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Original study
Originalni naučni rad
UDK 616-053.9-083 i 613.98:616-057.875
DOI: 10.2298/MPNS1512382M

KNOWLEDGE AND ATTITUDES OF HEALTH CARE SCIENCE STUDENTS TOWARD OLDER PEOPLE

ZNANJA I STAVOVI STUDENATA ZDRAVSTVENIH NAUKA PREMA STARIM OSOBAMA

Dragana MILUTINOVIC1, Dragana SIMIN1,2, Jelena KAČAVENDIĆ1 and Vesna TURKULOVA1,3

Summary
Introduction. Education of health science students in geriatrics is important to provide optimal care for the growing number of elderly people because it is the attitudes of health professionals toward the elderly that play the key role in the quality of care provided. Therefore, the aim of this study was to assess the knowledge and attitudes of health care science students towards ageing and care for the elderly.

Material and Methods. The present cross-sectional study was carried out on a sample of 130 students (medical, nursing and special education and rehabilitation) of the Faculty of Medicine, University of Novi Sad. The students were divided into two groups. The first group (E) included students having been taught geriatrics and nursing older adults and the other group (C) included students who had not been trained in this subject. The authors used Palmore’s facts on Ageing Quiz for the knowledge evaluation and Kogan’s Attitude toward Older People Scale for the attitude evaluation.

Results. The results of Facts on Aging Quiz showed the average level of students’ knowledge and statistically significant difference between E and C group. The analysis of Kogan’s Attitudes toward Old People Scale showed that both groups had neutral attitudes toward older people. Furthermore, a positive correlation between students’ knowledge and attitudes toward older people which suggests that by acquiring better insights into all aspects of ageing through their education the students develop more positive attitudes and interest in working with older adults.

Key words: Health Knowledge, Attitudes, Practice; Students, Nursing; Aged; Aged, 80 and over; Nursing Care; Geriatric Nursing; Quality of Health Care; Ageism; Questionnaires

Sažetak
Uvod. Obrazovanje studenata zdravstvenih nauka iz gerijatrije je važno za pružanje optimalne zdravstvene zaštite rastućoj populaciji starih jer upravo stavovi zdravstvenih radnika prema starima imaju ključnu ulogu u kvalitetu nege koja se pruža. Stoga je cilj ove studije bio da proceni znanja i stavove studenata zdravstvenih nauka prema starenju i brizi o starima. Materia i metode. Istraživanje je sprovedeno u obliku studije preseka na uzorku od 130 studenata medicine, zdravstvene nege i specijalne edukacije i rehabilitacije Medicinskog fakulteta Univerziteta u Novom Sadu podešenih u dve grupe. U prvoj grupi (E) bili su studenti - njih 61, koji je su imali edukaciju iz Gerijatrije i nege starih lica, dok je drugu grupu (K) činilo 69 studenata koji nisu imali edukaciju. Za procenu znanja studenata koristio se kviz Činjenice o starenju (Facts on Aging Quiz), a za procenu stavova Koganove skala stavova o starenju (Kogan’s Attitude toward Older People Scale). Rezultati. Rezultat kviza Činjenica o starenju pokazao je statistički značajnu razliku između E i K-grupe (t = -2,407 df = 128 p˂0,01). Studenti obe grupe su najviše znanja pokazali u oblasti fizičkog zdravlja. Najmanje znanja u oblasti socijalnog položaja starima pokazali su studenti E-grupe, dok su studenti iz K-grupe imali najniže znanje u oblasti mentalnog zdravlja starih. Analiza Koganove skale pokazala je da studenti obe grupe imaju neutralne stavove prema starima. Utvrđeno je i da između znanja i stavova studenta postoji pozitivna korelacija.

Zaključak. Dokaza o povezanosti obrazovanja, znanja i stavova prema starima sve je više, što ukazuje na to da ako studenti imaju bolje obrazovanje o svim aspektima starenja, njihovi stavovi će biti pozitivniji, a interesovanje za rad sa starima veće.

Ključne reči: Znanje o zdravlj, stavovi i praksa; Studenti zdravstvene nege; Stari ljudi; Stari ljudi, 80 i više godina; Zdravstvena nega; Nega u gerijatriji; Kvalitet zdravstvene nega; Predrasude o starim osobama; Upitnici

Introduction

Current demographic changes and global population ageing signify that greater attention should be paid to nursing older adults [1].

By 2030, the proportion of the population aged ≥65 years is projected to increase to approximately 28% in Western Europe and to 21% in the United States [2], whereas the percentage of persons over 65 in the Republic of Serbia will be at least 22%. In addition, Serbia is among the countries with the oldest population in the world with the median age of 41.6 [3]. Thus, the projected increase in the number of people aged 65 and older will result in a larger number of persons with chronic non-communicable diseases, functional dependency, and higher rates of multimorbidity [4–6].

In addition to having health problems, older people are also increasingly exposed to ageism, which is defined as “the process of systematic stereotyping and discrimination against people because they are...
Ageism reinforces the view of older people as unproductive, depressed, ill or even ugly and poor, and creates the perception that cognitive limitations and sexual inactivity are a natural consequence of the ageing process [8]. Unfortunately, health professionals are among those who are also susceptible to this type of stereotyping because of more frequent contact with older and disabled persons [9].

Given the projected increase in older population who will need care, it is clear that most nurses and other health professionals will predominantly care for them, regardless of their attitudes. Therefore, there is a strong need for education and fostering positive attitudes of future health professionals toward elderly persons and the ageing process [1]. Attitudes of the future health care providers toward the older people can affect behavior and care given, and have a direct impact on the quality of diagnosis, treatment and care provided to the older people [10].

Consequently, various studies have been conducted over the last two decades in order to evaluate attitudes among health care science students, especially among medical and nursing students, toward older people. However, these studies produced conflicting results: while some studies showed negative attitudes of students [11, 12], others demonstrated that students’ attitudes toward older people were positive [13-17]. Hence, recent research among health care science students has confirmed an increase in positive perceptions regarding the ability of the elderly, the aging process, as well as toward older people in general. This progress in attitudes has been the result of a number of changes in education since major universities and colleges that educate health professionals have included geriatric specific education in the compulsory and optional subjects [18].

This research has also examined factors that may affect students’ attitudes including: gender, age, place of residence, economic status of the family and family type, having a family member aged ≥ 65, or living with a person aged ≥ 65 and the year of study. However, none of them was singled out as the dominant predictor of positive attitudes. Such inconsistent results highlight the need to use qualitative research design for more sophisticated analysis of variables. Although only a small number of studies have investigated this issue, students’ interest in working with older people and knowledge of the elderly have been identified as the factors significantly related to students’ positive attitudes [1, 15, 17, 19, 20]. These results indicate that students, who received training in the care of elderly patients and appropriate clinical practices during their formal education, have become interested in the problems that develop during older age, and showed more interest in further study of ageing and working with older people, thus significantly improving positive attitudes [1, 14, 21].

Therefore, the aim of the present study was to assess knowledge and attitudes of health care science students toward ageing and nursing older people.

**Abbreviations**

FAQ – Facts of Aging Quiz

**Material and Methods**

The present cross-sectional study was carried out on the sample of 130 medical, nursing and special education and rehabilitation students of the Faculty of Medicine, University of Novi Sad. The students were divided into two groups. The first group (E) consisted of 61 students with training in geriatric medicine and nursing older adults, while the other group (C) consisted of 69 students who had no training in these subjects. The study was approved by the Ethics Committee of the Faculty of Medicine of the University of Novi Sad.

Palmore’s Facts on Aging Quiz (FAQ) and Kogan’s Attitudes toward Old People Scale were used to measure factual knowledge and to evaluate attitudes toward older people, respectively.

The Facts on Aging Quiz was originally compiled by Erdman Palmore (1977) to help people, particularly students, confront their prejudices about older people. Approximately half of the items were retained from Palmore’s original test (in total 50). The other half of the items represented issues that later became the focus of attention or considered relevant by the authors. The items of this questionnaire can be conditionally divided into the following four categories: the facts about physical health, the facts about mental health, the facts about social position of the elderly and the facts related to most common misconceptions about ageing. Knowledge is defined on the following three levels: low (0-17 points), average (18-35 points) and high (36-50 points) level of knowledge. According to previous research, the reliability of Cronbach’s alpha value was limited from 0.45 to 0.70 due to „true/false“ version [1, 22]. The Serbian version of the FAQ was also found to possess low reliability with (α) = 0.41.

Kogan’s Attitude toward Older People Scale consists of one set of 17 statements expressing positive statements and one set of 17 negative statements. The quantitative measure of attitudes was obtained using a six-point Likert scale. In order not to diminish the positive attitudes by the negative ones, the specific values were assigned to all the statements, so the possible score ranged from 34 to 204. The attitudes ranging from 34 to 101 represent the negative attitudes, whereas the neutral and the positive attitudes ranged from 102 to 136 and from 137 to 204, respectively. According to previous research regarding reliability, Cronbach’s alpha values for this test ranged from 0.70 to 0.81 [23]. The Serbian version also had adequate reliability with (α) = 0.76 for the total scale.

The Statistical Package for the Social Sciences for Windows, version 19.00 was used for descriptive and inferential analysis (SPSS, Inc., Chicago, IL, USA). The following methods of descriptive statistics were used in this study: measures of central tendency (arithmetic mean) and variability measures (standard deviation) for numerical characteristics and frequency determination (proportion) for attribute characteristics. The authors used independent-samples t-test as a method of inferential statistics for numerical parameters, and Pearson’s
correlation coefficient to assess the relation between knowledge and attitudes of students. P-values of < 0.05 were taken as statistically significant.

**Results**

Of 180 students who were eligible to participate in the study, 130 (71.2%) completed the questionnaire. Of the total number of students (N = 130), 61 (46.9%) were included in the experimental group, while 69 (53.1%) were in the control group. Each group consisted of nursing students (second and fourth year of study), medicine (fourth and sixth year of study) and special education and rehabilitation (third and fourth year of study) (Graph 1).

**Analysis of Students’ Knowledge about Ageing**

The FAQ total average score for experimental group was M = 30.52, SD = 3.61, which indicated the average level of students’ knowledge, where the students of nursing had the lowest total average score M = 29.53, SD = 3.87, and the medical students had the highest score M = 31.11, SD = 3.68. Further descriptive analysis of FAQ for the experimental group revealed that the students showed the highest level of knowledge in the most common misconceptions about ageing M = 10.13, SD = 2.41, followed by physical health M = 7.49, SD = 1.18, while the lowest level of knowledge was related with the social position of older people M = 6.25, SD = 1.46 (Table 1).

The control group students also showed the average level of knowledge M = 29.07, SD = 3.26 with the highest level of knowledge also related with the most common misconceptions about aging M = 9.33, SD = 1.73, followed by physical health M = 7.84, SD = 1.30, while the lowest level of knowledge was about mental health M = 5.61, SD = 1.60 (Table 2). In the control group, the students of nursing had the lowest total average score of M = 27.96, SD = 3.26, but this time the students of special education and rehabilitation had the highest score of M = 30.14, SD = 3.14.

The total average score on the FAQ showed a statistically significant difference between the control and experimental group (t = -2.407; df = 128; p < 0.01). The students in the control group with no training in geriatrics and nursing older adults showed less knowledge in the test than the students of the experimental group who underwent training in geriatrics and nursing older adults.

**The Analysis of Students’ Attitudes toward Older People**

The students from both groups, that is the experimental and the control one, had the neutral attitude toward older people M=123; SD=15.61 and M = 119.25, SD = 14.82, respectively.

Attitudes toward older people among the students from the control and experimental groups were significantly different (t = -1.602; df = 128; p < 0.01).

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**Table 1. Descriptive analysis of responses of experimental group students (E) to Palmore’s Facts on Ageing Quiz**

<table>
<thead>
<tr>
<th>Questions/Pitanja</th>
<th>Mean/AS</th>
<th>SD/SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facts on mental health/Činjenice o mentalnom zdravlju</td>
<td>6.66</td>
<td>1.25</td>
</tr>
<tr>
<td>Facts on physical health/Činjenice o fizičkom zdravlju</td>
<td>7.49</td>
<td>1.18</td>
</tr>
<tr>
<td>Facts on the social position/Činjenice u vezi sa socijalnim položajem</td>
<td>6.25</td>
<td>1.46</td>
</tr>
<tr>
<td>The most common misconceptions about ageing/Najčešće zablude u vezi sa starenjem</td>
<td>10.13</td>
<td>2.41</td>
</tr>
<tr>
<td>The total score on the FAQ/Ukupan skor za FAQ</td>
<td>30.52</td>
<td>3.61</td>
</tr>
</tbody>
</table>

**Table 2. Descriptive analysis of the responses of the control group students (C) to Palmore’s Facts on Ageing Quiz**

<table>
<thead>
<tr>
<th>Questions/Pitanja</th>
<th>Mean/AS</th>
<th>SD/SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facts on mental health/Činjenice o mentalnom zdravlju</td>
<td>5.61</td>
<td>1.60</td>
</tr>
<tr>
<td>Facts on physical health/Činjenice o fizičkom zdravlju</td>
<td>7.84</td>
<td>1.30</td>
</tr>
<tr>
<td>Facts on the social position/Činjenice u vezi sa socijalnim položajem</td>
<td>6.29</td>
<td>1.34</td>
</tr>
<tr>
<td>The most common misconceptions about ageing/Najčešće zablude u vezi sa starenjem</td>
<td>9.33</td>
<td>1.73</td>
</tr>
<tr>
<td>The total score on the FAQ/Ukupan skor za FAQ</td>
<td>29.07</td>
<td>3.26</td>
</tr>
</tbody>
</table>
The results of the present study have shown that students have positive attitudes toward older people after attending lectures on geriatrics, which correlates with the results obtained by Baumbusch et al. [18]. Unlike students from the Netherlands who had neutral to slightly negative attitudes toward older people in a variety of settings, such as hospitals, care units, as well as in a care recipient’s home [20]. For this reason, the nursing students who completed a course on the care of older people at university should get 80% of the questions right.

The results of the present study have shown that students have positive attitudes toward older people after attending lectures on geriatrics, which correlates with the results obtained by Baumbusch et al. [18]. Unlike students from the Netherlands who had neutral to slightly negative attitudes although they had not been given lectures on geriatrics (M = 130.6, SD = 9), the students from the control group attending the Faculty of Medicine in Novi Sad had neutral to slightly negative attitudes toward older people [1]. In this study, it was found that the medical students had more positive attitudes than the nursing students. The same results were obtained in the study performed by Ayoglu et al. [17]. However, other previous studies evaluating attitudes of medical and nursing students toward older people have reported conflicting results. In the study conducted in Taiwan during 2009, the nursing students showed more positive attitudes [24], while in the study conducted among Malawian students, there was no difference between the students’ attitudes [25]. Furthermore, there is increasing evidence for the correlation between education, namely knowledge and attitudes toward older people. Numerous authors such as Lambrinou et al. [15] and others believe that students who have a higher level of knowledge have more positive attitudes.

Finally, a strong correlation between the students’ knowledge and attitudes was found among all the students who participated in the study. The results indicated more positive attitudes of students with better education in all aspects of ageing, and an increase important to evaluate and improve the program of nursing study because nurses play a distinct role in ensuring quality care for older people. Namely, the significant role of nurses in providing care to older adults is widely recognized, nurses are responsible not only for providing direct physical care, but also emotional support to older people in a variety of settings, such as hospitals, care units, as well as in a care recipient’s home [20]. For this reason, the nursing students who completed a course on the care of older people at university should get 80% of the questions right.

The control group
Kontrolna grupa

Nursing (2nd year)/Zdravstvena nega (2. godina)
Medicine (4th year)/Medicina (4. godina)
Special education and rehabilitation (3rd year)
Specijalna edukacija i rehabilitacija (3. godina)
The whole (C) group/Ukupno (K) grupa

The whole (E) group/Ukupno (E) grupa

< 0.01). The students from the experimental group scored closer to moderately positive attitudes compared with the students from the control group.

Discussion
Ageing population is one of the most complex issues in the modern society and its impact on health and social services creates a greater demand for the services of all health care professions, particularly nurses. Due to these current demographic changes, a growing number of studies have recently examined students’ attitudes and knowledge in almost all countries.

This study was perhaps the first of its kind in this country and the region which focused on determining knowledge and attitudes of health science students (with and without training in geriatric and nursing older adults) toward ageing and care for older people. Sampling included a sufficient number of responses for the appropriate data analysis and the metric properties of the questionnaire were acceptable.

In both groups, the average scores of FAQ (60% of correctness) correlated with the average scores of students in the study on the FAQ conducted in China [22], but they were higher than those revealed in other studies [1, 15]. Since the lowest level of knowledge in our study was demonstrated by the nursing students, it is important to evaluate and improve the program of nursing study because nurses play a distinct role in ensuring quality care for older people. Namely, the significant role of nurses in providing care to older adults is widely recognized, nurses are responsible not only for providing direct physical care, but also emotional support to older people in a variety of settings, such as hospitals, care units, as well as in a care recipient’s home [20]. For this reason, the nursing students who completed a course on the care of older people at university should get 80% of the questions right.

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Finally, a strong correlation between the students’ knowledge and attitudes was found among all the students who participated in the study. The results indicated more positive attitudes of students with better education in all aspects of ageing, and an increase

Table 3. Correlation between the students’ knowledge and attitudes toward ageing (the control (C) and the experimental (E) group)

<table>
<thead>
<tr>
<th>Group/Grupa</th>
<th>N</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>The experimental group Eksperimentalna grupa</td>
<td>Nursing (4th year)/Zdravstvena nega (4. godina)</td>
<td>19</td>
<td>0.590*</td>
</tr>
<tr>
<td></td>
<td>Medicine (6th year)/Medicina (6. godina)</td>
<td>19</td>
<td>0.649**</td>
</tr>
<tr>
<td></td>
<td>Special education and rehabilitation (4th year)</td>
<td>23</td>
<td>0.352*</td>
</tr>
<tr>
<td></td>
<td>Specijalna edukacija i rehabilitacija (4. godina)</td>
<td>6</td>
<td>0.563**</td>
</tr>
<tr>
<td>The control group Kontrolna grupa</td>
<td>Nursing (2nd year)/Zdravstvena nega (2. godina)</td>
<td>26</td>
<td>0.420*</td>
</tr>
<tr>
<td></td>
<td>Medicine (4th year)/Medicina (4. godina)</td>
<td>21</td>
<td>-0.028</td>
</tr>
<tr>
<td></td>
<td>Special education and rehabilitation (3rd year)</td>
<td>22</td>
<td>0.274</td>
</tr>
<tr>
<td></td>
<td>Specijalna edukacija i rehabilitacija (3. godina)</td>
<td>69</td>
<td>0.334**</td>
</tr>
</tbody>
</table>

* Correlations significant at the 0.05 level
** Correlations significant at the 0.01 level

Table 3. Povezanost znanja i stavova studenata o starenju (kontrolna (K) i eksperimentalna (E) grupa)

<table>
<thead>
<tr>
<th>Grupa</th>
<th>N</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eksperimentalna grupa</td>
<td>Nursing (4th year)/Zdravstvena nega (4. godina)</td>
<td>19</td>
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<td>0.334**</td>
</tr>
</tbody>
</table>

* Značajna povezanost na nivou 0,05
** Značajna povezanost na nivou 0,01

Discussion
Ageing population is one of the most complex issues in the modern society and its impact on health and social care services creates a greater demand for the services of all health care professions, particularly nurses. Due to these current demographic changes, a growing number of studies have recently examined students’ attitudes and knowledge in almost all countries.

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Finally, a strong correlation between the students’ knowledge and attitudes was found among all the students who participated in the study. The results indicated more positive attitudes of students with better education in all aspects of ageing, and an increase
in their interest in working with older adults. Thus, these results can be used to guide changes and modifications to study programs in order to improve students’ knowledge, promote positive attitudes and dispel misconceptions about ageing and older adults through practical experience.

Caring of the elderly will become increasingly important for all health professionals, especially nurses. Therefore, educating and training future health professionals for working with older people should be considered significant and necessary. The present study did not include demographic data (gender, age), the previous contacts with the elderly, or the experience in working with them, which can be considered limitations of this study.

Conclusion

There is increasing evidence on the correlation between education, knowledge and attitudes toward older people which suggests that by acquiring better insights into all aspects of ageing through their education the students develop more positive attitudes and interest in working with older adults.

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