Comparative knowledge of aging between geriatric and general nurses: a cross-sectional study in Croatia

Porównanie wiedzy na temat starzenia się wśród pielęgniarek geriatrycznych i opieki ogólnej: badanie przekrojowe w Chorwacji

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STRESZCZENIE

PORÓWNANIE WIEDZY NA TEMAT STARZENIA SIĘ WŚRÓD PIELĘGNIAREK GERIATRYCZNYCH I OPIEKI OGÓLNEJ: BADANIE PRZEKROJOWE W CHORWACJI

Wprowadzenie. Dokładna wiedza na temat starzenia się jest niezbędna dla pielęgniarek, aby mogły zapewnić kompetentną opiekę osobom starszym. Jednak różnice w tej wiedzy między pielęgniarkami geriatrycznymi i opieki ogólnej pozostają niedostatecznie zbadane w Europie Środkowej i Wschodniej.

Cel pracy. Porównanie wiedzy na temat starzenia się między pielęgniarkami geriatrycznymi i opieki ogólnej w Chorwacji przy użyciu quizu Palmore's Facts on Aging Quiz.

Materiał i metody. Przeprowadzono badanie przekrojowe z udziałem 1048 pielęgniarek z całej Chorwacji. W badaniu wzięło udział 250 pielęgniarek geriatrycznych i 798 pielęgniarek opieki ogólnej. Rozpowszechniono ankietę internetową zawierającą quiz Palmore'a dotyczący faktów na temat starzenia się. Do analizy wykorzystano statystykę opisową i testy chi-kwadrat.

Wyniki. Większość pytań quizu nie wykazała statystycznie istotnych różnic. Jednak pielęgniarki opieki ogólnej znacznie rzadziej zgadzały się ze stwierdzeniem, że „około 80% osób starszych twierdzi, że jest wystarczająco zdrowych, aby wykonywać normalne czynności" ($\chi^2 = 6{,}847$, $p = 0{,}009$).

Wnioski. Obie grupy pielęgniarek wykazują braki w wiedzy dotyczącej starzenia się. Pielęgniarki geriatryczne wykazują nieco lepszą świadomość samopoczucia zdrowotnego osób starszych. We wszystkich dziedzinach pielęgniarstwa należy wdrożyć dostosowane do potrzeb kształcenie gerontologiczne.

Słowa kluczowe: wiedza, pielęgniarki, starzenie się, gerontologia, quiz Palmore'a

ABSTRACT

COMPARATIVE KNOWLEDGE OF AGING BETWEEN GERIATRIC AND GENERAL NURSES: A CROSS-SECTIONAL STUDY IN CROATIA

Introduction. Accurate knowledge of aging is essential for nurses to provide competent care to older adults. However, differences in this knowledge between geriatric and non-geriatric nurses remain underexplored in Central and Eastern Europe.

Aim. To compare the knowledge about aging between geriatric and general nurses in Croatia using Palmore's Facts on Aging Quiz.

Material and methods. A cross-sectional study was conducted with 1,048 nurses across Croatia. Participants included 250 geriatric and 798 general nurses. An online survey, including Palmore's Facts on Aging Quiz, was distributed. Descriptive statistics and chi-square tests were used for the analysis.

Results. Most of the quiz questions revealed no statistically significant differences. However, general nurses were significantly less likely to correctly agree that "about 80% of older adults report being healthy enough to carry out normal activities" ($\chi^2 = 6.847$, $p = 0.009$).

Conclusions. Both groups of nurses exhibit knowledge gaps related to aging. Geriatric nurses demonstrate slightly better awareness of self-reported health among older adults. Tailored gerontological education should be implemented across all nursing domains.

Key words: knowledge, nurses, aging, gerontology, Palmore's Quiz

INTRODUCTION

Aging is a process that brings numerous physiological, psychological, and social changes, and understanding this process is a key aspect of providing quality healthcare to the older adult's population. Given the increasing number of older individuals in the population, special attention must be paid to the education of nurses about the specifics of aging [1]. While all nurses have basic knowledge about aging, the question often arises as to how much geriatric nurses are advantaged compared to those who do not work directly in geriatric care.

Differences in knowledge between geriatric and non-geriatric nurses can significantly impact on the quality of care provided to older adult's patients. Geriatric nurses are trained to recognize and respond to the specific needs of older adults, whereas their colleagues working in other areas of healthcare may not possess the same levels of specific knowledge and skills [2]. Understanding the differences in knowledge and approach between these two groups of nurses can help shape educational programs and improve geriatric care on a global level [3].

Several international studies have similarly highlighted the importance of gerontological nursing competencies and the role of specialised education in improving care for older adults [4-6].

Given all the above, the aim of this research is to compare the knowledge about aging between geriatric and non-geriatric nurses to identify potential differences and improve educational programs that will enable better care for older adults.

Specifically, the study was guided by the following research questions:
1. Are there significant differences in knowledge about aging between geriatric and non-geriatric nurses?
2. Which specific domains of aging knowledge show the largest gaps between the two groups?
3. What implications do this knowledge differences have for nursing education and practice?

By applying the established knowledge assessment tool and adhering to ethical research practices, this study aimed to provide valuable insights into the current state of knowledge about aging among nurses in Croatia.

This study contributes to the growing body of international research on aging by providing the first comparative analysis of knowledge about aging among geriatric and non-geriatric nurses in Croatia. By identifying knowledge gaps and dispelling common misconceptions, the findings can inform the development of targeted educational programs and policy initiatives aimed at enhancing geriatric care nationwide.

METHODS

The research was conducted through an online survey to assess the knowledge of geriatric and non-geriatric nurses about aging. The Palmore's Facts on Aging Quiz was utilised as the instrument to measure the nurses' knowledge levels. This quiz is a widely recognised tool designed to evaluate knowledge and misconceptions about aging.

A total of 1048 nurses participated in the study, comprising 798 non-geriatric nurses and 250 geriatric nurses. The sample included nurses from various healthcare settings across Croatia.

Prior to the commencement of the study, ethical approval was obtained from the Croatian Chamber of Nurses. This ensured that the research adhered to ethical standards and protected the rights and confidentiality of all participants.

The survey was distributed electronically, and participants were provided with detailed instructions and informed consent forms. They were assured that their participation was voluntary and that their responses would remain anonymous. Data collection was carried out over a period of six months (January-June 2022).

■ Tab. 1. Sociodemographic characteristics of the study participants

Characteristics		Non-geriatric nurses		Geriatric nurses	
		N	%	N	%
Age	29<	411	51.5%	93	37.2%
	30-45	288	36.1%	91	36.4%
	46>	99	12.4%	66	26.4%
	In Total	798	100.0%	250	100.0%
Gender	Female	697	87.3%	220	88.0%
	Male	101	12.7%	30	12.0%
	In Total	798	100.0%	250	100.0%
Education degree	RN	495	62.0%	175	70.0%
	BSN	212	26.6%	55	22.0%
	MSN	90	11.3%	20	8.0%
	PhD	1	0.1%	0	0.0%
	In Total	798	100.0%	250	100.0%
Work department	Nursing homes	0	0.0%	180	72.0%
	Long-term care department	0	0.0%	56	22.4%
	Psychogeriatrics	0	0.0%	14	5.6%
	Total	0	0.0%	250	100.0%
	Anesthesiology	71	8.9%	0	0.0%
	Internal department	151	18.9%	0	0.0%
	Surgery	169	21.2%	0	0.0%
	Neurology	30	3.8%	0	0.0%
	Psychiatry	53	6.6%	0	0.0%
	Ophthalmology	8	1.0%	0	0.0%
	Dermato-venerology	5	0.6%	0	0.0%
	Other	311	39.0%	0	0.0%
	In total	798	100.0%	0	0.0%
Work experience	0-5	330	41.5%	75	30.0%
	6-20	291	36.6%	86	34.4%
	21>	175	22.0%	89	35.6%
	In Total	796	100.0%	250	100.0%
Living with older adults (65>)	Yes	223	27.9%	83	33.2%
	No	575	72.1%	167	66.8%
	In Total	798	100.0%	250	100.0%

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

■ Tab. 2. Chi-square analysis of responses to the Palmore's quiz on aging perceptions

FACTS	DISTRIBUTION CHARACTERISTICS	MEAN
The majority (more than half) of older adults (at the age of 65 or older) are senile (i.e., defective memory, disoriented, or demented, etc.	Chi-square	.920
	df	1
	Sig.	.337
All five senses tend to decline in old age.	Chi-square	.446
	df	1
	Sig.	.504
The majority (more than half) of older adults (age 65 or older) have no capacity for sexual relations.	Chi-square	1.268
	df	1
	Sig.	.260
Lung capacity tends to decline in old age.	Chi-square	.002
	df	1
	Sig.	.966
The majority of older adults (at the age of 65 or older) say they feel miserable most of the time.	Chi-square	.058
	df	1
	Sig.	.809
Physical strength tends to decline in old age.	Chi-square	2.359
	df	1
	Sig.	.125
At least 10% of the aged (at the age of 65 or older) are living in long-stay institutions (i.e., nursing homes, mental hospitals, homes for the aged, etc.).	Chi-square	.525
	df	1
	Sig.	.469
Aged drivers (at the age of 65 or older) have fewer accidents per driver than drivers under the age of 65.	Chi-square	1.036
	df	1
	Sig.	.309
The majority of older workers cannot work as effectively as younger workers.	Chi-square	.040
	df	1
	Sig.	.841
About 80% of the aged (at the age of 65 or older) say they are healthy enough to carry out their normal activities.	Chi-square	6.847
	df	1
	Sig.	.009*
The majority of older adults are unable to adapt to change.	Chi-square	2.195
	df	1
	Sig.	.138
Older adults usually take longer than young people to learn something new.	Chi-square	1.841
	df	1
	Sig.	.175
It is almost impossible for the majority of older adults to learn new things.	Chi-square	.264
	df	1
	Sig.	.608
The reaction time of the majority of older adults tends to be slower than the reaction time of younger people.	Chi-square	.953
	df	1
	Sig.	.329
In general, the majority of older adults tend to be pretty much alike.	Chi-square	.866
	df	1
	Sig.	.352
The majority of older adults (at the age of 65 or older) say they are seldom bored.	Chi-square	.785
	df	1
	Sig.	.376

■ cont. Tab. 2. Chi-square analysis of responses to the Palmore's quiz on aging perceptions

FACTS	DISTRIBUTION CHARACTERISTICS	MEAN
The majority of older adults (at the age of 65 or older) say they are lonely.	Chi-square	.845
	df	1
	Sig.	.358
Older workers have fewer accidents than younger workers.	Chi-square	.123
	df	1
	Sig.	.726
Over 20% of the population are now at the age of 65 or over this age	Chi-square	.002
	df	1
	Sig.	.964
The majority of medical practitioners give low priority to the aged.	Chi-square	1.943
	df	1
	Sig.	.163
The majority of older people (at the age of 65 or older) have incomes below the poverty level	Chi-square	.181
	df	1
	Sig.	.671
The majority of older adults (at the age of 65 or older) are working or would like to have some kind of work to do (including housework or volunteer work).	Chi-square	3.332
	df	1
	Sig.	.068
Older people tend to become more religious as they age.	Chi-square	.051
	df	1
	Sig.	.821
The majority of older people (at the age of 65 or older) say they are seldom angry.	Chi-square	.616
	df	1
	Sig.	.432
The health and socioeconomic status of older people (compared to younger people) in the year 2022 will probably be about the same as now.	Chi-square	2.347
	df	1
	Sig.	.125

Upon completion of the survey, the collected data were analysed to compare the knowledge levels between geriatric and non-geriatric nurses. Statistical methods, including descriptive statistics and inferential analysis, were employed to identify any significant differences between the two groups.

Data were analysed using SPSS version 26.0. Descriptive statistics, including mean, median, standard deviation, and frequency distributions, were calculated to summarise the data for both groups. The Shapiro-Wilk test was applied to assess the normality of the data distribution. Categorical variables were analysed using the chi-square test. The chi-square test was applied to determine whether the observed frequencies differed significantly from the expected frequencies. The degrees of freedom for each test were 1, reflecting the comparison between two categorical responses (e.g., true/false).

Tab. 1 presents sociodemographic data comparing two groups of nurses: non-geriatric nurses and geriatric nurses, along with the overall totals. Most non-geriatric nurses are under 29 years old (51.5%), while geriatric nurses are more evenly distributed, with a notable 26.4% over 46 years old. Most nurses in both groups are female (88%). The largest percentage of both groups have a secondary education, with 62% of non-geriatric nurses and

70% of geriatric nurses. Geriatric nurses are exclusively employed in older adult's care settings, with 72% in nursing homes, whereas non geriatric nurses are employed across various hospital departments. Non geriatric nurses mostly have 0-5 years of experience (41.5%), while geriatric nurses have a higher proportion with over 21 years of experience (35.6%). A higher percentage of geriatric nurses (33.2%) live with someone over the age of 65 compared to non-geriatric nurses (27.9%).

Tab. 2 presents the results of a series of chi-square tests conducted to examine various statements regarding perceptions and realities about older adults (at the age of 65 or older). The statement „About 80% of the elderly (at the age of 65 or older) say they are healthy enough to carry out their normal activities" is the only one with a p-value less than 0.05 (Sig. = 0.009), indicating that the observed distribution is significantly different from what might be expected by chance. For most of the other statements, the p-values are greater than 0.05, indicating that the differences between observed and expected distributions are not statistically significant. These findings indicate that the data does not provide strong evidence to support or refute these claims about older adults.

■ DISCUSSION

The analysis of data derived from Palmore's Facts on Aging Quiz, a widely used tool to assess misconceptions about aging, provides key insights into nurses' perceptions of older adults. The chi-square analysis was employed to examine whether these perceptions are statistically supported by the data collected from respondents. The analysis showed that most common stereotypes about older adults were not statistically supported by the data. Out of all statements in Palmore's Facts on Aging Quiz, only one demonstrated a statistically significant difference between geriatric and non-geriatric nurses: the perception that about 80% of older adults report being healthy enough to carry out their normal activities (χ^2 = 6.847, p = 0.009). For all other items, no significant differences were found between the groups. These empirical findings should be considered in the context of existing literature, which has similarly highlighted the persistence of aging-related misconceptions. In relation to RQ1, the study findings showed that only one statistically significant difference was observed between the two groups, while overall knowledge levels were comparable.

Misconceptions about aging and statistical findings

The chi-square analysis of Palmore's Facts on Aging Quiz revealed that most common stereotypes about older adults are not statistically supported. For instance, the belief that the majority of older adults are senile was not validated by the responses. This aligns with the findings of Whitbourne and Sneed, who emphasised that cognitive decline is often overestimated and that many older adults maintain strong mental functioning [7]. Overall, these results are consistent with previous studies reporting that misconceptions about aging persist across different groups of health professionals and students.

Furthermore, Unwin et al. underscored that misconceptions about aging persist even among trained professionals, suggesting a need to reassess how gerontological content is delivered in education [8]. Similarly, Ghimire et al. found that nursing students in Nepal hold mixed attitudes about aging, which correlated with knowledge gaps and limited clinical exposure [9].

These findings suggest that stereotypes related to senility, loneliness, and inevitable decline are not consistently reflected in real-world data. Instead, individual differences and self-reported wellness highlight the diversity within the older population and call for more evidence-based training in geriatric care. This is consistent with Thornton (2002), who emphasised that many myths about aging are based on ageist stereotypes rather than empirical evidence [10].

Implications for public perceptions and policy

Beyond the statistical results, the findings carry important implications for public perceptions and policy making. The lack of statistical support for many stereotypical beliefs about aging suggests that commonly held views are not evidence-based and may contribute to unnecessary age discrimination and the marginalisation of older adults in various aspects of life, including the workplace, healthcare, and social interactions.

Studies in European countries such, as Poland, also show that younger nursing students tend to view aging more negatively, especially when formal geriatric training is lacking [11]. The statistically significant finding related to older adults' perceptions of their health underscores the importance of promoting positive aging and encouraging policies that support the independence and active engagement of older adults in society. Fernández Ballesteros et al. provide a comprehensive narrative, redefining successful aging as a holistic construct that integrates not just physical health but also wellbeing and active social engagement [12].

Moreover, the data challenges policymakers and health professionals to reconsider their approaches to aging. The stereotypical notion that older adults are frail, cognitively impaired, or sexually inactive does not hold up against empirical scrutiny, as evidenced by the Palmore Quiz results. Therefore, efforts should be made to educate the public and reduce the stigma associated with aging, promoting a more accurate and respectful understanding of the aging process.

These results reinforce the broader call for gerontology curriculum reform. Projects like the Intergeneration Make a Difference initiative have demonstrated that experiential learning improves not only knowledge but leadership in geriatric care also[13].

Implications for geriatric and non geriatric nurses

The results also have direct implications for nursing practice, both in geriatric and non-geriatric settings. For geriatric nurses, who specialise in caring for the older adults, the significant perception that „About 80% of the elderly people (at the age of 65 or older) say they are healthy enough to carry out their normal activities" (χ^2 = 6.847, p = 0.009) which underscores the importance of fostering

a positive and empowering approach to patient care. Regarding RQ2, the most pronounced difference was found in relation to older adults' self-reported health status, suggesting that misconceptions in this domain remain particularly salient. Geriatric nurses must be aware that many older adults perceive good health and capability, and care strategies should focus on enhancing and supporting these perceptions. This approach aligns with the principles of person-centered care, which emphasises respect for the individual's self-reported health and preferences [14].

Conversely, non-geriatric nurses, who may not specialise in geriatric care but encounter elderly patients in various healthcare settings, should be cautious of stereotypes that may affect their interactions and treatment plans. For instance, the lack of support for stereotypes like „Older people usually take longer than young people to learn something new" ($\chi^2 = 1.841$, p = 0.175) suggests that assumptions about cognitive decline should not dictate patient care. Nurses in all specialties should be trained to avoid age-related biases and provide individualised care that acknowledges the diversity and capabilities of older adults.

Addressing ageism in nursing practice

Beyond the statistical results, the findings underline the broader need to address ageism in nursing practice and education. In response to RQ3, the findings have several implications for nursing education and practice, as outlined below. The findings also underscore the need for ongoing education and training for both geriatric and non-geriatric nurses to combat ageism and promote a more accurate understanding of aging. The prevalence of non-significant results in stereotypes about physical and cognitive decline (e.g., lung capacity decline: $\chi^2 = 0.002$, p = 0.966; physical strength decline: $\chi^2 = 2.359$, p = 0.125) suggests that outdated perceptions should not influence clinical practices. Education programs should emphasise evidence-based approaches and encourage nurses to rely on current research rather than stereotypes.

Moreover, the significant result related to older adults' self-reported health highlights the potential for positive aging experiences. It is crucial for nurses to support older adults' self-perceptions of health and capability, as these perceptions can significantly impact their quality of life and overall well-being. Emphasising a strengths-based approach can improve care outcomes and foster more positive interactions between healthcare professionals and older adults. Recent evidence also shows that person-centered care practice and patient safety competencies are crucial for improving outcomes in geriatric hospitals [15]. Numerous studies confirm the validity and international use of Palmore's Facts on Aging Quizzes (FAQ1 and FAQ2) in assessing aging-related knowledge among health professionals (16,17). High scores on these tools have been linked to more positive attitudes toward aging and increased willingness to work with older people [16].

These findings support the argument for integrating structured gerontology education into nursing curricula. Such education not only increases factual knowledge but also helps to dispel persistent misconceptions, ultimately improving the quality of care provided to older adults. The Facts on Aging Quizzes I & II have been validated and used in numerous educational contexts as reliable tools for identifying knowledge gaps and attitudinal barriers among health professionals [17]. Updating and integrating such tools into nursing curricula could improve geriatric competencies and promote age-inclusive care environments.

While only one statistically significant difference was found, the overall pattern of responses underscores the importance of strengthening gerontological education and combating misconceptions to ensure age-inclusive nursing care. These results highlight that even subtle knowledge gaps can have meaningful implications for patient care.

Limitations

This study has several limitations. First, the use of Palmore's Facts on Aging Quiz, while well-established, may not capture the full depth and complexity of knowledge related to geriatric care. Second, the study relies on self-reported knowledge and perceptions, which may be subject to social desirability bias. Third, the sample included a higher proportion of younger nurses in the non-geriatric group, which could have influenced knowledge levels independently of their workplace setting. Finally, the cross-sectional design does not allow for causal inferences; longitudinal studies would provide more insight into how experience and education shape knowledge over time.

■ CONCLUSIONS

In conclusion, the chi-square analysis of the Palmore's Quiz responses reveals that many stereotypes about aging are not supported by empirical evidence, particularly regarding cognitive and physical decline. For geriatric nurses, these findings affirm the importance of person-centered care and support for the self-reported health of older adults. For non-geriatric nurses, the results highlight the need to challenge age-related stereotypes and provide individualised, evidence-based care. Addressing these issues through education and training can enhance nursing practice and improve the quality of care for older adults.

Encouragingly, the significant result regarding older adults' self-reported health highlights the potential for positive aging experiences, which should be a focal point of public health strategies and policies. Future research should continue to explore these themes, with an emphasis on longitudinal studies that can provide deeper insights into the aging process and help shape a society that values and supports its older members.

Future research should explore the effectiveness of targeted geriatric education among non-geriatric nurses and investigate how attitudes and knowledge about aging evolve throughout a nurse's career. Longitudinal and interventional studies could provide deeper insights and inform both educational curricula and policy frameworks aimed at promoting healthy and dignified aging.

Original Papers

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