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Predictors of Nurses' and Midwives' Moral Sensitivity in Clinical Practice: A Cross Sectional Study

Predyktory wrażliwości moralnej pielęgniarek i położnych w praktyce klinicznej – badanie przekrojowe

Abstract

Moral sensitivity, which encompasses the ability to identify and respond to ethical issues in care, is essential for healthcare professionals to effectively manage complex clinical scenarios and support patient autonomy. The aim of this study was to assess the moral sensitivity of nurses and midwives and its predictors and to assess the psychometric properties of the Polish version of the Moral Sensitivity Questionnaire Revised (MSQ-R-Pol). A cross-sectional study was conducted among 683 midwives and nurses working in hospitals in Poland. The 2-component 9-item MSQ-R-Pol is a reliable tool with satisfactory psychometric properties. The predictors of moral sensitivity were: higher age, having children, very good material conditions, working with adult patients aged 18 to 65 years and neonatal/infant patients. The findings also reveal a negative correlation between moral sensitivity and various workplace issues, such as team relationships and professional competence limitations. There was no difference in moral sensitivity between nurses and midwives, nor in the sensitivity of this group measured before and during COVID-19 pandemic. The MSQ-R-Pol is a reliable and valid

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tool adapted to cultural conditions. Hospital managers and policymakers should focus their future actions on predictors of moral sensitivity, such as organisational issues, the specific characteristics of work in a particular ward and patient populations, by supporting nurses and midwives in ethical decision-making, the development of their ethical competencies, positive leadership and the development of resilience.

Keywords: ethics, nursing, psychometrics, validation study, nurses, midwifery

Abstrakt

Wrażliwość moralna, która obejmuje zdolność do identyfikowania i reagowania na kwestie etyczne w opiece, jest niezbędna dla pracowników ochrony zdrowia do skutecznego zarządzania złożonymi sytuacjami klinicznymi i wspierania autonomii pacjentów. Celem niniejszego badania była ocena wrażliwości moralnej pielęgniarek i położnych oraz jej predyktorów, a także ocena właściwości psychometrycznych polskiej wersji Kwestionariusza Wrażliwości Moralnej (MSQ-R-Pol). Badanie przekrojowe przeprowadzono wśród 683 położnych i pielęgniarek pracujących w szpitalach w Polsce. Dwuskładnikowy 9-czynnikowy MSQ-R-Pol jest rzetelnym narzędziem o zadowalających właściwościach psychometrycznych. Predyktorami wrażliwości moralnej były: wyższy wiek, posiadanie dzieci, bardzo dobre warunki materialne, praca z dorosłymi pacjentami w wieku od 18 do 65 lat oraz z noworodkami/niemowlętami. Wyniki ujawniły negatywną korelację między wrażliwością moralną a różnymi kwestiami związanymi z miejscem pracy, takimi jak relacje w zespole i ograniczenia kompetencji zawodowych. Nie stwierdzono różnicy między wrażliwością moralną pielęgniarek i położnych, a także wrażliwością tej grupy mierzoną przed i podczas pandemii COVID-19. MSQ-R-Pol jest rzetelnym i trafnym narzędziem dostosowanym do warunków kulturowych. Zarządzający szpitalami i decydenci powinni skoncentrować swoje przyszłe działania na predyktorach wrażliwości moralnej, takich jak kwestie organizacyjne, specyfika pracy na danym oddziale i populacje pacjentów, wspierając pielęgniarki i położne w etycznym podejmowaniu decyzji, rozwoju ich kompetencji etycznych, pozytywnym przywództwie i rozwoju odporności.

Słowa kluczowe: etyka, pielęgniarstwo, psychometria, badanie walidacyjne, pielęgniarki, położnictwo

Introduction

In the nursing profession, the literature emphasises the importance of ethics education for undergraduates, focusing on the assessment of their ethical/moral sensitivity and the acquisition of ethical skills.[1] To deliver high-quality, holistic care and to cope with ethical challenges in clinical settings during their work, students need to develop moral sensitivity.[2] Nurses, midwives and other

[1] F. Borhani, A. Abbaszadeh, M. Mohsenpour, *Nursing Students' Understanding of Factors Influencing Ethical Sensitivity: A Qualitative Study*, "Iranian Journal of Nursing and Midwifery Research" 2013, vol. 18, no. 4, p. 310–315; H.M. Bayoumy, J. Halabi, O. Esheaba, *Translation, Cultural Adaptation, Validity and Reliability of The Moral Sensitivity Questionnaire for Use in Arab Countries*, "Saudi Journal for Health Sciences" 2017, vol. 6, p. 151–162.

[2] N. Cannaerts, C. Gastmans, B.D. Casterlé, *Contribution of Ethics Education to the Ethical Competence of Nursing Students: Educators' and Students' Perceptions*, "Nursing Ethics" 2014, vol. 21, no. 8, p. 868; Z.G. Baykara, S.G. Demir, S. Yaman, *The Effect of Ethics Training on Students Recognizing Ethical Violations and Developing Moral Sensitivity*, "Nursing Ethics" 2015, vol. 22, no. 6, p. 664.

healthcare professionals with higher sensitivity are better at assessing others' feelings and responses and recognising potential actions.[3] The terms ethical sensitivity and moral sensitivity are used interchangeably, although they differ. Lützén et al. examined moral sensitivity, defining it as the ability to recognise moral conflicts, taking into account the ethical implications of decisions and a broad understanding of the patient's predicament. Moral sensitivity can be considered in different dimensions, but from a personal perspective, it refers to the awareness that an individual's actions impact others or themselves.[4] In contrast, Weaver et al. defined ethical sensitivity as the ability to make decisions with compassion and intelligence, taking into account the uncertainty of the care situation. It requires a critical understanding of ethical codes, clinical experience, academic knowledge and self-knowledge, and the ability to anticipate consequences.[5] Moral sensitivity is characterised not only by the involvement of cognitive and emotional factors, but also by being a cognitive-critical process. It includes thinking and reflecting, honesty, making judgments in care conflicts, decision-making, discussing and negotiating moral and legal issues.[6] Moral sensitivity fosters a patient–nurse relationship based on trust and responsiveness to individual needs, thereby supporting patients' autonomy and protecting their vulnerability.[7] The most commonly used tool for evaluating moral sensitivity is the Lützén et al.[8] Moral Sensitivity Questionnaire (MSQ).[9] The MSQ tool has been validated in Brazil,[10] Korea[11] or China.[12]

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[3] M.F. Jiménez-Herrera, I. Font-Jimenez, L. Bazo-Hernández et al., *Moral Sensitivity of Nursing Students. Adaptation and Validation of the Moral Sensitivity Questionnaire in Spain*, "PLoS One" 2022, vol. 17, no. 6, p. e0270049; J. Rest, *Development in Judging Moral Issues*, University of Minnesota Press, Minneapolis 1979.

[4] K. Lützén, G. Nordström, M. Evertzon, *Moral Sensitivity in Nursing Practice*, "Scandinavian Journal of Caring Sciences" 1995, vol. 4, no. 9, p. 131–138.

[5] K. Weaver, J. Morse, C. Mitcham, *Ethical Sensitivity in Professional Practice: Concept Analysis*, "Journal of Advanced Nursing" 2008, vol. 62, no. 5, p. 607–618.

[6] T. Muramatsu, M. Nakamura, E. Okada, *The Development and Validation of the Ethical Sensitivity Questionnaire for Nursing Students*, "BMC Medical Education" 2019, vol. 19, no. 215; F. Borhani, M. Mohsenpour, *Barrier to Acquiring Ethical Sensitivity: Perceptions of Nursing Students*, "Journal of Medical Ethics" 2011, vol. 5, no. 15, p. 83–104; M. Shayestehfard, C. Torabizadeh, S. Gholamzadeh et al., *Ethical Sensitivity in Nursing Students: Developing a Context–Based Education*, "Electronic Journal of General Medicine" 2020, vol. 17, no. 2, p. em195.

[7] Y.C. González, A.M. Prieto, *Nurses' Moral Sensitivity Regarding the Terminally Ill*, "Investigación y Educación en Enfermería" 2019, vol. 37, no. 3, p. e07.

[8] K. Lützén, C. Nordin, G. Brolin, *Conceptualization and Instrumentation of Nurses' Moral Sensitivity in Psychiatric Practice*, "International Journal of Methods in Psychiatric Research" 1994, vol. 4, p. 241–248.

[9] H.M. Bayoumy, J. Halabi, O. Esheaba, *Translation, Cultural Adaptation*…, p. 151; C.R. Dalla Nora, E.L. Zoboli, M.M. Vieira, *Validation of a Brazilian Version of the Moral Sensitivity Questionnaire*, "Nursing Ethics" 2019, vol. 26, no. 3, p. 823; F.F. Huang, Q. Yang, J. Zhang et al., *Cross-Cultural Validation of the Moral Sensitivity Questionnaire-Revised Chinese Version*, "Nursing Ethics" 2016,

Considering the significance of research on moral sensitivity and the lack of possibility of its assessment among Polish medical professionals, including midwives and nurses, the aim of this study is to assess the preliminary results of Polish nurses' and midwives' moral sensitivity perceived in clinical practice, to examine the validity of the Polish version of the Moral Sensitivity Questionnaire Revised and to analyse the correlations between moral sensitivity and its determinants.

In the literature, studies have examined the relationships between moral sensitivity and sociodemographic variables,[13] hospitals' ethical climate,[14] ethical decision-making,[15] adherence to the code of professional ethics,[16] job satisfaction or occupational burnout[17] and the quality of nursing care for patients with COVID-19.[18] The MSQ-R was developed within the Western cultural context, and how it applies to nurses and midwives working in Poland is unknown. Currently, there is no Polish translation of the MSQ-R available and no published use of the MSQ-R among the Polish population. Previous research[19] has not identified a correlation between selected variables describing the work environment and the challenges encountered by nurses and midwives, particularly regarding working conditions in this European region and moral sensitivity as assessed by the Moral Sensitivity Questionnaire Revised.[20] Additionally, this study included both nurses and midwives from various wards, including obstetrics, psychiatry,

vol. 23, no. 7, p. 784; S.S. Han, J. Kim, Y.S. Kim et al., *Validation of a Korean Version of the Moral Sensitivity Questionnaire*, "Nursing Ethics" 2010, vol. 17, no. 1, p. 99.

[10] C.R. Dalla Nora, E.L. Zoboli, M.M. Vieira, *Validation of a Brazilian Version*…, p. 824.

[11] S.S. Han, J. Kim, Y.S. Kim et al., *Validation of a Korean* Version…, p. 99.

[12] F.F. Huang, Q. Yang, J. Zhang et al., *Cross-Cultural Validation*…, p. 785.

[13] F.T. Arslan, P. Calpbinici, *Moral Sensitivity, Ethical Experiences and Related Factors of Pediatric Nurses: A Cross-Sectional, Correlational Study*, "Acta Bioethica" 2018, vol. 24, no. 1, p. 9–18; E.A. Öztürk, A. Şener, Z. Koç et al., *Factors Influencing the Ethical Sensitivity of Nurses Working in a University Hospital*, "Eastern Journal Of Medicine" 2019, vol. 24, no. 3, p. 257–264.

[14] B. Cerit, H. Özveren, *Effect of Hospital Ethical Climate on the Nurses' Moral Sensitivity*, "The European Research Journal" 2019, vol. 5, no. 2, p. 282–290.

[15] A. Lim, S. Kim, *Nurses' Ethical Decision-Making During End of Life Care in South Korea: A Cross-Sectional Descriptive Survey*, "BMC Medical Ethics" 2021, vol. 22, p. 94.

[16] Y.S. Kim, S.W. Kang, J.A. Ahn, *Moral Sensitivity Relating to the Application of the Code Of Ethics*, "Nursing Ethics" 2013, vol. 20, no. 4, p. 470.

[17] F.T. Arslan, P. Calpbinici, *Moral Sensitivity*…, p. 9; N. Kulakaç, S. Uzun, *The Effect of Burnout and Moral Sensitivity Levels of Surgical Unit Nurses on Job Satisfaction*, "Journal of PeriAnesthesia Nursing" 2023, vol. 38, no. 5, p. 768.

[18] M. Darzi-Ramandi, A. Sadeghi, L. Tapak et al., *Relationship Between Moral Sensitivity of Nurses and Quality of Nursing Care for Patients with COVID-19*, "Nursing Open" 2023, vol. 10, no. 8, p. 5252.

[19] F.T. Arslan, P. Calpbinici, *Moral Sensitivity*…, p. 9; A. Lim, S. Kim, *Nurses' Ethical Decision-Making*, p. 94; M. Dziurka, B. Dobrowolska, *Determinants of Moral Sensitivity of Midwives and Nurses – Current State of Knowledge*, "Pielegniarstwo XXI wieku/Nursing in the 21st Century" 2023, vol. 22, no. 1, p. 41–47.

[20] K. Lützén, C. Nordin, G. Brolin, *Conceptualization and Instrumentation*..., p. 241.

anaesthesiology, intensive care, labour and delivery, surgery, gynaecology, and neonatal intensive care.

Methods

Aim

The aim of this study is threefold: (a) to assess the preliminary results of Polish nurses' and midwives' perceptions of moral sensitivity in clinical practice and its predictors; (b) to examine the validity of the Polish version of the Moral Sensitivity Questionnaire (MSQ-Pol); and (c) to analyse the correlations between moral sensitivity and its determinants.

Study Design

A descriptive, cross-sectional study was conducted in Polish hospitals in two voivodeships in Eastern Poland (Lubelskie and Podkarpackie voivodeships). Convenience sampling involved the inclusion of nurses employed in the hospital, based on their availability, proximity to conduct of the study, and the hospital's agreement to participate.

Setting and Sampling

A Raosoft Sample Size Calculator was used to determine the sample size. For a confidence level of 0.95, a margin of error of 0.05, and a response distribution of 0.50, a sample size of 384 respondents was required (based on the report of the Supreme Chamber of Nurses and Midwives in 2019 as a population size indicator). The Strengthening the Reporting of Observational studies in Epidemiology guidelines (STROBE),[21] were used to improve the quality of reporting. The following inclusion criteria were used to participate in the study: informed consent, license to practice as a midwife and/or nurse, currently working in a hospital as a midwife or nurse, and a minimum of two years of clinical practice as a midwife or nurse. Data were collected via convenience sampling over a 14-month period from March 2019 to December 2020 (the beginning of the COVID-19 pandemic interrupted the collection of surveys, collection resumed in November and December 2020) in hospitals in southeastern Poland

[21] E. von Elm, D.G. Altman, M. Egger et al., *STROBE Initiative The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: Guidelines for Reporting Observational Studies*, "Journal of Clinical Epidemiology" 2008, vol. 61, no. 4, p. 344.

(Lubelskie and Podkarpackie voivodeships). These voivodeships were chosen because of the similar state of registered and working nurses, midwives and their age structure.[22] A total of 683 questionnaires were distributes to convenience sample of nurses working in the hospital. In the first phase of the study (test), 565 (82.72%) questionnaires were completed correctly and returned, and in the second phase of the study (retest), 143 (20.94%) questionnaires were completed correctly and returned. From the total sample of respondents, 435 (76.99%) respondents participated in the survey before the pandemic, and 130 (23.01%) completed questionnaires during the second wave of the pandemic (n = 331 nurses-prepandemic, n = 103 midwives-prepandemic, n = 87 nurses-during pandemic, n = 44 midwives-during pandemic; respectively, representing the following % of the total study sample: 58.58%, 18.23%, 15.40%, 7.79%).

Data Collection Process

Data were collected via the Paper-And-Pencil Interviewing method (PAPI) from March 2019 to December 2020 (the beginning of the COVID-19 pandemic interrupted the collection of surveys, collection resumed in November and December 2020) in hospitals in southeastern Poland. After receiving approval from hospital managers in the Lubelskie and Podkarpackie voivodeships, printed questionnaires were distributed to nursing and midwifery staff who met the inclusion criteria and verbally consented to participate. Participants were informed about the study's purpose, data collection process (test and retest stages), and their right to withdraw at any time. Completed questionnaires were sealed in envelopes, handed to the ward supervisor, and collected by the researchers on an agreed date.

Instruments

The following research tools were used:

1. The Moral Sensitivity Questionnaire Revised (MSQ-R) is a nine-item questionnaire developed by Lützén et al. that measures self-awareness of the moral character of a certain situation. The MSQ-R includes three factors: moral burden, moral strength and moral responsibility. The MSQ-R is a 9-item questionnaire with six answer options (1 – *strongly disagree*, 6 – *strongly agree*). It consists of three identified factors of ethical sensitivity: moral burden (items 4, 6, 7 and 8), moral strength (items 2, 3 and 5) and

[22] Supreme Chamber of Nurses and Midwives, *Number of Nurses and Midwives Registered and Employed*, https://nipip.pl/liczba-pielegniarek-poloznych-zarejestrowanych-zatrudnionych/ (accessed: 25.07.2024).

moral responsibility (items 1 and 9). A higher score indicates higher moral sensitivity.[23] In this study, the Polish version (MSQ-R-Pol) of the MSQ-R was used. The approval for the use of the MAQ-R was obtained from the author of the tool before conducting the research. The process of translating and adapting Lützén's MSQ-R questionnaire to Polish conditions was performed with the use of the International Test Commission Guidelines for Translating and Adapting Tests.[24] The MSQ-R was first translated separately into Polish by two bilingual speakers. Their translations were merged after discussion and then reviewed by experts to ensure construct-item alignment and cross-language equivalence. Later, after the experts' discussion a draft Polish version was back-translated into English by a native speaker. The structure of the MSQ-R was left unchanged. Finally, the Polish MSQ-R was pre-tested with a small group of nurses and midwives, with their feedback incorporated into the final version.

2. A questionnaire developed by the authors to collect sociodemographic data and characteristics of the work environment of nurses and midwives (e.g., age, education, place of residence, marital status, occupation, length of service, satisfaction with job and salary, completion of specialist courses, type of employment agreement, working mode, and age of patients to whom care services are provided).

Data Analysis

The statistical analysis was performed with the use of IBM SPSS Statistics software. Varimax rotation was chosen for exploratory factor analysis (EFA) to test the factor structure of the MSQ-Pol. To measure sampling adequacy, the Kaiser–Meyer–Olkin (KMO) test and Chi-square for Bartlett's test of sphericity were used. The internal consistency of the factors of the MSQ-Pol was calculated via Cronbach's alpha. In this study, a Cronbach's alpha coefficient greater than 0.7 was considered satisfactory. Descriptive statistics of the collected data are summarised as the mean (M), percentage, and standard deviation (SD). Statistical significance in the final model was set at $p < 0.05$. Pearson's correlation coefficient (r) test was used to measure the associations between the selected variables. Nonnormally distributed data were analysed via the Kruskal–Wallis and Mann–Whitney U tests.

In order to verify the normality of the distributions of the MSQ-R-Pol variable across the nurses, midwives groups, a series of analyses were conducted to verify

[23] K. Lützén, V. Dahlqvist, S. Eriksson et al., *Developing the Concept of Moral Sensitivity in Health Care Practice*, "Nursing Ethics" 2006, vol. 13, no. 2, p. 187.

[24] International Test Commission, *International Test Commission Guidelines for Translating and Adapting Tests, Second Edition*, 2017, http://www.intestcom.org (accessed: 25.07.2024).

the similarity of the sample distribution to the theoretical normal distribution. The KS (Kolmogorov–Smirnov) and SW (Shapiro–Wilk) test, with $p < 0.05$ for a given variable were used to indicate a significant difference between the distribution of scores in the sample and the theoretical normal distribution. The Levene's test was used to check the homogeneity of the variances.

Multiple linear regression analysis (the stepwise method) was used to identify independent variables that predicted moral sensitivity. To assess potential predictors of moral sensitivity, multiple linear regression was conducted via the stepwise method by introducing sociodemographic variables (age, education, place of residence, marital status, social situation, having children, living conditions, additional education, age of patients, work mode, type of contract, additional place of work and job satisfaction). Multicollinearity was checked, as were the minimum and maximum variable inflation factor (VIF). A general F test and adjusted R-square test were performed. Standardised Beta coefficients (β) were calculated to assess the level of association and statistical significance in the multiple regression analysis.

Ethical Issues

The research was approved by the Bioethics Committee at the Medical University of Lublin (number: KE-0254/267/2020). All participants received detailed information about the study's purpose, how the data would be collected anonymously, and the voluntary nature of participation. They were assured of their right to withdraw at any time. Only those who provided written consent were included in the study. Consent forms and survey responses were collected separately in sealed envelopes at specified times and locations to maintain anonymity. The data collected were entered into a password-protected Excel sheet accessible exclusively to the principal investigator, ensuring continued confidentiality.

Results

Study Participants

The sample consisted of 565 (82.7%) respondents, 418 nurses (73.98%) and 147 midwives (26.02%; Tabele 1). The vast majority of the respondents were women (n = 544, 96.3%), were married (n = 420, 74.3%), lived in urban areas (n = 363, 64.2%), had a master's degree in midwifery or nursing (n = 300, 53.1%), and were religious (n = 540, 95.6%). The average age of nurses was 38.10

(SD = 10.29) and for midwives 32.02 (SD = 7.76), with the total age of respondents 38.10 (SD = 10.05; Tabele 1).

Table 1. Study participant characteristics

		M	Me	SD	Min	Max
Age	Nurses	38.10	39.00	10.29	23.00	62.00
	Midwives	32.02	30.00	7.76	24.00	59.00
	Total	36.52	34.00	10.05	23.00	62.00
			N (565)		**%**	
Gender	Women		544		96.3	
	Men		21		3.7	
Place of residence	Rural area		202		35.8	
	City		363		64.2	
Marital status	Single		145		25.7	
	Married		420		74.3	
Religious person	Yes		540		95.6	
	No		25		4.4	
Education	Medical high school		25		4.4	
	Medical vocational school		26		4.6	
	Bachelor's degree in midwifery/nursing		211		37.3	
	Master's degree in midwifery/nursing		300		53.1	
	Doctor of Health Science/Medical Science		3		0.5	
Additional Postgraduate Courses	Specialised courses		423		80.0	
	Qualification courses		333		62.9	
	Specialisations		118		22.3	
	Postgraduate studies		26		4.9	
Profession	Nurses before pandemic		331		58.58	
	Nurses during pandemic		103		18.23	
	Midwives before pandemic		87		15.40	
	Midwives during pandemic		44		7.79	

M = Mean; Me – Median; SD = Standard deviation; Min – Minimum, Max – Maximum, N – number of participants; % – percent

Psychometric Properties of the Polish Version of the Moral Sensitivity Questionnaire – Revised (MSQ-R-Pol)

The Kaiser-Meyer-Olkin (KMO) test used to measure sampling adequacy yielded 0.869, and Chi-square for Bartlett's test of sphericity was significant ($\chi 2 = 1727.751$; $df = 36$; $p < 001$). The factor loadings for all the moral sensitivity items were between 0.503 and 0.836, which revealed the good structure of the MSQ-R-Pol.

Factor 1, "moral strength and moral responsibility", contained 5 items and explained 44.86% of the variance. Its eigenvalue was 4.038. Factor 2 had an

eigenvalue of 1.184 and explained 13.16% of the variance. The factor "moral burden" consisted of 4 items (Supplementary File 1. Moral Sensitivity Questionnaire – Revised: psychometric properties).

Cronbach's alpha for the subscale "moral strength and moral responsibility" was 0.844, and that for the subscale "moral burden" was 0.658. The coefficients of discriminatory power of the items across the scale ranged from 0.373–0.646 (Supplementary File 1. Moral Sensitivity Questionnaire – Revised: Psychometric properties).

The internal consistency of the factors of the MSQ-R-Pol was calculated via Cronbach's alpha. The overall Cronbach's alpha coefficient was 0.827 (Supplementary File 2. Moral Sensitivity Questionnaire – Revised: Internal consistency, reliability).

The correlations between the subscales were high and statistically significant. The test–retest reliability analysis (n = 143) revealed that the test and retest means did not differ. This shows that the MSQ-R-Pol is representative and stable over time (Supplementary File 2. Moral Sensitivity Questionnaire – Revised: Internal consistency, reliability).

The distribution of the MSQ-R-Pol scores was significantly different from a normal distribution (SW = 0.99; $p < 0.001$, KS = 0.06; $p < 0.001$). The results of the analyses are shown in Table 2.

Moral Sensitivity of Nurses and Midwives

The mean total score received by respondents was 42.56 (SD = 5.74), among nurses 42.72 (SD = 5.66) and midwives 42.14 (SD = 5.97). The lowest score obtained was 22, and the highest score was 54, Table 3.

The assumption of equality of variance in the tested groups (nurses-prepandemic, midwives-prepandemic, nurses-during pandemic, midwives-during pandemic) was met ($F(3; 561) = 0.99$; $p = 0.398$). The variability of the results in the tested groups was similar. The distribution of MSQ-R-Pol scores for the Nurses-prepandemic was significantly different from the normal distribution (KS = 0.08; $p = 0.002$), the distribution of MSQ-R-Pol scores for the Midwives-prepandemic was similar to the theoretical normal distribution (KS = 0.09; $p = 0.053$). The distribution of MSQ-R-Pol scores was similar to the theoretical normal distribution for the Nurses-during pandemic (KS = 0.07; $p = 0.400$) and Midwives-during pandemic (SW = 0.99; $p = 0.838$). The analysis showed no significant effect of the nurses-midwives pre/pandemic on MSQ-R-Pol scores, $F(3; 561) = 0.42$; $p = 0.738$; $\eta^2 = 0.00$. The severity of MSQ-R-Pol scores was similar in the groups analysed, Table 3.

Analysis by Levene's test showed that the assumption of equality of variance in the tested Nurses – Midwives was met, $F(1; 563) = 0.29$: $p = 0.592$.

Table 2. Descriptive Statistics and the Distribution for the MSQ-R-Pol

								Measures of distribution symmetry		Kołmogorov–Smirnov test		Shapiro–Wilk test	
Variable	**N**	**Min**	**Max**	**M**	**SD**	**SE**	**Me**	**Skewness**	**Kurtosis**	**KS**	**p**	**SW**	**p**
MSQ 1	565	2.00	6.00	5.28	0.85	0.04	5.00	-1.13	0.92	0.29	< 0.001	0.77	< 0.001
MSQ 2	565	2.00	6.00	5.18	0.82	0.03	5.00	-0.87	0.57	0.24	< 0.001	0.81	< 0.001
MSQ 3	565	1.00	6.00	4.62	0.94	0.04	5.00	-0.36	-0.07	0.22	< 0.001	0.89	< 0.001
MSQ 4	565	1.00	6.00	4.62	1.00	0.04	5.00	-0.81	1.00	0.25	< 0.001	0.87	< 0.001
MSQ 5	565	2.00	6.00	4.89	0.88	0.04	5.00	-0.65	0.40	0.26	< 0.001	0.85	< 0.001
MSQ 6	565	1.00	6.00	4.17	1.22	0.05	4.00	-0.29	-0.55	0.17	< 0.001	0.92	< 0.001
MSQ 7	565	2.00	6.00	5.00	0.85	0.04	5.00	-0.60	0.03	0.24	< 0.001	0.85	< 0.001
MSQ 8	565	1.00	6.00	4.35	1.10	0.05	4.00	-0.53	-0.02	0.22	< 0.001	0.90	< 0.001
MSQ 9	565	1.00	6.00	4.45	1.12	0.05	5.00	-0.64	0.25	0.21	< 0.001	0.90	< 0.001
MSQ	**565**	**22.00**	**54.00**	**42.57**	**5.74**	**0.24**	**43.00**	**-0.33**	**0.05**	**0.06**	**< 0.001**	**0.99**	**< 0.001**

N = Number; Min = Minimum value; Max = Maximum value; M = Mean; SD = Standard deviation; SE = Standard error of the mean; Me = Median; p = Statistical significance. The results of the KS (Kolmogorov–Smirnov) and SW (Shapiro–Wilk) test, with p < 0.05 for a given variable, indicate a significant difference between the distribution of scores in the sample and the theoretical normal distribution; MSQ 1–9 =question number in the MSQ-R-Pol

The variability of the results in the tested groups was similar. The analysis showed that the distribution of MSQ-R-Pol scores for the Nurses was significantly different from the normal distribution (KS = 0.06; p = 0.003,) the distribution of MSQ-R-Pol scores for the Midwives was similar to the theoretical normal distribution (KS = 0.07; p = 0. 094). The analysis showed no significant correlation of the Education on MSQ scores, F(1; 563) = 1.13; p = 0.289; η^2 = 0.00. The severity of the MSQ-R-Pol scores were similar across the nurses, midwives analysed.

Analysis by Levene's test showed that the assumption of equality of variance in the tested groups before and during the pandemic was met, F(1; 563) = 2.13; p = 0.145. The variability of scores in the tested groups was similar. The analysis showed that the distribution of MSQ-R-Pol scores for the Before group was significantly different from the normal distribution KS = 0.08; p < 0.001, the distribution of MSQ-R-Pol scores for the During group was similar to the theoretical normal distribution KS = 0.06; p = 0.236. Analysis showed no significant effect of pandemic on MSQ-R-Pol scores, F(1; 563) = 0.02; p = 0.882; η^2 = 0.00. The severity of MSQ-R-Pol scores was similar in the groups analysed, Table 3.

Table 3. Moral Sensitivity Questionnaire – Revised: Scores

		N	M	Me	SD	**SD**	**SE**	Min	Max
Before pandemic	Nurses	331	42.67	43.00	5.51	5.51	0.30	25.00	54.00
	Midwives	103	42.16	42.00	6.03	6.03	0.60	27.00	54.00
	Total	**434**	**42.55**	**43.00**	**5.63**	0.27	283.1	**25.00**	**54.00**
During pandemic	Nurses	87	42.92	43.00	6.22	6.22	0.67	22.00	54.00
	Midwives	44	42.07	42.00	5.90	5.90	0.89	29.00	54.00
	Total	**131**	**42.63**	**42.00**	**6.10**	0.53	282.6	**22.00**	**54.00**
Global	Nurses	418	42.72	43.00	5.66	0.28	287.7	22.00	54.00
	Midwives	147	42.14	42.00	5.97	0.49	269.7	27.00	54.00
	Total	**565**	**42.56**	**43.00**	**5.74**	**-0.33**	**0.05**	**22.00**	**54.00**

M – Mean, Me – Median, SD – Standard Deviation, Min – Minimum, Max – Maximum, SE = Standard error of the mean; Rank = Average rank for the group

Moral Sensitivity and Correlation with Chosen Variables

The study results showed a positive correlation between the moral sensitivity (r = 0.280, p = 0.000) and age of the respondents (Supplementary File 3. Moral Sensitivity Questionnaire – Revised and correlation with chosen variables). Seniority was positively correlated with the subscales of the MSQ-R-Pol Factor 1 and Factor 2 (r = 0.459, p = 0.018; r = 0.847, p = 0.000). Additionally, having children (Z = -6.113, p = 0.000), marital status (Z = -3.144, p = 0.002), having qualification courses (Z = -2.739, p = 0.006) and postgraduate studies (Z = -2.122, p = 0.034), paediatric patients aged 6–18 years (Z = -2.252, p = 0.024), adult

patients between 18 and 65 years (Z = -2.713, p = 0.007) correlated negatively with nurses' and midwives' moral sensitivity. Furthermore, our study revealed a correlation of working mode (H = 9.930, p = 0.007) and MSQ (Supplementary File 3. Moral Sensitivity Questionnaire – Revised and correlation with chosen variables).

Regression Analysis Model Summary of Moral Sensitivity

The overall score was associated with higher age (beta = 0.240; t = 4.929; p < 0.001), having children (beta = 0.121; t = 2.534; p = 0.012), very good material conditions (beta = 0.097; t = 2.446; p = 0.015), working with adult patients aged 18–65 years (beta = 0.127; t = 2.855; p = 0.004), and neonatal/infant patients (beta = 0.108; t = 2.417; p = 0.016; Table 4).

Factor 1 scores were associated with higher age (beta = 0.224; t = 4.552; p < 0.001), having children (beta = 0.105; t = 2.182; p = 0.030), higher job satisfaction (beta = 0.085; t = 2.116; p = 0.035), working with adult patients from 18 to 65 years (beta = 0.162; t = 3.599; p < 0.001), neonatal/infant patients (beta = 0.113; t = 2.543; p = 0.011), and working in one location (beta = -0.084 t = -2.103; p = 0.036; Table 4).

Factor 2 scores were associated with higher age (beta = 0.271; t = 6.349; p < 0.001), having a specialisation (beta = 0.106; t = 2.497; p = 0.013), and being married (beta = -0.102; t = -2.478; p = 0.013; Table 4).

Table 4. Regression analysis model summary of moral sensitivity

Model	Nonstandardised factors				
	B	SE	β	t	p
	34.575	1.047		33.037	<.001
Age	.138	.028	.240	4.929	<.001
Having children[A]	1.434	.566	.121	2.534	.012
Material conditions	1.126	.460	.097	2.446	.015
Patients from 18 to 65 years of age[B]	1.664	.583	.127	2.855	.004
Neonatal/infant patients[C]	1.262	.522	.108	2.417	.016
Dependent variable: Global $F = 16.627$; $p < 0.002$; $R^2 = 0.130$					

Model		Nonstandardised factors				
		B	SE	β	t	p
		3.979	.203		19.643	<.001
	Age	.015	.003	.224	4.552	<.001
	Patients from 18 to 65 years of age[B]	.251	.070	.162	3.599	<.001
	Neonatal/infant patients[C]	.159	.062	.115	2.543	.011
	Having children[A]	.148	.068	.105	2.182	.030
	Job satisfaction	.074	.035	.085	2.116	.035
	Additional work[D]	-.123	.059	-.084	-2.103	.036
Dependent variable: Factor 1 $F = 12.826$; $p < 0.001$; $R^2 = 0.122$						

Model		Nonstandardised factors				
		B	SE	β	t	p
		3.713	.127		29.325	<.001
	Age	.021	.003	.271	6.349	<.001
	Having a specialisation[E]	.203	.081	.106	2.497	.013
	Social status	-.183	.074	-.102	-2.478	.013
Dependent variable: Factor 2 $F = 17.464$; $p < 0.001$; $R^2 = 0.086$						

B – unstandardised beta; SE – standard error for the unstandardised beta; β – standardised beta; t – test; dummy coding: [A]1 – yes; 0 – no; [B]1 – yes; 0 – no; [C]1 – yes; 0 – no; [D]1 – yes; 0 – no; [E]1 – yes; 0 – no.; F change test based on F statistic used to determine the significance of R square change; R^2 – R-squared

There was a negative correlation between the level of moral sensitivity and problems arising in the respondents' work, including relationships in the nursing team (rho = -0.101; p = 0.017), relationships within the therapeutic team, with other professionals (rho = -0.091; p = 0.031), relationships with the management of the hospital (rho = -0.099; p = 0.019), and limitations in one's own professional competence (rho = -0.104; p = 0.013, Table 5).

Table 5. Correlation between the level of moral sensitivity and problems occurring in nurses' and midwives' work

	Factor 1 "moral strength and moral responsibility"		**Factor 2** "moral burden"		**Global**	
	rho	p	rho	p	rho	p
Patients' conditions	**-.108***	**0.010**	0.048	0.258	-0.037	0.377
Patients' expectations	-0.040	0.345	**.106***	**0.012**	0.040	0.342
Expectations of patients' families	-0.027	0.522	**.089***	**0.034**	0.039	0.355
Lack of time for direct face-to face-care	0.067	0.113	0.045	0.281	0.059	0.161
Lack of equipment and resources for high quality of healthcare	-0.046	0.275	-0.067	0.110	-0.063	0.133
Relationships in the nursing team	**-.129****	**0.002**	-0.063	0.133	**-.101***	**0.017**
Relationships in the therapeutic team, with other professionals	**-.104***	**0.013**	-0.063	0.135	**-.091***	**0.031**
Relations with hospital managers	**-.093***	**0.028**	**-.088***	**0.038**	**-.099***	**0.019**
Limitations in one's own professional competences	**-.147****	**0.000**	-0.036	0.393	**-.104***	**0.013**
Moral dilemmas in relation to patient care	**-.113****	**0.007**	-0.018	0.677	-0.069	0.103
Low salary	-0.049	0.243	0.019	0.645	-0.017	0.685
Low prestige of nurses'/midwives' work	-0.037	0.382	-0.008	0.850	-0.023	0.578
Physical load	0.022	0.599	0.005	0.911	0.018	0.677
Mental load	0.049	0.242	0.016	0.701	0.041	0.326
Medical/nursing documentation requirements	0.054	0.199	0.048	0.252	0.064	0.132
Risk of making a mistake	0.014	0.732	0.000	0.999	0.012	0.775
Low professional competences of others medical professionals	**-.116****	**0.006**	0.015	0.719	-0.041	0.333

**definitely yes – 1; definitely no – 5; rho – Spearman's rho; * < 0.05; ** < 0.001*

Discussion

The present study was conducted to assess the preliminary results of Polish nurses' and midwives' perceptions of moral sensitivity in clinical practice, its predictors and to examine the psychometric properties of the Polish version of the Moral Sensitivity Questionnaire – Revised (MSQ-R-Pol) and to analyse the correlations between moral sensitivity and its determinants. The process of adapting, validating and examining the psychometric properties of the MSQ-R-Pol provides the opportunity to fill gaps in the current knowledge and allows further more precise research and analysis of this phenomenon. Two

fundamental elements in the evaluation process of a measurement instrument are its reliability and validity. The results of this study confirm that the Polish version of the MSQ-R is a reliable and stable tool with satisfactory psychometric properties. First, the overall internal consistency of the MSQ-R-Pol according to Cronbach's alpha (0.827) revealed good properties of the scale, with a comparable Chinese MSQ-R version (0.82)[25] and Lützén et al.[26] original English version of the MSQ (0.78). Second, the correlations between the subscales were high and statistically significant. In addition, the MSQ-R-Pol is representative and stable over time, and the factor loadings revealed the good structure of the tool. However, Exploratory Factor Analysis (EFA) revealed a two-factor structure (Factor 1 – "moral strength and moral responsibility" – explained 44.86% of the variance; Factor 2 – "moral burden" – explained 13.16% of the variance) for the MSQ-R-Pol, contrary to the English version of the scale,[27] which was the same as the Chinese version.[28] Huang et al. suggested that this is caused by the fact that Chinese nurses do not perceive a clear differentiation between the concepts of moral responsibility and moral strength.

A sense of moral burden arises from problems or situations involving moral value.[29] Moral strength is demonstrated by the courage to act and justify actions on behalf of another, such as a patient, rather than self-defence.[30] It involves taking a moral stance in conflicts and showing resilience and endurance.[31] Additionally, the moral strength of a character helps individuals recover from adversity and provides protection. Moral responsibility involves adhering to rules and regulations, understanding their purpose, and recognising moral problems from the individual patient's perspective.[32] The Polish nurses' and midwives' level of moral sensitivity (42.56) was similar to the scores obtained by Spanish nursing students (42.51).[33] The group was homogeneous, and there were no differences between nurses and midwives moral sensitivity. The overall score was associated with increased age, having children, very good material conditions, working with adult patients aged 18–65 years and neonatal/infant patients.

[25] F.F. Huang, Q. Yang, J. Zhang et al., *Cross-Cultural Validation*…, p. 784.

[26] K. Lützén, G. Nordström, M. Evertzon, *Moral Sensitivity in Nursing Practice*, p. 131.

[27] K. Lützén, V. Dahlqvist, S. Eriksson et al., *Developing the Concept*…, p. 187.

[28] F.F. Huang, Q. Yang, J. Zhang et al., *Cross-Cultural Validation*…, p. 784.

[29] Ibidem.

[30] K. Lützén, V. Dahlqvist, S. Eriksson et al., *Developing the Concept*…, p. 187.

[31] J.G. Dyer, T.M. McGuinness, *Resilience: Analysis of the Concept*, "Archives of Psychiatric Nursing" 1996, vol. 10, p. 276–282.

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[33] M.F. Jiménez-Herrera, I. Font-Jimenez, L. Bazo-Hernández et al., *Moral Sensitivity of Nursing Students*…, p. e0270049.

Additionally, Factor 1 – "moral strength and moral responsibility" scores were associated with increased age, having children, higher job satisfaction, working with adult patients from 18 to 65 years of age, neonatal/infant patients and working in one location, whereas Factor 2 – "moral burden" scores were associated with increased age, having a specialisation, and being married. Previous studies have shown that women have higher scores in the level of moral sensitivity.[34] According to Gilligan's theory of moral development, which aligns with previous research, women and men have different socialisation processes and ethical development.[35]

An interesting result was shown by Tosun, where higher scores on the nurses' benevolence subscale were linked to their maternal instinct.[36] Moreover, moral sensitivity is enhanced through ethical education, as evidenced by senior nursing students scoring higher than first-year students. As suggested by Park et al., increased education, reflection and discussion on ethical issues enhance moral sensitivity in caregiving relationships among nursing professionals and students.[37] Many studies have shown that age is correlated with the moral sensitivity of nurses.[38] Arslan et al. reported that older paediatric nurses (over 41 years of age) have greater moral sensitivity.[39] Tuveson and Lützén suggested that older nurses, through their experience with difficult moral conflicts in both their professional and personal lives, have developed greater moral sensitivity.[40]

There was a negative correlation between the level of moral sensitivity and problems arising in the respondents' work, including relationships in the nursing and therapeutic team, other professionals and management of the hospital, or limitations in one's own professional competencies. According to Nobahar et al., stronger teamwork among intensive care nurses was related to higher level of moral sensitivity and fewer cases of missed care.[41] They also suggest that a concentration on designing an intervention to strengthen teamwork has the potential to help lead intensive care nurses to increase their moral sensitivity,

[34] C.B. O'Connell, *Gender and the Experience of Moral Distress in Critical Care Nurses*, "Nursing Ethics" 2015, vol. 22, no. 1, p. 41.

[35] C. Gilligan, *Male Orientation and Moral Development*, in: *Women and Moral Theory*, eds. E. Kittay, D. Meyers, Harvard University Press, Cambridge 1987.

[36] H. Tosun, *Determining Sensitivity of the Nurses and the Physicians Against the Ethical Dilemmas Which Experienced at the Health Care Practices*, PhD Thesis, İstanbul University, İstanbul 2005.

[37] M. Park, D. Kjervik, J. Crandell et al., *The Relationship of Ethics Education to Moral Sensitivity and Moral Reasoning Skills of Nursing Students*, "Nursing Ethics" 2012, vol. 19, no. 4, p. 80.

[38] F.F. Huang, Q. Yang, J. Zhang et al., *Cross-Cultural Validation*…, p. 784–793.

[39] F.T. Arslan, P. Calpbinici, *Moral Sensitivity*…, p. 16.

[40] K. Lützén, A. Johanson, G. Nardüstrom, *Moral Sensitivity: Some Differences Between Nurses and Physicians,* "Nursing Ethics" 2000, vol. 7, no. 6, p. 520; H. Tuvesson, K. Lützén, *Demographic Factors Associated with Moral Sensitivity Among Nursing Students*, "Nursing Ethics" 2016, vol. 28, p. 847–855.

[41] M. Nobahar, M. Ameri, S. Goli, *The Relationship Between Teamwork, Moral Sensitivity, and Missed Nursing Care in Intensive Care Unit Nurses*, "BMC Nursing" 2023, vol. 22, no. 1, p. 241.

decrease missed nursing care and have a positive effect on the promotion of the quality of patient care.[42] Additionally, Kohanová et al. highlighted the importance of addressing nursing rationing among graduates and practicing nurses to enhance teamwork and improve patient care outcomes in acute settings.[43]

In our study there were no differences between nurses' and midwives' moral sensitivity before and during the pandemic, thus the analysis showed no significant effect of pandemic on MSQ-R-Pol scores. This may be due to the small number of respondents who participated in the study during the COVID-19 pandemic. Additionally, the sample did not include employees of hospitals converted in Poland into those dedicated to COVID-19 patients. In contrast, in Seo and Kim's study, working in the COVID-19 direct response department influenced nurses' ethical sensitivity,[44] whereas in the study by Yılmaz et al. no significant difference was found between the moral sensitivity levels of those who worked in COVID-19 units and those who did not work.[45]

Limitations

Various factors may affect moral sensitivity in clinical settings for nurses and midwives. Future research should investigate additional factors, specific hospital wards and use qualitative methods. Also, we have chosen to analyse some results for midwives and nurses because of the lack of significant differences between the two groups (our results indicated that the study group was homogeneous). In the future, separate study for these two groups of professionals are recommended. As the first study measuring this stress among Polish nurses and midwives with the MSQ-R-Pol tool, it lacks prior comparables. In our study, there was no difference between nurses' and midwives' moral sensitivity before and during the pandemic, thus the analysis showed no significant effect of the pandemic on MSQ scores. This may be due to the small number of respondents during the COVID-19 pandemic. Furthermore, our study was cross-sectional with convenient sampling, which may lead to results that may not accurately reflect the broader population and cannot be generalised. This research can be used as a baseline for subsequent studies that use random sampling methods.

[42] Ibidem.

[43] D. Kohanová, A. Solgajova, D. Bartoníčková, *The Association of Rationed Nursing Care and the Level of Teamwork in Acute Care Setting: A Cross-Sectional Study*, "Pielegniarstwo XXI wieku/Nursing in the 21st Century" 2024, vol. 23, no. 2, p. 100–105.

[44] H. Seo, K. Kim, *Factors Influencing Public Health Nurses' Ethical Sensitivity During the Pandemic*, "Nursing Ethics" 2022, vol. 29, no. 4, p. 858–871.

[45] S. Yılmaz, G. Özbek Güven, M. Demirci et al., *The Relationship Between Covid-19 Burnout and the Moral Sensitivity of Healthcare Professionals*, "Acta Bioethica" 2023, vol. 29, no. 2, p. 229.

Conclusion

Initial results of the Polish version of the Moral Sensitivity Questionnaire Revised (MSQ-R-Pol) show reliability and validity in clinical practice. This adapted tool effectively measures moral sensitivity among healthcare professionals in Poland, accounting for cultural and linguistic differences. Statistical analysis confirmed its psychometric strengths, including internal consistency and construct validity. Using the MSQ-R-Pol in clinical settings has provided valuable insights into healthcare ethics and moral sensitivity, highlighting its role in improving patient care and ethical decision-making. The questionnaire is also useful for identifying areas for enhancing moral sensitivity and promoting higher ethical standards in clinical practice. Hospital managers and policymakers should focus their future actions on predictors of moral sensitivity, such as organisational issues, the specific characteristics of work in a particular ward and patient populations, by supporting nurses and midwives in ethical decision-making, the development of their ethical competencies, positive leadership and the development of resilience.

Supplementary Materials

Supplementary File 1. Moral Sensitivity Questionnaire – Revised: Psychometric properties

Item	Factor 1 "moral strength and moral responsibility"	Factor 2 "moral burden"	Correlation of items Total	Cronbach's alpha after removal of items
1. I always feel a responsibility that the patient receives good care, even if the resources are inadequate	.825		.588	.804
2. My ability to sense the patient's needs is always helpful in my work	.836		.629	.801
3. I have a very good ability to feel how I should talk about difficult things with the patient	.678		.562	.806
4. My ability to sense the patient's needs means that I do more than I have the strength for		.526	.590	.802
5. I have a very good ability to sense when a patient is not receiving good care	.752		.646	.798

Item	Factor 1 "moral strength and moral responsibility"	Factor 2 "moral burden"	Correlation of items Total	Cronbach's alpha after removal of items
6. I find it very difficult to deal with my feelings that are aroused when a patient is suffering		.823	.417	.827
7. When caring for patients, I am always aware of the balance between the potential of doing good and the risk of causing harm to them	.692		.612	.802
8. My ability to sense a patient's needs means that I often find myself in situations in which I feel inadequate		.774	.498	.814
9. It helps me to know what is good or bad for the patient when I can follow rules and regulations		.503	.373	.830
Variance percent	**44,864**	**13,156**		
Eigenvalue	**4,038**	**1,184**		

Supplementary File 2. Moral Sensitivity Questionnaire – Revised: Internal consistency, reliability

Correlations between subscales	**Factor**	**Alfa Cronbacha**	**Number of items**	**Item**
	Factor 1	.844	5	1, 2, 3, 5, 7
	Factor 2	.658	4	4, 6, 8, 9
	Total	.827	9	
Internal consistency	**Factor**	**Factor 1**	**Factor 2**	**Total**
	Factor 1	x		
	Factor 2	.541**	x	
	Total	.889**	.867**	x
Test-retest reliability	**Factor**			**Correlation value**
	Pair 1 – Factor 1	Test & Retest		.720
	Pair 2 – Factor 2	Test & Retest		.673
	Pair 3 – Overall score	Test & Retest		.750

*Factor 1 – "moral strength and moral responsibility"; Factor 2 – "moral burden"; ** <0.001*

Supplementary File 3. Moral Sensitivity Questionnaire – Revised and correlation with chosen variables

	Age					
	r				p	
Factor 1	**.541****				**0.000**	
Factor 2	**.889****				**0.000**	
Global	**.280****				**0.000**	
	Seniority					
	r				p	
Factor 1	**.459***				**0.018**	
Factor 2	**.847****				**0.000**	
Global	0.092				0.656	
	Having children				**Statistics**	
	Yes		**No**			
	M	SD	M	SD	Z	p
Factor 1	5.13	0.66	4.79	0.67	**-6.054**	**0.000**
Factor 2	4.53	0.77	4.18	0.76	**-5.182**	**0.000**
Global	43.75	5.51	40.69	5.61	**-6.113**	**0.000**
	Single		**In relationship**		**Statistics**	
	M	SD	M	SD	Z	p
Factor 1	4.89	0.66	5.03	0.69	**-2.430**	**0.015**
Factor 2	4.22	0.76	4.46	0.78	**-3.177**	**0.001**
Global	41.34	5.49	42.99	5.78	**-3.144**	**0.002**
	Qualification courses				**Statistics**	
	Yes		**No**			
	M	SD	M	SD	Z	p
Factor 1	5.05	0.69	4.91	0.66	**-2.913**	**0.004**
Factor 2	4.45	0.79	4.32	0.78	-1.882	0.060
Global	43.08	5.81	41.83	5.58	**-2.739**	**0.006**
	Postgraduate studies				**Statistics**	
	Yes		**No**			
	M	SD	M	SD	Z	p
Factor 1	5.31	0.63	4.98	0.68	**-2.428**	**0.015**
Factor 2	4.64	0.82	4.38	0.78	-1.525	0.127
Global	45.12	5.48	42.44	5.73	**-2.122**	**0.034**
	Patient – paediatric patients from 6 to 18 years				**Statistics**	
	Yes		**No**			
	M	SD	M	SD	Z	p
Factor 1	5.11	0.68	4.97	0.68	**-2.169**	**0.030**
Factor 2	4.49	0.77	4.37	0.79	-1.801	0.072
Global	43.53	5.70	42.33	5.74	**-2.252**	**0.024**

	Patient – adults 18 to 65 years				Statistics	
	Yes		No			
	M	SD	M	SD	Z	p
Factor 1	5.06	0.67	4.82	0.68	**-3.703**	**0.000**
Factor 2	4.43	0.81	4.31	0.70	-1.624	0.104
Global	43.00	5.75	41.34	5.57	**-2.713**	**0.007**

	Work mode						Statistics	
	8h shifts		12h shifts		Other			
	M	SD	M	SD	M	SD	H	p
Factor 1	5.13	0.63	4.98	0.69	4.69	0.50	**7.681**	**0.021**
Factor 2	4.56	0.71	4.37	0.80	4.19	0.42	**6.438**	**0.040**
Global	43.88	5.17	42.40	5.86	40.23	3.59	**9.930**	**0.007**

	Are you satisfied with your professional work?***	
	rho	p
Factor 1	**.086*****	**0.041**
Factor 2	-0.011	0.801
Global	0.034	0.415

*M – Mean; SD – Standard Deviation; Z – Mann-Whitney U test; r – Pearson's r; rho – Spearman's rho; H – Kruskal–Wallis H; * < 0.01; ** < 0.001; *** < 0.05; 1 – definitely not; 5 – definitely yes; Factor 1 – "moral strength and moral responsibility"; Factor 2 – "moral burden"*

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