

THEORETICAL KNOWLEDGE OF PHYSIOTHERAPISTS ABOUT GERONTOLOGY

Marija Mandić, Vedrana Grbavac

Faculty of Health Studies, University of Mostar, 88000 Mostar, Bosnia and Herzegovina

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ABSTRACT

Introduction: Because population aging is a global issue, healthcare practitioners should be educated in gerontology and work with senior patients. People in their third decade encounter new health challenges, which must be addressed adequately.

Objective: To examine the knowledge of physiotherapists about gerontology.

Subjects and methods: The research was conducted in August 2023. A questionnaire on general characteristics and a Knowledge Test questionnaire on aging and old age were used to collect data. The sample of respondents consists of 80 employed physiotherapists from Bosnia and Herzegovina. Data processing was performed using Google Forms and Microsoft Office Excel.

Results: The average respondent correctly answered 70.31 % of the questions. They had almost the same amount of right answers regardless of whether they had difficulty working with elderly patients or were familiar with active aging programs. The majority of physiotherapists (96.30 %) agree that gerontology should be discussed more in education and that a one-day gerontology workshop would improve the quality of their work with elderly patients (90.00 %).

Conclusion: Physiotherapists who participated in the research showed on average, relatively good level of knowledge in the field of gerontology, but there is room for improvement through a workshop in this field, which most respondents agree would improve their work.

Keywords: geriatrics, knowledge, attitude, physical therapists

Correspondence:

Marija Mandić, mag. physioth.

[E-mail: marija.mandic@fzs.sum.ba](mailto:marija.mandic@fzs.sum.ba)

INTRODUCTION

Population aging is a global problem. Healthcare professionals need to be more involved in the care of elderly patients because there are more elderly patients with multiple complex disorders with or without disabilities (1). Aging is a progressive and irreversible pathological process. It is characterized by a decline in tissue and cell function as well as a large rise in the risk of many age-related diseases such as neurodegenerative diseases, cardiovascular diseases, metabolic disorders, musculoskeletal diseases, and immune system diseases (2). Aging is connected to a progressive and widespread decrease in muscular mass and strength. However, there are considerable interindividual differences in muscle mass and strength gained throughout childhood, as well as the rate of decline in muscle mass and strength in maturity and old age. This explains the disparities in residual muscle mass and muscle strength across elderly people (3). Urinary incontinence is regarded as one of the most serious geriatric disorders due to its prevalence. It is a disease that causes psychological changes and significant challenges, mostly in terms of decreased quality of life, sadness, shame, social isolation, and physical issues such as incontinence-related dermatitis and urinary

tract infections. In addition, it threatens the autonomy of the affected person, with a greater need for institutionalization, maintenance of caregivers at home, and longer hospital stays (4).

It is critical to prevent rising handicaps in later life, and this begins far earlier than care for the elderly. Geriatrics is concerned with keeping the ever-increasing number of elderly individuals as autonomous as feasible (5). The final stage of people's lives in aging societies is dramatically altering, affecting standard care provisions in geriatric medicine and palliative care. Both professions must work closely together, and geriatric palliative care should be thought of as an interdisciplinary field of care based on the synergy of ethics and these two cares (6). Communication is a crucial aspect of palliative care, with the goals of reducing ambiguity, improving relationships, and providing guidance to the patient and his family (7). As we face an aging society, identifying solutions to deal with the issues of aging is a vital endeavor. External factors such as nutrition, exercise, and pharmacological therapy are critical in controlling healthy aging and extending life (8).

In light of the current development of lifelong learning, the area of gerontology, or the education of older people, is gaining prominence and steadily increasing as a

specialized academic field. As such, it demonstrates the significance of active caring in modern European society (9). The World Health Organization has identified its key goals as supporting the planning and implementation of elderly activity programs, collecting better general data and promoting research on healthy aging, aligning health systems with the needs of older people, laying the foundations, and securing the human resources required for long-term integrated care (10). Physiotherapists must read and compare published scientific studies to perform evidence-based practice, which is the most significant aspect of modern physiotherapy (11). Active exercise therapy aimed at improving mobility and functionality, counseling on the prevention and treatment of falls, pressure ulcers, urinary incontinence, malnutrition and sarcopenia, overweight, physical limitations, intertrigo, chronic wounds, behavioral and psychological symptoms in dementia, physical inactivity, and ergonomic and behavioral training are all examples of physiotherapy for the elderly (12). Aerobic and anaerobic training can help the elderly people maintain or improve their quality of life, as well as their independence. Walking, gardening and yard work, exercising at home, swimming, and cycling are the most common physical activities among the

elderly people. In addition to daily exercise, it is advised to limit sitting time and get enough sleep. Today, various organizations promote physical activity's health and well-being benefits for people of all ages (13). Physiotherapists carry out a variety of activity programs, one of which is a five-day program that comprises daily individual rigorous exercise with the patient of one or a combination of several distinct essential components of functional performance (14). Additional physiotherapy counseling on activity maintenance during hospitalization in elderly bedridden patients has been proven to be a favorable factor that results in an increase in physical activity and prevents loss of mobility (15).

This paper aims to examine the theoretical knowledge of physiotherapists about aging and old age.

SUBJECTS AND METHODS

The target group of this research was physiotherapists. Inclusion criteria included completed appropriate education in physiotherapy, current work status of an employed physiotherapist, work experience of one year, and age limit of at least 20 years. Exclusion criteria in this research were lack of appropriate education, currently unemployed physiotherapists, lack of work experience, and

physiotherapists under 20 years of age. The sample size of 80 subjects was determined using a statistical calculation that takes into account the level of significance, the power of the study, the expected size effect, and the variability of the data. This analysis ensures that the sample is sufficiently representative and able to detect relevant differences or effects with some confidence. The structure of this research is cross-sectional research. It was conducted in August 2023, by surveying physiotherapists online using a form created in Google Forms. A convenience sample was gathered by presenting a link on social networks.

The measuring instruments that were used in this research are the "Questionnaire on the general characteristics of physiotherapists and their attitudes about gerontology", which was specially constructed for this research, and the questionnaire for checking knowledge about aging and old age "Knowledge test about aging and old age" which is a standardized questionnaire from the Education Institute for Public Health "Dr. Andrija Štampar" on whose website it is also available. "Questionnaire on general characteristics of physiotherapists and their attitudes about gerontology" consists of 13 items, of which 10 questions about characteristics such as gender, age, education, and work experience, and 3

questions about attitudes about the importance of gerontology in education, workshops and work with elderly patients. "Knowledge test about aging and old age" consists of 12 tasks, some of which are correct and some incorrect statements. For each item, respondents should mark "Correct" if they think that statement is true or "False" if they think the statement is false.

Statistical analysis

The processing of the data collected through a survey of the target group of physiotherapists was carried out using the Google Forms web application and the Microsoft Office Excel computer program. The obtained data were analysed using descriptive statistic methods and they are shown in tables. For the obtained results, if necessary, the number of respondents (N), the arithmetic mean (AM), the minimum score (MIN), the maximum score (MAX), and the representation expressed in percentages (%) were calculated. Also, the multiple linear regression and Chi-Square (χ^2) Goodness of Fit methods were used to determine significant difference between two variables. The significance level for all tests is $p < 0.05$.

RESULTS

The research included 80 participants, with slightly more women ($N=44$) than men ($N=36$), none of whom are younger than 20 years, 55.00 % of respondents are 20-29 years old ($N=44$), 25.00 % are 30-39 years old ($N=20$), 11.30 % are 40-49 years old ($N=9$), 6.30 % are 50-59 years old ($N=5$),

and 2.50 % are over 60 years old ($N=2$). The total knowledge of physiotherapists about gerontology, i.e. the average number of correct answers on the knowledge test about aging and old age is approximately 8 ($AM=8.44$) out of a total of 12 questions, which is 70.31 % of the entire test (Table 1).

Table 1. Knowledge of physiotherapists about aging and old age

Statements	The correctness of the statement	Number of respondents who answered "True" (%)	Number of respondents who answered "False" (%)	<i>p</i> -value
The number and share of elderly people in the population is rapidly increasing (old people are considered to be over 65 years old), and more women than men live to the age of 85.	True	73 (91.25 %)	7 (8.75 %)	<0.001
The majority of elderly people can independently perform all daily activities.	True	37 (46.25 %)	43 (53.75 %)	0.50
The gerontology center provides non-institutional care to older people in the local community where they live.	True	62 (77.5 %)	18 (22.50 %)	<0.001
Gerontological centers aim to prevent the growing geriatric institutional care and to keep the elderly in the family as long as possible.	True	69 (86.25 %)	11 (13.75 %)	<0.001
Mental abilities regularly decline with age.	False	64 (80.00 %)	16 (20.00 %)	<0.001
Older people should continue with regular physical exercise even in old age.	True	79 (98.75 %)	1 (1.25 %)	<0.001
Most families have abandoned their older members.	False	48 (60.00 %)	32 (40.00 %)	0.07
Extreme cold and heat can be especially dangerous for older people.	True	72 (90.00 %)	8 (10.00 %)	<0.001
If someone smokes for 30-40 years, nothing can be improved by quitting.	False	23 (28.75 %)	57 (71.25 %)	<0.001
In the elderly, there is a decrease in basal metabolism.	True	72 (90.00 %)	8 (10.00 %)	<0.001
Using preventive health measures, it is possible to prevent the occurrence of urinary incontinence in old age.	True	69 (86.25 %)	11 (13.75 %)	<0.001
Elderly people with increasing age should take less medicine, as a rule no more than three medicines a day.	True	37 (46.25 %)	43 (53.75 %)	0.50

Physiotherapists with a high school diploma showed the highest average knowledge in the „Knowledge test about aging and old age“, although there is no significant difference in the average number of correct answers. For the association of education level with an average number of correct answers, *p-values* were calculated using multiple linear regression. The average number of correct answers for physiotherapists with a postgraduate degree is 12, but it was not taken into account

because the number of respondents is 1 and as such cannot form a representative sample. The coefficient of determination is $R^2=0.07$, which means that 7.00 % of the results can be explained by the level of education. The relationship between the number of years of work experience and the average number of correct answers is not significant ($p=0.99$), so regardless of the number of years of work experience, physiotherapists have approximately equal knowledge of gerontology (Table 2).

Table 2. Total knowledge of physiotherapists about aging and old age in relation to general characteristics

	Number of respondents (%)	Share of correct answers	Average number of correct answers (AM)	MIN and MAX number of correct answers	<i>p-value</i>
Sex					
Male	36 (45.00 %)	74.30 %	8.98	4-12	
Female	44 (55.00 %)	67.04 %	8.04	5-11	
Education					
High school	21 (26.30 %)	71.82 %	8.62	4-12	0.58
Undergraduate Studies	17 (21.20 %)	70.10 %	8.41	4-12	0.81
Graduate Studies	33 (41.30 %)	68.94 %	8.27	5-11	0.97
Postgraduate Studies	1 (1.20 %)	100.00 %	12	12	0.03
Higher School	8 (10.00 %)	68.75 %	8.25	6-10	0.73

The frequency of working with elderly patients can be rarely (less than once a month), periodically (once to twice a month), often (once to twice a week), very often (almost daily), and constantly (every

day). Using multiple linear regression, *p-values* were calculated for each category of frequency of work with elderly patients. It was shown that specific categories are statistically significant, i.e. the categories

„rarely“, „periodically“, and „often“ enter the range of significance. The coefficient of determination is $R^2=0.09$, which means that this model explains 9.00 % of the total knowledge about aging and old age. There is no significant difference in the knowledge of physiotherapists about aging and old age, regardless of whether difficulties in working with older patients are present or non-present ($p=0.75$). Knowledge of the active aging program was

confirmed by more than a half of the respondents, but despite this, there is no significant difference in the number of correct answers, which indicates inadequate and superficial knowledge of the program. The relationship between the variable of knowledge of the active aging program and the variable of the average number of correct answers is not significant ($p=0.16$) (Table 3).

Table 3. Total knowledge of physiotherapists about aging and old age in relation to specific characteristics

	Number of respondents (%)	Share of correct answers	Average number of correct answers (AM)	MIN and MAX number of correct answers	<i>p</i> -value
Frequency of work with elderly patients					
Rarely	5 (6.30 %)	58.33 %	7	4-9	0.04
Periodically	21 (26.30 %)	71.85 %	8.62	5-11	0.04
Often	13 (16.30 %)	72.43 %	8.69	7-10	0.05
Very often	29 (36.30 %)	68.10 %	8.17	6-12	0.13
Constantly	12 (15.00 %)	75.69 %	9.08	7-12	0.13
Difficulties in working with elderly patients					
Present	35 (43.80 %)	69.76 %	8.37	6-11	
Non-present	45 (56.30 %)	70.74 %	8.49	4-12	
Familiarity with active aging programs					
Present	48 (60.00 %)	72.05 %	8.64	6-12	
Non-present	32 (40.00 %)	67.71 %	8.12	4-10	

Almost all respondents agree that more attention should be paid to gerontology in education. Only 5.00 % of respondents ($N=4$) attended workshops on gerontology or geriatrics outside of the educational

system, while 51.20 % ($N=41$) attended a subject on gerontology or geriatrics as part of their study. Respondents who consider that their knowledge and skills in gerontology are sufficient for quality work

with elderly patients (71.30 %, $N=57$), had an average of one correct answer more on the „Knowledge test about aging and old age“. The difference is significant ($p=0.014$). The vast majority of respondents (90.00 %, $N=72$) believe that a one-day workshop in the field of gerontology would improve the quality of their work with

elderly patients. For the first question the χ^2 value is 68.45, for the second question the χ^2 value is 14.45, and for the third question the χ^2 value is 51.2, which means that there is a significant difference between respondents who answered „Yes“ and those who answered „No“ (Table 4).

Table 4. Attitudes of physiotherapists regarding education and work with elderly patients

	Number of respondents (%)	<i>p</i> -value
Do you think that gerontology should be talked about more in the framework of education for physiotherapists?		<0.001
Yes		
No	77 (96.30 %) 3 (3.70 %)	
Do you think that your knowledge and skills in gerontology are sufficient for quality work with elderly patients?		<0.001
Yes		
No	57 (71.30 %) 23 (28.70 %)	
Do you think that a one-day workshop in the field of gerontology would improve the quality of your work with elderly patients?		<0.001
Yes		
No	72 (90.00 %) 8 (10.00 %)	

DISCUSSION

According to the conducted research, it is concluded that the physiotherapists who participated in the research have average knowledge of aging and old age but that they could enrich their work with patients of

the third age. An additional workshop could be a good solution to this problem for each level of education.

Hobbs et al. in their study, they examined physiotherapy students at three-time points: at the beginning of their clinical internship, 6 months after the clinical internship, and

immediately at the end of their studies. Initial data at the first time point showed that participants' knowledge was inadequate with an average of 43.60 % correct answers. There was a significant increase in knowledge at the second time point of 3.30 % of correct answers which makes 46.90 % and at the third time point of 8.50 % of correct answers which makes 52.10 % (16). Respondents from our research showed overall knowledge about aging and old age with 70.31 % correct answers, which is more than in Hobbs' research. Although the results of our research show that experiential factors do not have a significant effect on knowledge in gerontology, an increase in knowledge with increasing years of work experience is not excluded because the research was conducted at only one measurement point.

According to Tisaj, the research in which the same „Knowledge test about aging and old age“ was used as in our research, Grammar School students had *MIN*=6 to *MAX*=11 correct answers, and medical high school students had *MIN*=5 to *MAX*=12 correct answers out of a total 12 questions (17). The results of our research showed that respondents with completed high school education for physiotherapists had *MIN*=4 to *MAX*=12 correct answers.

In her research, Mijoč states that the most incorrect answers on the knowledge test

were for the statement „Mental abilities regularly decline with age.“, as many as 78.70 % of high school students answered that this statement is „True“, even though this statement is incorrect. Most, or 59.93 %, of the correct answers, were for the statement „Extreme cold and heat can be especially dangerous for older people.“, which is correct (18). Also, in our research, it was shown that the most, or 80 %, incorrect answers by physiotherapists were for the same statement as in the research conducted in Mijoč's research. Most of the correct answers, more precisely 98.75 %, were for the statement „Older people should continue with regular physical exercise even in old age.“.

By including a comprehensive program of active aging in homes for the elderly and infirm people, which includes actions aimed at promoting empowerment, participation, and social openness, it brings many benefits to the elderly (19). As many as 40.00 % of physiotherapists who participated in our research are not familiar with active aging programs.

Physiotherapy in programs for the elderly has great potential for delaying and slowing down the development of chronic diseases that lead to disability. Undergraduate studies, as well as postgraduate studies, should have an appropriate and relevant curriculum that also includes gerontology

(20). Only about half of the physiotherapists, more precisely 51.20 % of the respondents from our research, attended a subject on gerontology or geriatrics within the educational system.

The lack of educators with gerontological knowledge, skills, and necessary attitudes requires great efforts by external and professional bodies and educational institutions to ensure the availability of resources to increase the expertise of educators in gerontology. There is a need for research into the factors that influence the knowledge, abilities, or attitudes of health professionals of various disciplines regarding the elderly and their care (21). Also, only 5.00 % of physiotherapists who participated in our research attended additional education in gerontology.

Educational workshops, according to Vellani et al., can assist in increasing multidisciplinary personnel's awareness of the palliative care approach and comfort in conducting advance care planning discussions with residents, family care partners, and long-term care staff (22). Also, 90.00 % of respondents who participated in our research believe that an educational workshop in the field of gerontology would improve the quality of their work with elderly patients.

Future research should include a larger sample of respondents to achieve more

precise results. It would be desirable to measure knowledge about aging and old age at two points in time, before and after the workshop on gerontology.

CONCLUSION

Based on the research and findings, it is possible to conclude that physiotherapists' understanding of gerontology is lacking and may be greatly expanded. Most research participants think it should be more spoken about gerontology in school and that a one-day gerontology workshop would improve the quality of their work with elderly patients.

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TEORIJSKO ZNANJE FIZIOTERAPEUTA O GERONTOLOGIJI

Marija Mandić, Vedrana Grbavac

Fakultet zdravstvenih studija, Sveučilište u Mostaru, 88000 Mostar, Bosna i Hercegovina

SAŽETAK

Uvod: Starenje stanovništva je globalni problem, zbog čega bi zdravstveni djelatnici trebali biti educirani o gerontologiji i o radu s pacijentima starije životne dobi. Osobe treće životne dobi se susreću s novim zdravstvenim problemima i potrebno je brinuti se o njima na adekvatan način.

Cilj: Ispitati teorijsko znanje fizioterapeuta o gerontologiji.

Ispitanici i metode: Istraživanje je provedeno u kolovozu 2023. godine. Za prikupljanje podataka je korišten upitnik o općim karakteristikama i upitnik Test znanja o starenju i starosti. Uzorak ispitanika čine 80 zaposlenih fizioterapeuta iz Bosne i Hercegovine. Obrada podataka izvršena je pomoću Google Forms-a i Microsoft Office Excel-a.

Rezultati: Prosječno, ispitanici su ispravno odgovorili na 70,31 % pitanja. Imali su približno jednak broj točnih odgovora bez obzira imaju li poteškoće u radu s pacijentima u starijoj životnoj dobi i bez obzira jesu li upoznati s programima aktivnog starenja. Većina fizioterapeuta smatra da bi se trebalo više govoriti o gerontologiji u sklopu obrazovanja (96,30 %) i da bi jednodnevna radionica iz područja gerontologije unaprijedila kvalitetu njihovog rada s pacijentima starije životne dobi (90,00 %).

Zaključak: Fizioterapeuti koji su sudjelovali u istraživanju su pokazali prosječno relativno dobar nivo poznavanja područja gerontologije, no postoji prostor za poboljšanje putem radionice iz ovog područja, za koju većina ispitanika se slaže da bi unaprijedila njihov rad.

Ključne riječi: gerijatrija, znanje, stavovi, fizioterapeuti

Osoba za razmjenu informacija:

Marija Mandić, mag. physioth.

E-mail: marija.mandic@fzs.sum.ba