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ORIGINAL PAPER

Confirmatory factor analysis of Lasher and Faulkender's Anxiety about Aging Scale and influence of aging anxiety on ageism among nurses in the Republic of Croatia

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Abstract

Aim: This study aimed to test an existing theory of the Anxiety about Aging Scale and determine the relationship between ageism and anxiety about aging in nurses in the Republic of Croatia. *Design:* A cross-sectional study. *Methods:* The sample consisted of 798 nurses from Republic of Croatia. Participants filled Anxiety about Aging Scale and Kogan's Attitude toward Old People Scale. *Results:* Regarding the factor structure of the 20 items, chi-square test revealed a statistically significant finding ($\chi^2 = 2131.090$, df = 164, $p > 0.05$). Analyses confirmed the four-factor structure (fear of older adults, psychological concern, fear of loss, and physical appearance) and the indicators of adequate reliability and validity. Furthermore, Kogan's Attitude toward Old People Scale significantly correlated with fear of older adults ($r = 0.409$; $p < 0.01$); attitudes changed with fear of older adults. Factors such as age, work experience duration (in years), and education individually affected aging anxiety, but not sex, living with older adults, and work department. *Conclusion:* The Anxiety about Aging Scale Croatian version is a valid and reliable measuring instrument for nurses. Nurses who have expressed greater anxiety about aging have a more negative attitude toward older adults.

Keywords: Anxiety about Aging Scale, ageism, fear of older, Kogan's Attitude toward Old People Scale, nursing profession.

Introduction

Croatia is one of the European Union member states with the highest projected population decline until 2050. In 2019, the population was 4.1 million, and the projection for 2030 and 2050 is 3.8 and 3.4 million, respectively. Currently, approximately 0.8 million people aged over 64 years are living in Croatia, with a male:female ratio of 0.3 million:0.5 million; this population is expected to increase to 1.0 million by 2030 and 1.1 million by 2050 (male:female ratio [in millions], 0.4:0.6 and 0.5:0.6, respectively). Therefore, the aging of this population shows a highly striking sociodemographic trend (European Commission, 2021).

Ageism was first defined by Butler (1969) and refers to a prejudice against individuals or groups based on their age. Basically *ageism is about discrimination against members* based on their *age*; *however*, *aging anxiety* is *defined* as the *fear* of getting *older*. Several studies indicate an association between increase in anxiety about aging and in the ageism itself (Allan & Johnson, 2008; Boswell, 2012).

The Anxiety about Aging Scale (AAS) by Lasher and Faulkender (1993) is a widely used instrument for assessing fear of aging. The AAS captures four different anxiety aspects of old age: physical, social, psychological, and transpersonal. This questionnaire has 20 items divided into four subscales: fear of older adults, fear of loss, physical appearance, and psychological concerns. Answers are marked on a five-point Likert scale. The score ranges from 20 to 100, with higher scores reflecting higher anxiety levels. This questionnaire demonstrates high internal reliability, with a Cronbach's alpha of 0.82 (Lasher & Faulkender, 1993).

Moreover, Kogan's Attitude toward Old People scale (KAOPS) measures attitudes toward older adults (Kogan, 1961). It consists of 17 positive and negative statements each, and attitudes are expressed on a six-point Likert scale ranging from "completely agree" to "completely disagree". The overall score ranges from 34 to 204, with higher scores representing a more positive attitude.

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A higher total score on the positive scale indicates favorable attitudes toward older people, whereas a higher total score on the negative scale represents an unfavorable attitude (Kogan, 1961). The instrument was validated and psychometrically tested, and the Cronbach's alpha ranges from 0.73–0.83 for the negative subscale and from 0.66 to 0.77 for the positive subscale (Kogan, 1961; Söderhamn et al., 2000), while 0.79 was found for the entire scale (Söderhamn et al., 2000). Its validity and reliability are adequate (Kogan, 1961; Söderhamn et al., 2000). As for the Croatian version of the questionnaire, the internal consistency was 0.720, which is satisfactory (Veronek, 2019).

A quantitative study reported that age discrimination is related to increased anxiety due to aging. The measure of anxiety about aging revealed a moderate but significant positive correlation with applied measures of age discrimination estimated on the attitude scale. In other words, participants who express anxious thoughts and feelings about aging are significantly more likely to endorse beliefs consistent with age discrimination (Barnett & Adams, 2018; Wisdom, 2014).

In some studies, aging anxiety negatively correlates with an individual's ability to empathize and express sympathy with older people (Bergman & Bodner, 2015) but positively correlates with negative attitudes toward older patients (Liu et al., 2015).

Contact with older people is linked with lower anxiety levels. Although fear of death is most different from anxiety about aging, an association with older people correlates with both fear of death and anxiety about aging. Thus, increased contact with older adults may reduce age discrimination and aging anxiety. Educational programs that focus on aging and its related problems can enhance the understanding of individuals about the aging process to improve their attitudes toward older people and their potential interaction with them (Barnett & Adams, 2018).

Aim

This study aimed to test an existing theory of the Anxiety about Aging Scale and determine the relationship between ageism and anxiety about aging in nurses in the Republic of Croatia. We used a confirmatory factor analysis with multiple goodness-of-fit indicators to test the existing theory and evaluate the original four-factor model of the AAS proposed by Lasher and Fauklander. For detecting the relationship between ageism and anxiety about aging, relational ageism was used as a theoretical framework to guide research on how internal (e.g., personal anxiety about aging) and external factors (e.g., job role and work environment) influence nurses' perceptions of older patients.

Methods

Design

A cross-sectional study.

Sample

This cross-sectional study was conducted on nurses from all 21 counties in the Republic of Croatia from March to August of 2022. A total of 798 nurses participated in this study. The exclusion criteria included those nurses who were employed in pediatric and neonatology departments and in educational institutions. All questionnaires that were not completely filled out at the time of submission were excluded from further processing.

Data collection

An online questionnaire was created using the Lime Survey server (LimeSurvey GmbH, n.d.). After being approved by the Ethics Committee of the Croatian Chamber of Nurses, this questionnaire was available on their official website for 6 months (March to August 2022) under the *"Research in Nursing"* menu. Before accessing the link on the same page, a short description of the topic and aim of the research was available. After opening the link and before opening the first group of questions, instructions on how to fill it in and the contact details of the responsible person were provided. Participation was completely anonymous and voluntary, and respondents could withdraw at any time. Filling in the questionnaire may take approximately 15–20 minutes, and the program automatically guided respondents by a group of questions. Response rate was 62.8%. The first group of questions was related to sociodemographic characteristics (e.g., age, sex, living with older adults, education degree, number of years of work experience, department of work, and county of work); the remaining questions pertain to the AAS and KAOPS. AAS consist of 20 items. Each of the five items following for dimensions (1) Fear of older adults measures external contact with other (example of a question: *"I enjoy being around old people."*); (2) Psychological concern follow more personal issues (example of a question: *"I expect to feel good about life when I am old."*); (3) Fear of loss present fear of loss support and autonomy (example of a question: *"I worry that people will ignore me when I am old."*);

(4) Physical appearance refers to anxiety according to physical changes (example of a question: *"When I look in the mirror, it bothers me to see how my looks have changed with age."*). Responses were measured on a 5-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). A higher score indicates a higher level of aging anxiety. KAOPS consists of 34 items grouped into 17 positive and 17 negative items toward older people. Positive and negative items refer to the same questions with the opposite wording (example of positive questions: *"Most of the old people need more love and reassurance as other people."* versus example of negative questions: *"Most of the old people need as much love and reassurance as other people."*).

Responses were measured on a 6-point Likert scale ranging from 1 ("completely disagree") to 6 ("completely agree"). The possible score was between 34 and 238. Higher total scores indicated a more positive attitude.

First stage

The first stage was AAS scale translation. The translation process was based on international guidelines for translating questionnaires (Tsang et al., 2017). The goal of the translation was to achieve a clear and comprehensible Croatian language version of the original AAS scale.

The standard process began with a detailed review of the AAS scales by two geriatric care experts who are familiar with the terminologies related to the topic and possess professional knowledge related to the content. During the translation, we strove for the conceptual identity of words or phrases and the most relevant translation, rather than a word-for-word (literal) translation. Next, we compared the translated and original versions, aiming to identify and resolve any inadequate terms / concepts and inconsistencies between them. Alternatives were suggested for some words or phrases. We carefully inspected individual items / questions to ensure that all relevant outcomes (items) were included in each question. Then, a bilingual expert translated the scale back into English (back translation).

Before testing the questionnaire on the intended respondents, the items of the questionnaire should be tested on a small sample (Perneger et al., 2015). Therefore, we conducted a pilot study (n = 30), where all AAS scale items were scored in terms of difficulties in formulation, interpretation of words and sentences, sentence length, AAS construction, AAS length, and instructions for answering.

Second stage

After the stage of translation and adaptation and after reaching a consensus on the validity of the content of the revised instrument, we included the scale in the final form of the questionnaire and then distributed among nurses in the entire Republic of Croatia.

Data analysis

Data were analyzed using SPSS Statistics for Windows, version 26.0 (SPSS Inc., Chicago, IL., USA), using descriptive statistics (frequency, percentage) and inferential statistics (Spearman's correlation test for examining the relationship between attitudes about aging and aging anxiety; independent *t*-test; and one-way analysis of variance for examining the relationship between demographic variables, attitudes, and aging anxiety). A 5% error level was considered statistically significant. Confirmatory factor analysis analyzed in JASP Team (Version 0.17.3).

Results

Confirmatory factor analysis

The results of confirmatory factor analysis in Table 1 showed that the four-factor structure model fits well with the data ($\chi 2 = 2131.090$, df = 164, $p < 0.001$).

The agreement indicators of the analyzed factor model with the measured data are shown in Table 2. Table 2 shows that the structure of the factor loadings is the same as the original. All factor loadings are significant and ranged from 0.021 (item 8) to 0.907 (item 17). The factor model describes the data well in terms of all agreement indicators and can be interpreted as follows:

- First factor: fear of the older adults included particles: 1, 3, 10, 13, 19.
- Second factor: psychological concern included particles: 5, 7, 11, 16, 18.
- Third factor: physical appearance factor included particles 4, 9, 12, 15, 20.
- Fourth factor: fear of loss included particles 2, 6, 8, 14, 17.

As with the original scale, our analysis follows these factors. As a result, the theoretical structure of the questionnaire is confirmed because each factor is saturated with an equal number of indicators. The structure of the factor loading is the same as the original (Table 2).

Table 1 Chi-square test

Model	χ^2	df	p
Baseline model	18 396.573	190	
Factor model	2131.090	164	< 0.001

**Significant at the p < 0.05 level*

Table 2 Factor loading

Factor	Indicator	Symbol	Estimate	Standard error	z-value	p	95% Confidence Interval Lower	95% Confidence Interval Upper
Factor 1	i1	λ11	0.701	0.016	44.697	< 0.001	0.671	0.732
	i3	λ12	0.573	0.017	33.842	< 0.001	0.540	0.607
	i10	λ13	0.811	0.016	50.645	< 0.001	0.779	0.842
	i13	λ14	0.785	0.016	49.538	< 0.001	0.754	0.816
	i19	λ15	0.682	0.018	38.601	< 0.001	0.648	0.717
Factor 2	i5	λ21	0.542	0.016	33.089	< 0.001	0.510	0.574
	i7	λ22	0.536	0.016	33.683	< 0.001	0.505	0.567
	i11	λ23	0.720	0.016	44.045	< 0.001	0.688	0.752
	i16	λ24	0.615	0.016	39.677	< 0.001	0.585	0.645
	i18	λ25	0.693	0.016	43.304	< 0.001	0.662	0.725
Factor 3	i4	λ31	0.308	0.019	16.107	< 0.001	0.270	0.345
	i9	λ32	0.693	0.017	40.965	< 0.001	0.659	0.726
	i12	λ33	0.721	0.016	43.729	< 0.001	0.689	0.754
	i15	λ34	0.755	0.017	45.484	< 0.001	0.723	0.788
	i20	λ35	0.506	0.017	30.187	< 0.001	0.473	0.539
Factor 4	i2	λ41	0.511	0.020	25.349	< 0.001	0.471	0.550
	i6	λ42	0.526	0.020	26.588	< 0.001	0.487	0.565
	i8	λ43	0.059	0.019	3.061	0.002	0.021	0.097
	i14	λ44	0.544	0.019	28.381	< 0.001	0.507	0.582
	i17	λ45	0.861	0.024	36.160	< 0.001	0.814	0.907

**Significant at the p < 0.05 level*

Sociodemographic characteristics

The study included a total of 1273 nurses of whom 798 filled the questionnaire. Most of the participants were female (87.3%) in the age group of 29 years and were registered nurses (62%) with an average work experience of 0–5 years. In addition, 72.1% of the participants had not experienced living with older adults. As expected, most nurses came from Zagreb City (47.9%), given the size of the population in this capital city and the largest distribution of healthcare institutions. Conversely, the least number of participants came from Istria County (0.3%) (Table 3).

Correlations between ageism and anxiety about aging

KAOPS, physical appearance, psychological concerns, and fear of losses were significant ($p < 0.05$); notably, age showed a statistically significant difference, with the value of the ranks being the lowest for respondents who were up to 29 years old (Table 4). Therefore, the youngest participants may have a more negative attitude toward older adults, mainly attributed to factors, such as changes in physical appearance, fear of loss, and psychological concerns. Psychological concerns and physical appearance also showed significance ($p < 0.05$). With a confidence level of 95%, the number of years of work experience demonstrated a statistically significant difference; the value of the ranks was the lowest for participants who had 0–5 years of work experience. Among these participants, the most pronounced factors were fear of physical changes and psychological worries, and the lowest level of knowledge about aging.

The value for fear of older adults was also significant ($p < 0.05$). Here sex showed a statistically significant difference, with the value of the ranks being higher for females. Hence, fear of older adults was lower among females. With significant values for KAOPS, physical appearance, psychological concerns, and fear of losses ($p < 0.05$), a statistically significant difference was observed in the participants' educational degree; the value of the ranks was the lowest for registered nurses. Moreover, no statistically significant difference was observed with regard to sex, work department, and living with older adults. Of the observed variables showed positive correlations (Table 5). The highest positive correlations were recorded between the indicators of psychological concerns

and physical appearance ($r = 0.470$; $p < 0.01$). Thus, as the answer for physical appearance increased, the value of the answer for psychological concerns also increased. The correlation between KAOPS and fear of older adults is $r = 0.409$ ($p < 0.01$), indicating that nurses' attitudes change with fear of older adults. In both cases, the correlations were of weak-to-medium intensity.

Table 3 Sociodemographic characteristics of the study participants

Characteristic		n	%
Age, years	≤ 29	411	51.5%
	30–45	288	36.1%
	≥ 46	99	12.4%
	total	798	100.0%
Sex	female	697	87.3%
	male	101	12.7%
	total	798	100%
Counties and Zagreb City	Zagreb County	53	6.6%
	Krapina-Zagorje County	24	3.0%
	Sisak-Moslavina County	29	3.6%
	Karlovac County	6	0.8%
	Varaždin County	13	1.6%
	Koprivnica-Križevci County	6	0.8%
	Bjelovar-Bilogora County	6	0.8%
	Primorje-Gorski Kotar County	14	1.8%
	Lik-Senj County	9	1.1%
	Virovitica-Podravina County	4	0.5%
	Požega-Slavonia County	9	1.1%
	Brod-Posavina County	12	1.5%
	Zadar County	25	3.1%
	Osijek-Baranja County	13	1.6%
	Šibenik-Knin County	15	1.9%
	Vukovar-Srijem County	22	2.8%
	Split-Dalmatia County	26	3.3%
	Istra County	3	0.4%
	Dubrovnik-Neretva County	8	1.0%
	Međimurje County	119	14.9%
	Zagreb City	389	47.9%
	total	798	100.0%
Educational degree	RN	495	62.0%
	BSN	212	26.6%
	MSN	90	11.3%
	PhD	1	0.1%
	total	798	100.0%
Work department	anesthesiology	71	8.9%
	internal department	151	18.9%
	surgery	169	21.2%
	neurology	30	3.8%
	psychiatry	53	6.6%
	ophthalmology	8	1.0%
	dermato-venerology	5	0.6%
	others	311	39.0%
	total	798	100.0%
Years of work experience	0–5	330	41.5%
	6–20	291	36.6%
	≥ 21	175	22.0%
	total	796	100.0%
Living with older adults (> 65 years old)	yes	223	27.9%
	no	575	72.1%
	total	798	100.0%

BSN – Bachelor of Science in Nursing; MSN – Master of Science in Nursing; RN – registered nurse; PhD – Doctor of Philosophy in Nursing

Table 4 Test statistics

	KAOPS	Fear of olders	Psychological concern	Physical appearance	Fear of loss
Age					
Kruskal–Wallis *H*	7.138	1.216	24.907	12.956	3.128
df	2	2	2	2	2
Asymp. Sig.	0.028	0.544	0.000	0.002	0.209
Years of work experience					
Kruskal–Wallis *H*	2.028	3.390	18.241	17.426	5.912
df	2	2	2	2	2
Asymp. Sig.	0.363	0.184	0.000	0.000	0.052
Sex					
Kruskal–Wallis *H*	34235.000	29938.000	33221.500	33930.000	34206.000
df	39386.000	35089.000	276474.500	277183.000	277459.000
Asymp. Sig.	- 0.445	- 2.447	- 0.919	- 0.588	- 0.461
Educational degree					
Kruskal–Wallis *H*	17.595	4.826	46,483	9,016	9.514
df	3	3	3	3	3
Asymp. Sig.	0.001	0.185	0.000	0.029	0.023
Work department					
Kruskal–Wallis *H*	2.082	10.267	4.766	9.145	5.503
df	7	7	7	7	7
Asymp. Sig.	0.955	0.174	0.689	0.242	0.599
Livinf with older adults					
Mann–Whitney *U*	64085.000	59398.000	63621.500	60359.500	62254.000
Wilcoxon W	89061.000	224998.000	88597.500	225959.500	87230.000
Z	- 0.009	- 1.625	- 0.169	- 1.290	- 0.639
Asymp. Sig. (two-tailed)	0.992	0.104	0.866	0.197	0.523

*Asymp. Sig., KAOPS – Kogan's Attitude toward Old People scale; *significant at the p < 0.05 level*

Table 5 Spearman's correlation coefficient

		KAOPS	Fear of older adults	Psychological concern	Physical appearance	Fear of loss
KAOPS	r	1.000	0.409**	0.234**	0.120**	0.063
	p		0.000	0.000	0.001	0.074
	n	798	798	798	798	798
Fear of older adults	r	0.409**	1.000	0.302**	0.182**	−0.090*
	p	0.000		0.000	0.000	0.011
	n	798	798	798	798	798
Psychological	r	0.234**	0.302**	1.000	0.470**	0.359**
concern	p	0.000	0.000		0.000	0.000
	n	798	798	798	798	798
Physical appearance	r	0.120**	0.182**	0.470**	1.000	0.323**
	p	0.001	0.000	0.000		0.000
	n	798	798	798	798	798
Fear of loss	r	0.063	−0.090*	0.359**	0.323**	1.000
	p	0.074	0.011	0.000	0.000	0
	n	798	798	798	798	798

***Correlation is significant at 0.01 level (two-tailed); *Correlation is significant at 0.05 level (two-tailed); KAOPS – Kogan's Attitude toward Old People scale.*

Discussion

This study can be divided into two parts: 1) the validation, translation, and adaptation of the AAS and 2) the assessment of the attitude toward older adults and of personal anxiety among nurses.

The aim of this study was to obtain data on the structure and factorial invariance of the Anxiety about Aging Scale proposed by Lasher and Faulkender (1993) in a sample of Croatian nurses. AAS validity and reliability has been established by its original authors and other previous studies, but there has been lacking proper validation of AAS in population of nurses in Croatia. The analyses carried out demonstrated that the AAS has a four-factor structure: Fear of older adults with 5

items; Psychological concern with 5 items; Physical appearance with 5 items; Fear of loss with 5 items. Confirmatory factor analysis (CFA) confirmed a valid and viable structure for the Scale of Anxiety about Aging applied to Croatian nurses. The findings were similar to those achieved in the original scale (Lasher & Faulkender, 1993), and in several studies that have used the same instrument (Fernández-Jiménez et al., 2020; Koukouli et al., 2014).

The connection between the participants' personal anxiety about aging and attitudes toward older adults was our starting point for conducting this study. We also tested the ageism of nurses toward older patients, using several sociodemographic variables. This research sought to investigate whether personal anxiety about aging influences the development of negative attitudes toward older adults. Nurses are an underresearched population, especially in terms of ageism and their anxiety toward aging. The use of anxiety about aging as a predictor rather than as an outcome variable is an innovative development from this study. Other variables of interest, such as sociodemographic characteristics and profession, are also understudied in healthcare research, but they may yield promising results as predictive variables.

In consistence with several other studies (Allan et al., 2014; Boswell, 2012; Harris & Dollinger, 2001), anxiety about aging was linked with higher levels of ageist attitudes, thereby supporting the fear management theory, that is, greater anxiety about one's aging leads to the development of a more negative attitude toward older adults. Aging anxiety fully mediated the relationships between personal anxiety and attitudes toward older adults, and partially between other predictor variables (number of years of work experience, and sex). This finding coincides with that of Allan and Johnson (2008), who reported that anxiety about aging mediated the relationship between knowledge about aging and ageism, and between contact with older adults in the workplace and age. Conversely, our study does not support the intergroup contact theory, which suggests that contact with older members of a group can improve the attitude toward older adults, as proven by some foreign studies (Schwartz & Simmons, 2001). Although our study did not prove a connection between anxiety toward aging and living with older adults in the same household, some studies described how participants living with one or more older adults showed a higher level of anxiety about aging (Allan & Johnson, 2008). Anxiety about aging plays a significant role in forming negative attitudes toward older people (Bryant et al., 2016; Cooney et al., 2021). Younger age and fewer years of work experience increase anxiety, which mediates age discrimination. According to findings of this study, one way to reduce aging anxiety is acquiring additional education in gerontology and geriatric care for nurses and additional exposure to geriatric wards. Although increasing knowledge about aging can be relatively simple in educational settings, applying it in other settings, such as directly in departments, can be difficult. The solution is additional informal seminars and periodic lectures, especially for newly employed nurses. As in the research of Koukouli et al., our research confirms that the level of education affects fear of aging. Highly educated nurses have less fear of stress and have a more positive attitude toward older adults (Koukouli et al., 2014). Abdollahi et al. have proven that higher education level and knowledge of old age is associated with lower anxiety, consistent with our conclusion (Abdollahi et al., 2021).

Limitation of study

First, only one scale was used to measure the attitude cross-sectionally. Second, any differences in sex cannot be directly inferred from this study, because male participants are insufficient. The participants' sample was based on non-probability sampling. Future research should combine both qualitative and quantitative techniques with more male respondents. Furthermore, the respondents were collected electronically, thereby easier for them to withdraw and beyond the control of the author; unlike when they answered in person, they can be collected and coordinated live. This research also has methodological flaws that do not allow conclusions to be drawn, particularly the cause-and-effect relationship between certain domains of anxiety about aging, and ageism. Although all information about the study, participant rights, and contact information of the researcher were listed on the first page of the survey, explaining the study further or obtaining verbal consent from the participants was not possible. This was one of the ethical aspects that we faced during the study. Many commercial online survey hosting sites automatically collect Internet Protocol (IP) addresses and even geolocation data, which can threaten the anonymity and privacy of respondents. Therefore, before saving the data file to the computer, we made sure to strip IP addresses from the dataset so that respondents' privacy would not be compromised.

On the other hand, using a large sample size was a strength of this study.

Conclusion

Given that AAS was not yet tested on a population of nurses, this study provided empirical support for the factorial division of the Croatian version of this scale and confirmed its theoretical structure via a confirmatory factor analysis. The AAS demonstrated an acceptable model fit, results of CFA supported the four-factor model acceptable model fit indices and high factor loading, and AAS measures four distinct factors, which is a valid and reliable questionnaire to measure anxiety towards aging among Croatian nurses. The mean score of anxiety regarding aging showed a statistically significant difference from variables such as age, number of years of work experience, and educational degree, but none from sex, work department, and living with older adults. There are no statistical results support the mediating role of aging anxiety in this particular study as it was demonstrated in other studies.

Ethical aspects and conflict of interest

The Ethics Committee of the University of Applied Health Sciences Zagreb approved our pilot study. The Croatian Chamber of Nurses requested and received consent for collecting answers from nurses in the Republic of Croatia registered in the Chamber's register.

The study was approved by the Ethics committee of the Croatian Chamber of Nurses (code: 696-1-09-22-02), and University of Applied Health Sciences (code: 251-379-10-22-02). Participants were informed about the aim of the research. Authors declare no conflict of interest.

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Author contributions

Conception and design (AMH), data collection (AMH) data analysis and interpretation (AMH), manuscript draft (AMH), critical revision of the manuscript (JG), final approval of the manuscript (JG, AMH).

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