± 0.35. Of the NSs, the majority were female (81.0%) (162 females and 38 males), single (98.0%), and had chosen the nursing profession willingly (71.5%). A plurality (46.0%) stated that they had received education on professional values, whereas 90.0% reported that they were not members of any association.

Nursing students' MSQ scores

NSs' the average total MSQ score was 98.17 ± 27.32. The mean scores on the subscales of autonomy, providing benefit, holistic approach, conflict, application, and orientation were 22.76 ± 7.56, 13.07 ± 4.58, 14.06 ± 6.15, 12.12 ± 3.46, 14.70 ± 4.62, and 10.07 ± 5.39 respectively (Table 1). A significant difference was found between gender and the average score on the conflict subscale among the NSs (independent sample t-test=2.666; p=0.008), However, no significant difference was observed in the other descriptive characteristics of the the NSs (p>0.05, Table 2).

Table 1. Descriptive Statistics Regarding SE and MS Scales

	Mean (SD)	Median (min-max)
MSQ Total	98.17 (27.32)	96.5 (42 - 204)
Autonomy	22.76 (7.56)	22 (7 - 47)
Providing Benefit	13.07 (4.58)	13 (4 - 28)
Holistic Approach	14.06 (6.15)	13 (5 - 33)
Conflict	12.12 (3.46)	12 (4 - 21)
Application	14.70 (4.62)	15 (4 - 28)
Orientation	10.07 (5.39)	9 (4 - 28)
SES Total	83.16 (13.42)	84 (43 - 110)
Willingness to initiate behaviour	29.41 (6.91)	31 (8 - 40)
Willingness to maintain behaviour	20.21 (8.1)	18 (7-49)
Willingness to expend effort to complete a task	18.63 (3.84)	19 (8 - 25)
Persistence when confronted with adversity	9.16 (2.4)	9 (4 - 15)

Abbreviations: SD; Standard Deviation; Min; minimum; Max; maximum

Nursing students' SES Scores

The mean total SES score of the NSs was 83.16 ± 13.42. The mean scores on the subscales of Willingness to initiate behavior, Willingness to maintain behavior, Willingness to expend effort to complete a task, and Persistence when confronted with adversity were 29.41 ± 6.91, 20.21 ± 8.10, 18.63 ± 3.84, and 9.16 ± 2.4 respectively (Table 1). There was a statistically significant difference between gender (independent sample t-test 2.237; p=0.026) and marital status (independent sample t-test=-7.781; p=0.006) and the mean total SES score, and between the mean "Willingness to initiate behaviour" subscale score and gender (independent sample t-test=2.830; p=0.005). The other descriptive characteristics of the NSs had no effect on their SE levels (p>0.05; Table 2).

Table 2. NSs' Descriptive Characteristics and Their Scale/Subscale Scores

Variables	Autonomy M±SD	Providing benefit M±SD	Holistic approach M±SD	Conflict M±SD	Application M±SD	Orientation M±SD	MSQ Total M±SD	Willingness to initiate behavior M±SD	Willingness to maintain behavior M±SD	Willingness to expend effort to complete a task M±SD	Persistence when confronted with adversity M±SD	SES Total M±SD
Gender												
Female	22.77 ± 7.63	12.80 ± 4.78	13.91 ± 6.42	12.42 ± 3.35	14.70 ± 4.67	9.72 ± 5.42	97.95 ± 28.06	30.06 ± 6.66	19.89 ± 8.32	17.78 ± 4.80	7.17 ± 4.10	84.14 ± 12.94
Male	22.68 ± 7.32	14.18 ± 3.43	14.65 ± 4.87	10.78 ± 3.61	14.63 ± 4.42	11.55 ± 5.03	99.07 ± 24.18	26.60 ± 7.28	21.55 ± 7.00	17.45 ± 5.04	8.00 ± 3.54	78.81 ± 14.70
*p	0.949	0.096	0.504	**0.008**	0.925	0.060	0.819	**0.005**	0.257	0.714	0.257	**0.026**
Marital Status												
Single	22.74 ±7.58	12.89 ±4.58	14.10 ± 6.18	12.05 ± 3.46	14.70 ± 4.63	10.12 ± 5.40	98.07 ± 27.54	29.28 ± 6.92	20.27 ± 8.16	17.67 ± 4.86	7.35 ± 4.03	82.78 ± 13.29
Married	23.25 ± 7.27	17.25 ±1.70	11.75 ± 4.19	15.00 ± 1.41	14.00 ± 4.08	7.50 ± 4.43	102.50 ± 12.81	35.50 ± 0.57	17.05 ± 3.40	20.25 ± 2.87	6.25 ± 3.30	101.25 ± 4.34
*p	0.895	0.065	0.451	0.092	0.762	0.337	0.749	0.075	0.472	0.293	0.586	**0.006**
Willingly Choosing the Profession												
Yes	22.72 ± 7.72	13.07 ± 4.91	14.24 ±6.48	12.27 ± 3.40	14.56 ± 4.74	9.85 ± 5.58	98.08 ± 28.92	29.86 ± 6.67	19.92 ± 8.40	17.76 ± 4.98	7.71 ± 4.28	84.25 ± 13.20
No	22.84 ± 7.18	13.05 ± 3.63	13.57 ± 5.25	11.70 ± 3.59	15.01 ± 4.29	10.61 ± 4.88	98.36 ± 23.02	28.28 ± 7.40	20.92 ± 7.28	17.62 ± 4.50	7.14 ± 3.27	80.38 ± 13.67
*p	0.918	0.973	0.491	0.287	0.534	0.369	0.947	0.145	0.429	0.858	0.666	0.065
Receiving Education on Professional Values												
Yes	21.93 ± 7.04	13.15 ± 4.34	13.61 ± 5.36	12.00 ± 3.46	14.72 ± 4.13	9.31 ± 4.77	95.78 ± 22.49	29.59 ± 6.21	19.31 ± 6.77	17.46 ± 3.70	6.86 ± 3.40	83.93 ± 12.63
No	23.45 ± 7.93	13.00 ± 4.78	14.42 ± 6.75	12.21 ± 3.46	14.66 ± 5.01	10.71 ± 5.81	100.16 ± 30.79	29.28 ± 7.46	20.97 ± 9.04	17.94 ± 5.62	7.73 ± 4.44	82.49 ± 14.08
*p	0.157	0.816	0.357	0.665	0.925	0.068	0.256	0.724	0.150	0.485	0.130	0.450
Membership in an Association												
Yes	23.40 ± 9.10	14.00 ± 4.92	15.00 ± 7.25	13.15 ± 3.78	16.40 ± 5.46	9.65 ± 6.08	103.50 ± 34.16	31.50 ± 6.15	21.30 ± 9.48	18.40 ± 5.97	7.75 ± 4.71	86.95 ± 12.07
No	22.68 ± 7.39	12.96 ± 4.54	13.95 ± 6.03	12.00 ± 3.41	14.50 ± 4.49	10.11 ± 5.32	97.57 ± 26.49	29.17 ± 6.96	20.08 ± 7.95	17.64 ± 4.71	7.28 ± 3.94	82.73 ± 13.52
*p	0.689	0.340	0.471	0.159	0.082	0.714	0.714	0.154	0.527	0.511	0.627	0.183

$p < 0.05$, statistically significan, Abbreviations: M: Mean SD; Standard Deviation; Min; minimum; Max; maximum

The effect of self-efficacy levels on moral sensitivity

A structural equation model (SEM) was developed to estimate the effect of SE levels on the MS factor. Accordingly, the SEM was estimated by considering MS as the dependent variable in the model. Table 3 shows the goodness-of-fit index values for the SEM (x2 /df = 1.580, GFI = 0.896, CFI = 0.932, AGFI = 0.886, NNFI= 0.928 ve RMSEA = 0.054). According to the indices obtained, the SEM estimated for the factors of MS and SE were found to be highly compatible (Table 3).

When the test findings were examined, the self-efficacy factor was found to have a statistically significant effect on moral sensitivity (Beta= 0.189, <0.001) Figure 1. Since the path coefficient of the model was positive, there was a direct relationship between the NSs' SE and MS levels. According to this finding, individuals' moral sensitivity levels increase as their self-efficacy levels increase (Table 3).

Table 3. Goodness-of-fit Indices of the Model

Index						
Chi-square statistics	**sd**	**GFI**	**CFI**	**AGFI**	**NNFI**	**RMSEA**
1765.235	1117	0.896	0.932	0.886	0.928	0.054
Subscale	Beta	STZ(Beta)	SE(Beta)	z-statistics	p	
M->S	0.189	0.284	0.013	14.538	<0.001	

Beta: Path coefficient. STZ(Beta): Standardized beta. SE(Beta): Standard Error. S: self-efficacy. M: Moral sensitivity

Table 4 shows the results regarding the coefficients of the measurement models of MS and self-efficacy. All items related to the factors of MS and SE in the measurement model were statistically significant ($p < 0.05$).

Table 4. Statistical Results Regarding the Path Coefficients of the Measurement Models

Subscale	Item	Beta	STZ (Beta)	SE (Beta)	z-statistics	p	Subscale	Item	Beta	STZ (Beta)	SE (Beta)	z-statistics	p
Autonomy	A10	1	0.656				IB	E2	1	0.648			
	A12	0.717	0.463	0.054	13.390	< 0.001		E11	0.990	0.632	0.075	13.252	< 0.001
	A15	0.619	0.388	0.051	12.078	< 0.001		E12	1.258	0.825	0.085	14.754	< 0.001
	A16	1.018	0.668	0.067	15.247	< 0.001		E14	1.212	0.769	0.084	14.436	< 0.001
	A21	1.104	0.767	0.069	16.096	< 0.001		E17	1.180	0.813	0.081	14.535	< 0.001
	A24	0.748	0.550	0.053	14.213	< 0.001		E18	0.827	0.485	0.070	11.861	< 0.001
	A27	1.031	0.721	0.068	15.241	< 0.001		E20	0.778	0.461	0.066	11.700	< 0.001
Providing Benefit	A2	1	0.192					E22	0.907	0.572	0.069	13.161	< 0.001
	A5	1.525	0.308	0.258	5.906	< 0.001	MB	E4	1	0.594			
	A8	3.977	0.907	0.600	6.628	< 0.001		E5	1.197	0.716	0.086	13.874	< 0.001
	A25	2.835	0.681	0.434	6.534	< 0.001		E6	1.011	0.592	0.078	12.902	< 0.001
Holistic Approach	A1	1	0.737					E7	0.850	0.519	0.071	12.037	< 0.001
	A6	1.039	0.803	0.066	15.852	< 0.001		E10	1.499	0.833	0.102	14.661	< 0.001
	A18	0.484	0.380	0.040	12.094	< 0.001		E16	1.412	0.790	0.099	14.191	< 0.001
	A29	1.115	0.813	0.068	16.453	< 0.001	CT	E3	1	0.565			
	A30	0.962	0.663	0.061	15.663	< 0.001		E8	1.110	0.678	0.133	8.353	< 0.001
Conflict.	A9	1	0.561					E9	1.399	0.832	0.159	8.824	< 0.001
	A11	0.962	0.630	0.103	9.365	< 0.001		E15	1.322	0.728	0.153	8.625	< 0.001
	A14	1.257	1.000	0.116	10.861	< 0.001		E23	0.492	0.263	0.092	5.370	< 0.001
Application	A4	1	0.821				PA	E1	1	0.273			
	A17	0.541	0.452	0.044	12.181	< 0.001		E13	0.472	0.101	0.145	3.256	0.001
	A20	0.440	0.397	0.040	10.994	< 0.001		E21	1.048	0.210	0.184	5.710	< 0.001
	A28	0.471	0.429	0.040	11.891	< 0.001	S	IB	1	0.957			
Orientation	A7	1	0.790					MB	0.888	0.951	0.080	11.118	< 0.001
	A13	1.037	0.865	0.061	16.991	< 0.001		CT	-0.297	-0.358	0.035	-8.550	< 0.001
	A19	0.904	0.692	0.056	16.183	< 0.001		PA	-0.359	-1.000	0.043	-8.391	< 0.001
	A22	1.100	0.878	0.063	17.432	< 0.001							
General moral sensitivity	Autonomy	1	0.987										
	Providing Benefit	0.289	0.869	0.044	6.500	< 0.001							
	Holistic Approach	1.149	1.000	0.079	14.590	< 0.001							
	Conflict	0.357	0.401	0.035	10.118	< 0.001							
	Application	1.094	0.818	0.076	14.362	< 0.001							
	Orientation	1.064	0.902	0.075	14.235	< 0.001							

Beta: Path coefficient. STZ(Beta): Standardized beta. SE(Beta): Standard error. IB: Willingness to initiate behavior. MB: Willingness to maintain behavior. CT: Willingness to expend effort to complete a task. PA: Persistence when confronted with adversity.S: General self-efficacy.

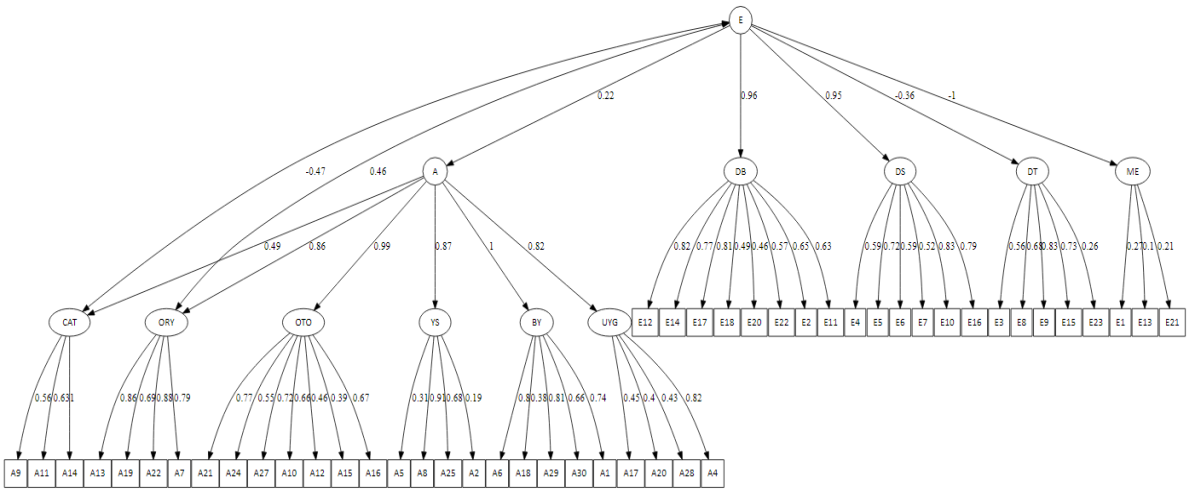

Figure 1: Structural equation model graph describing the effect of self-efficacy-efficacy factor on moral sensitivity factor

Abbreviation:E, Self-Efficacy; DB, Willingness to initiate behavior; DS, Willingness to maintain behavior; DT, Willingness to expend effort to complete a task; ME, Persistence when confronted with adversity; A, Moral Sensitivity; CAT, Conflict; ORY, Orientation; OTO, Autonomy, YS, Providing Benefit; BY, Holistic Approach; UYG, Application

DISCUSSION

The objective of this research was to explore the relationship between NSs' moral sensitivity and SE levels. The SE level of the NSs was found to be moderate (98.17 ± 27.32). Likewise, studies using the same scale in Türkiye and studies using different versions of the scale in other cultures have reported the MS levels of NSs to be moderate (Salar, Zare, & Sharifzadeh, 2016; Aydın, Dikmen, & Kalkan, 2017; Kilic Akça, Şimşek, Efe Arslan, Şentürk & Akça, 2017; Karaca, 2018; Kızılırmak & Calpbinici, 2018; Kohansal et al., 2018; Göçmen Baykara et al., 2019; Şahiner, Babadağlı, & Ersoy, 2019; Kucukkelepce et al., 2020). Research carried out by Tuvesson and Lutzen (2017) and in Iran by Borhani et al. (2016) determined that NSs' moral sensitivity were moderate. It is crucial for NSs, the healthcare practitioners of the future, to demonstrate a high level of MS when faced with ethically challenging nursing practices. They must possess the ability to make sound decisions and demonstrate the courage to address ethical dilemmas effectively during patient care. MS is the first step towards moral reasoning and ethical decision-making, enabling one to identify ethical problems, make informed decisions, and develop moral sensitivity in patient care (Yeom et al., 2017; Şahiner et al., 2019; Kucukkelepce et al., 2020). For this reason, more attention should be paid to ethical education during undergraduate education, so that NSs can cope with the ethical problems they encounter in clinical practice and become nurses with advanced MS in the future. Ethical education plays a crucial role in developing the skills to navigate ethical dilemmas, engaging in active decision-making processes, and establishing a professional identity (Sinclair, Papps, & Marshall, 2016; Kızılırmak and Calpbinici, 2018).

In the study, it was determined that the NSs showed the highest MS in the orientation subscale (10.07 ± 5.39) and the lowest MS in autonomy (22.76 ± 7.56) and application (14.70 ± 4.62) subscales. The results of previous studies are also consistent with these findings (Kılıc et al., 2017; Göçmen Baykara et al., 2019). The high MS of the NSs in the orientation subscale is an important finding, showing that the students understood that quality care cannot be provided without the patient's participation in decisions and their cooperation with professionals. The autonomy subscale reflects respect for the principle of autonomy and the patient's preferences. In contrast, the application subscale reflects the ethical dimension in deciding on and applying any course of action. The duration of clinical experience is an important factor in acquiring skills in autonomy and application (Aydın et al. 2017). Due to the short duration of the ethics course and the large number of NSs in the nursing school where the study was conducted, the

inability to provide effective and quality education, as well as the failure to consolidate theoretical education in clinical practice, are thought to play a significant role.

MS is influenced by various factors, including culture, language, religion, education level, age, gender, experience, and the individual's upbringing (Salar et al., 2016). In our study, it was found that the MS of female NSs was lower than that of male NSs. Studies conducted by Şahiner et al. (2019) and Tuvesson and Lützen (2017) found a significant difference in moral sensitivity between genders. A meta-analysis study examining the effects of gender differences on moral sensitivity reported that women have higher moral sensitivity than men (You, Maeda, & Bebeau, 2011). These results suggest that gender may play a crucial role in shaping moral sensitivity, with potential implications for ethical decision-making in nursing practice.

The results indicate that nursing students demonstrate moderate levels of persistence when faced with adversity and a willingness to maintain behavior. The findings of this study were consistent with those of previous studies (Abdal, Alavi & Adib-Hajbaghery, 2015; Dikmen et al., 2016; Amanak, Demirkol, & Kuru, 2019; Molu, Ceylan, & Özcan, 2019). When the study findings were evaluated, it was positive and pleasing that the NSs' SE levels were high. NSs with high SE can cope with external threats more easily, and they can make more efforts to attain their goals, especially when they experience ethical dilemmas.

SE is affected by age, gender, social status, and family structure (Dikmen et al., 2016). In the study, it was determined that the SE level of female students was higher than that of the males, and that the mean score of female students was significantly higher than that of the male students, especially in the subscale of willingness to initiate behavior. In studies conducted with NSs, female students' SE levels were reported to be higher (Dikmen et al., 2016; Kızılcı, Mert, Küçükgüçlü, & Yardımcı, 2015). Traditionally, the nursing profession has been identified with the female gender, which can affect male students' sense of belonging to the profession and reduce their sense of efficacy (SE) levels.

One's SE is as important as MS in making the right ethical decisions (Tosun, 2018). In the present study, a structural equation model (SEM) was established to examine this relationship. The SEM showed acceptable fit indices (χ^2/df=1.580, GFI=0.896, CFI=0.932, AGFI=0.886, NNFI=0.928, RMSEA=0.054), confirming the model's validity. According to the path analysis, self-efficacy had a positive and statistically significant effect on moral sensitivity (β=0.189, $p<0.001$). This finding indicates that as nursing students' self-efficacy increases, their moral sensitivity also improves. In other words, students who have greater confidence in their own abilities tend to be more sensitive in recognizing and addressing ethical issues. This study is the first to demonstrate the positive effect of SE on MS in NSs. SE refers to individuals' belief in their ability to initiate and sustain behaviors, overcome obstacles, and achieve desired outcomes (Miller, Russell, Cheng, & Skarbek, 2015; Osei et al., 2017), and it is recognised as a key outcome of nursing education. Evidence shows that students with higher SE are more likely to take on difficult tasks, persist in the face of challenges, and cope effectively with ethical dilemmas (George et al., 2017; Laabs, 2012; Elias, 2008; MacNab & Worthley, 2009). To our knowledge, no previous study in Türkiye has examined the relationship between SE and MS in nursing students. These findings highlight the need for further research and suggest that nursing curricula should integrate case studies, role-playing, and reflective practices to enhance both SE and MS, thereby strengthening students' ethical decision-making skills.

Limitations

One of the strengths of this research is the application of the SEM approach to examine the relationship between SE and MS among NSs. However, the study has some limitations. Since the research was conducted within a specific sociocultural context and focused on NSs from a single public university in the western Black Sea region, the findings cannot be generalised to students from other nursing programs or higher education institutions. Another limitation is that the data were based on self-reports from the students.

CONCLUSION

This study revealed that senior nursing students had moderate levels of moral sensitivity (MS) and self-efficacy (SE), and that SE was a significant predictor of MS. In other words, as students' SE increased, their MS also improved. These findings suggest that strengthening SE can play an important role in enhancing ethical awareness and decision-making among nursing students. Based on this, it is recommended that nursing curricula

include elective courses designed to improve both SE and MS, that ethics courses be taught by experts in the field, and that interactive teaching strategies such as case studies, role-playing, and reflective practices be more widely used. Such practices can contribute to preparing nursing students for the complex ethical dilemmas they will face in clinical settings.

Implications For Nursing Practice

Nursing education should be structured to cultivate not only technical competencies but also ethical awareness and professional confidence. The findings of this study highlight that enhancing NS's SE directly contributes to improving their MS, which is essential for safe, high-quality, and ethical patient care. Integrating innovative teaching strategies—such as case-based learning, simulation, role-playing, and reflective discussions—can foster both SE and MS simultaneously. In clinical practice, nurses with stronger SE are more likely to approach complex ethical dilemmas with confidence, make sound decisions, and advocate effectively for patients. Therefore, educators and healthcare institutions should collaborate to design learning environments and mentorship programs that empower nursing students to transfer these competencies into practice, ultimately strengthening the ethical culture of nursing.

Ethics Committe Approval

Ethics committee approval was received for this study from the Zonguldak Bülent Ecevit University Human Research Ethics Committee (Date: 07.07.2020, and Approval Number: 835).

Author Contributions

Idea/Concept: N.G.Ö., M.S.; Design: N.G.Ö., M.S.; Supervision/Consulting: M.S., N.G.Ö.; Analysis and/or Interpretation: M.S., N.G.Ö.; Literature Search: M.S., N.G.Ö.; Writing the Article: M.S., N.G.Ö.; Critical Review: M.S., N.G.Ö.

Peer-review

Externally peer-reviewed.

Conflict of Interest

The authors have no conflict of interest to declare.

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