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THE IMPACT OF KNOWLEDGE ON THE FORMATION OF ATTITUDES TOWARDS AGEING AND THE ELDERLY AMONG STUDENTS OF THE UNIVERSITY OF SPLIT

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Introduction: With the global trend of increasing ageing of the population, there is a corresponding increase in the health problems associated with elderly population. Older people need ever more health services. According to the research, the factors that influence health care practice of the health workers for the elderly in geriatric hospitals included knowledge, attitude, and gerontologic education. The *aim* of this study was to determine whether education in gerontology affects attitude towards ageing and the elderly among students at the University of Split. An additional objective was to determine the extent to which the student socio-demographic status (age, sex, domicile), different education and experience of living with the elderly affect their attitude towards ageing and the elderly. ***Subjects and Methods:*** The population included in this study consisted of 301 students of the University of Split, 153 of whom attended the Faculty of Maritime Studies and 148 the School of Medicine. The research was conducted using an anonymous questionnaire, during the period from December 1, 2020 to March 31, 2021. A total of 45 students had attended training in gerontology, while 265 had none. Information was collected through a questionnaire that consisted of 3 parts: one investigating their socio-demographic characteristics, another one looking into their attitudes towards the elderly (the Kogan score scale), and Palmer's competence test. ***Results:*** A difference in attitude was observed between students who had undergone training in gerontology compared to those who had none. Socio-demographic factors, different education and the experience of living with the elderly also affected student attitudes. Overall, the School of Medicine students had a more positive attitude than those of the Faculty of Maritime Studies. The level of statistical significance was set at $p<0.05$. ***Conclusion:*** Education in gerontology helps form a more positive attitude towards the elderly among students, meaning that educational programs should be changed with the aim of reducing stigmatization of the elderly.

Key words: attitudes, ageing, education

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INTRODUCTION

People nowadays live longer and exhibit a growing need for an improved quality of life. Contagious disease prevalence has decreased as medical science evolved. As a result of successful vaccination, administration of antibiotics and other forms of treatment, the morbidity and mortality caused by contagious diseases have decreased. On the one hand, progress in medicine, coupled with discovery of a number of medications, application of various forms of treatment, and new diagnostic and therapeutic opportunities, provides for better knowledge and earlier disease detection, as well as better and more effective treatment of chronic illnesses. On the other hand, the issue of care for an ever-increasing number of chronic patients is rising in importance. Population ageing is a global phenomenon; however, this issue is predominantly discussed in developed countries (1). In fact, most developed countries have low fertility and birth rates as a result of demographic transition. Extended life expectancy has contributed to the rise in the share of elderly persons

in the total population. Medical advances, especially in prevention and treatment, have also played a major role in increasing life expectancy, along with improved socioeconomic conditions, which has resulted in decreased mortality rates (2). Accelerated and continuous growth of elderly population is a demographic trend that increases the need for medical and social services, since the elderly are the most frequent users of such services (3). An ageing population thus turns into a key issue of social development, with a substantial expected impact on the situation in health care, social care and social policy throughout the 21st century. Population ageing is a highly complex process that entails major economic, social and political consequences (4). At the global level, the number of elderly persons is continuously rising as a result of progress in medicine that has led to extension of life expectancy to between 80 and 90 years (1).

A longer life brings along opportunities, not only for the elderly and their families, but also for the society as a whole (5). Additional years of life provide an opportunity to start new activities, such as further education, a new career, or pursuit of a neglected passion from the past. Elderly persons contribute to their families and communities in many ways. The scope of these opportunities and contributions largely depends on a single factor, i.e., health (4).

DEMOGRAPHIC PROFILE OF CROATIA AND THE WORLD

The United Nations data available in the World Population Prospects 2019 point to an eight-year increase in average life expectancy between 1990 and 2019. In 2019, global average life expectancy stood at 72.6 years. An even higher increase is expected by 2050, with average life expectancy estimated at 77.1 years (6).

According to data of the Bureau of Statistics of the Republic of Croatia, average life expectancy in the Republic of Croatia stood at 78.2 years in 2018 (7). According to the 2011 census, the Croatian population is 41.7-year-old on average, making the Croatian people one of the oldest peoples in Europe (8). The rise in life expectancy has increased the average age of the Croatian population by 10 years over the last 50 years. According to the 2011 census, the share of persons aged 65 or over (17.7%) is, for the first time ever, higher than the share of young persons pertaining to the 0-to14-age group (15.2%). Worldwide, in 2018, the number of persons over 65 exceeded the number of children under 5 (6). The share of the very old has risen in the Republic of Croatia as well, from 0.8% in 1953 to 3.9% in 2011 (7).

OLD AGE – SOCIOLOGICAL ISSUES

An increase in the number of elderly people in a population also leads to greater need for long-term care, ultimately resulting in increasing health care and social care costs (5). Due to this fact, it is assumed that ageing will have a serious impact on social security and economy, with healthcare and social care costs reaching substantial proportions. One of the key characteristics of old age is retirement, i.e., greater social dependence (9).

The social context within which elderly persons and families function is also changing, which *inter alia* impacts the nature of certain types of social relations, as well as the institutions providing part of the supporting infrastructure accessible to the elderly. Demographic and social trends – such as changes in propensity for marriage and starting a family, increasing frailty of human relations, disturbances within nuclear family, earlier adulthood – have an impact on the quantity and type of support available to the elderly and on their need for support (10).

An increasingly popular concept is ageism, a phenomenon characterised by the lack of recognition or limitation of rights of the elderly (9). Ageism is segregation based on calendar age, non-acceptance of individual approach to the elderly after turning a certain age, determining capacity and attribution of social roles based on chronological age (9). People are prone to prejudice when they lack specific information concerning an elderly person other than their age, which is seemingly obvious (3). It is extraordinarily important to consider the (lack of) capabilities of an elderly person that is being cared for, to eliminate prejudice concerning the elderly and to recognize their individuality while responding in accordance with the specific needs of the elderly person (11).

OBJECTIVES AND RESEARCH ASSUMPTIONS

The objective of this research was to examine the impact of education in gerontology on the formation of student attitudes towards elderly persons and the process of ageing. This examination was performed by means of a survey that looked into the respondent education in gerontology, their demographic data, and the impact thereof on their attitudes towards the elderly. We wanted to determine whether differences in attitudes towards ageing and elderly persons existed among groups of students, and whether they were in any correlation with different levels of education in gerontology or with personal experience of living with the elderly. The first hypothesis was that attitudes of

the School of Medicine students towards ageing were more positive compared to those of students of the Faculty of Maritime Studies of the University of Split, partly due to education in gerontology in the course of studies. The second hypothesis was that negative attitudes of the School of Medicine students towards ageing and the elderly were linked to the preferred residency upon completion of studies, and that students did not wish to specialize in gerontology as a result of such negative attitudes.

METHOD

Sample

The respondents were students of the University of Split enrolled in the School of Medicine or the Faculty of Maritime Studies in the academic year 2019/2020. The research was conducted with an anonymous questionnaire, during the period from December 1, 2020 to March 31, 2021. The site of research was the University of Split. In total, 301 male and female students participated in the survey. Informed consent was obtained from all subjects.

Instrument

Attitude is defined as an acquired, relatively permanent and stable organization of positive or negative emotions, evaluations and responses to an object. The structure of attitude consists of three components: cognitive component, which pertains to the knowledge concerning the object of attitude; emotional component, pertaining to the emotional perception of the object of attitude; and behavioural component, which pertains to action in regard to the object of attitude (12).

As a means of looking into student attitudes, the authors conducted a cross-sectional, online survey, accessed by students of the two mentioned faculties, from all programmes and years of study. The survey was anonymous and participation voluntary. Out of a total of 1,470 students of the Faculty of Maritime Studies in the academic year 2019/2020, 153 (10.40%) students responded to survey invitation. Of the total of 1,216 students of the School of Medicine in the same academic year (in Medical Doctor, Pharmacy and Dental Medicine study programmes), 148 (12.58%) students completed the survey. The survey questionnaire consisted of three parts: a part looking into respondent socio-demographic characteristics, a part examining their attitudes towards the elderly (Kogan's Attitudes Towards Old People scale, ATOP scale), and a knowledge/competence test (Palmer's questionnaire). Attitudes towards ageing and elderly persons were examined using the Kogan's ATOP scale. This scale contains a set of questions, where respondents are asked to choose the number that most accurately describes their stance on the question asked, the options being: 1=Strongly disagree, 2=Partly disagree, 3=Disagree, 4=Agree, 5=Partly agree, and 6=Strongly agree. The same questionnaires were also used as a research instrument in the survey undertaken among Slovenian nursing students (13).

Procedure

Descriptive statistics methods were used, i.e., arithmetic mean and standard deviation for values in line with normal distribution; in case of deviation from normal distribution, the median was used as median value, and interquartile range as a dispersion indicator. Distribution normality was examined by using the Kolmogorov-Smirnov test. Furthermore, χ^2-test was used to test distribution balance based on socio-demographic characteristics.

Differences in the level of knowledge and relations with the elderly were tested using the MannWhitney U test and Kruskal-Wallis test as versions of parametric tests for determining normal distribution values. The impact of the selected characteristics on relations with the elderly was tested using logical regression, i.e., the stepwise procedure. Links between numerical values were determined using Pearson correlation coefficient.

In the empirical part of the research, we tested the defined assumptions using quantitative methods in biomedicine. The paper also includes tables, detailing the structure of respondent answers to survey questions.

Statistical software STATISTICA 12 (2013, StatSoft, USA) was used for analytical purposes, while the level of significance was set at $p<0.05$.

RESULTS

Of the overall number of respondents (N=301), 53.16% were female and 46.84% were male students, and the difference was not statistically significant ($\chi^2=1.20$; $p=0.273$). In terms of age, the greatest number of respondents were in the 18-22 age group. In fact, there were 196 more students in this age group than in the ≥33 age group (19; 6.31%), which was the least represented student agegroup in the sample ($\chi^2=208.05$; $p<0.001$).

The greatest number of students (n=153; 50.83%) were enrolled in the Faculty of Maritime Studies, while only 5.65% (n=17) were enrolled in the Faculty of Pharmacy. Tests confirmed the uneven distribution of students according to study programme ($\chi^2=269.15$; $p<0.001$).

The majority of respondents had attended a grammar school (n=174:127), i.e., 47 more than a vocational secondary school, yielding a statistically significant difference (χ^2=7.34; p=0.007).

The number of students who had no training in gerontology was significantly higher (n=211; 256/49) and tests confirmed the difference to be statistically significant (χ^2=147.91; p<0.001).

Significantly more respondents (n=209) had experience living with the elderly (≥65), compared with 92 respondents who had no such experience. The difference was statistically significant (χ^2=45.48; p<0.001) (Table 1).

Table 1. *Respondent socio-demographic characteristics*

		n	%	χ^2	p*
Sex	F	160	53.16	1.20	0.273
	M	141	46.84		
Age group (yrs)	18-22	215	71.43	208.05	<0.001
	23-27	67	22.26		
	≥33	19	6.31		
Domicile	Urban area	241	80.07	108.84	<0.001
	Rural area	60	19.93		
Course enrolled	Medicine	100	33.22	269.15	<0.001
	Dental Medicine	31	10.23		
	Pharmacy	17	5.65		
	Faculty of Maritime Studies	153	50.83		
Secondary education	Grammar School (Lycee)	174	57.81	7.34	0.007
	Vocational	127	42.19		
Education in gerontology	No	256	85.05	147.91	<0.001
	Yes	45	14.95		
Experience living with an elderly person (>65)	Yes	92	30.56	45.48	<0.001
	No	209	69.44		
Total	301100.00				

*χ^2-test

The difference in results depending on the course enrolled was based on Kogan's ATOP scale and Palmer's competence test. According to Kogan's ATOP scale, the results were higher by 6 points in students of Medicine than in students of Maritime Studies (Z=4.17; p<0.001), which means that medical students had more positive attitudes towards the elderly. Medical students had 4.65 points more than their Maritime Studies counterparts (Z=5.32; p<0.001) in Palmer's competence test as well, which means that they knew more about ageing and the elderly. These differences in test results between the two groups of respondents served to prove that there was a correlation between positive attitudes and knowledge about ageing and the elderly in students of medical sciences (Table 2).

Table 2. *Difference in student attitudes according to the course enrolled*

	Faculty				Z	p*
	Maritime Studies		School of Medicine			
	Median	IQR	Median	IQR		
Kogan's ATOP Scale	120.00	(116.00-128.00)	126.00	(119.00-135.00)	4.17	<0.001
Palmer's competence test	62.79	(58.14-69.77)	67.44	(2.79-74.41)	5.32	<0.001

*Mann-Whitney U test

Table 3 shows differences in the results achieved by students according to sex. Kogan's ATOP scale median was by 4 points lower in men than in women (Z=2.21; p=0.027).

The Palmer's scale median was by 4.65 points lower in men than in women (Z=3.97; p<0.001). These results indicate that male students had fewer positive attitudes and a lower degree of knowledge about ageing and the elderly than their female counterparts, and the difference was statistically significant.

Table 3. *Differences in student attitudes depending on demographic characteristics*

	Sex				Z	p*
	Male		Female			
	Median	IQR	Median	IQR		
Kogan's ATOP scale	121.00	(117.00-129.00)	125.00	(116.00-135.00)	2.21	0.027
Palmer's competence test	62.79	(58.14-69.77)	67.44	(62.79-72.09)	3.97	<0.001

*Mann-Whitney U test

Table 4 shows difference in the results according to respondent domicile. Kogan's ATOP scale median was by 3 points higher in respondents living in urban areas (Z=2.21; p=0.027), showing that they had more positive attitudes towards ageing and the elderly than respondents living in rural areas. The Palmer's test median was by 0.01 points higher in respondents living in rural areas, but without a statistically significant difference (Z=1.06; p=0.288).

Table 4. *Differences in student attitudes depending on their domicile*

	Domicile				Z	p*
	Urban area		Rural area			
	Median	IQR	Median	IQR		
Kogan's ATOP scale	123.00	(117.00-134.00)	120.00	(116.00-126.50)	2.21	0.027
Palmer's competence test	65.11	(60.47-72.09)	65.12	(60.47-69.77)	1.06	0.288

*Mann-Whitney U test

In Palmer's competence test, students aged 18-22 achieved poorer results than their counterparts aged 23-27 or ≥33(H=5.46; p=0.654). Such results indicate that older students knew somewhat more about ageing and the elderly, but the difference was not statistically significant (Table 5).

Table 5. *Differences in student perception according to age groups*

Palmer's competence test				
Age group (yrs)	Median	IQR	H	p*
18-22	65.12	60.47-69.77	5.46	0.654
23-27	67.44	62.79-74.42		
≥33	67.44	62.79-72.09		

*Kruskal-Wallis test

Table 6 shows difference in the results on attitudes towards ageing and the elderly between different student age groups. Kogan scores were by 6 points higher in respondents aged 23-27 than in those aged 18-22 or ≥33 (H=12.80; p=0.002). These results indicate that older students had more positive attitudes towards ageing and the elderly, and this difference was statistically significant.

Table 6. *Comparison of Kogan scores according to student age group*

Kogan score				
Age group (yrs)	Median	IQR	H	p*
18-22	121.00	(116.00-132.00)	12.80	0.002
23-27	127.00	(120.00-137.00)		
≥33	121.00	(116.00-128.00)		

*Kruskal-Wallis test

Considering difference in the results according to previous education in gerontology, Kogan median score was by 7.50 points higher in respondents who had attended gerontology training than in those who had none (Z=2.65; p=0.008). Respondents who had been educated in gerontology showed a more positive attitude and more knowledge about ageing and the elderly, and the difference was statistically significant, confirming the first hypothesis of our research (Table 7).

Table 7. *Differences in student perception depending on education in gerontology*

	Education in gerontology				Z	p*
	Some		None			
	Median	IQR	Median	IQR		
Kogan's ATOP score	129.00	(120.00-135.00)	121.50	(116.00-132.00)	2.65	0.008
Palmer's competence test	65.12	(62.79-74.42)	65.12	(60.47-72.09)	1.50	0.134

*Mann-Whitney U test

Difference in student attitudes also depends on their experience of living with the elderly, as well as on the student gender. Gender had a statistically important impact on the Kogan scale values: female students had 1.898 times greater chances of Kogan scores higher than 133 (B=1.898; p=0.038), which indicated a more positive attitude towards ageing and the elderly in females than in males, and this difference was statistically significant. With every further year at university, the likelihood of a Kogan scale score higher than 133 increased by 1.234 (B=1.234; p=0.017), which means that the longer a respondent had been studying, the more positive their attitudes would be, and the difference was statistically significant.

Kogan median score was by 4 points higher in respondents who had lived with an elderly, but the difference was statistically nonsignificant (Z=1.36; p=0.173).

Palmer's competence test results showed the same median in both study groups, which means that there were no statistically significant sex differences in the level of knowledge about ageing and the elderly (Z=0.76; p=0.448) (Table 8).

Table 8. *Differences in student attitudes depending on their experience of living with the elderly*

	Experience of living with the elderly				Z	p*
	Some		None			
	Median	IQR	Median	IQR		
Kogan score	124.00	(117.00-133.00)	120.00	(115.50-133.00)	1.36	0.173
Palmer's competence	65.12	(60.47-72.09)	65.12	(60.47-72.09)	0.76	0.448

*Mann-Whitney U test

From the point of view of the preferred residency (among medical students), the highest Kogan score concerning ageing and the elderly, and consequently the most positive attitude was recorded in respondents who wanted to become radiology specialists, while those interested in emergency medicine had the lowest score, but the results were not statistically significant (H=14.62; p=0.931) (Table 9).

Table 9. *Differences in student perception depending on their preferred residency following completion of their studies*

Preferred residency	n	Median	IQR	H	p*
Radiology	2	141.00	134.00-148.00	14.62	0.931
Clinical Pharmacy	2	133.00	125.00-141.00		
Internal Medicine	15	131.00	117.00-137.00		
Family Medicine	10	130.50	120.00-142.00		
Sports Medicine	2	130.50	119.00-142.00		
Psychiatry	6	130.00	125.00-135.00		
Dermatology	8	128.00	109.00-136.00		
Paediatrics	9	128.00	119.00-132.00		
Gerontology	2	127.00	119.00-135.00		
Gynaecology	8	126.50	115.50-141.00		
Neurology	3	126.00	112.00-142.00		
Cardiology	6	124.50	122.00-133.00		
Oncology	8	123.50	117.00-131.50		
Surgery	15	123.00	117.00-135.00		
Anaesthesiology	2	121.00	121.00-121.00		
Infectious Disease Medicine	1	121.00	121.00-121.00		
Pathology	1	113.00	113.00-113.00		
Microbiology	1	108.00	108.00-108.00		
Emergency Medicine	1	106.00	106.00-106.00		

*Kruskal-Wallis test

DISCUSSION

The attitudes and effect of gerontology education on students of Medicine and of Maritime Studies in Split were examined using Kogan's ATOP scale and Palmer's questionnaire. In addition to the impact of knowledge, the questionnaire also examined the effect of some socio-demographic factors on the formation of attitudes concerning ageing and elderly persons among students (3).

School of Medicine students were selected due to the possibility of their earlier education in the area of gerontology, and due to the awareness of social groups with increased needs. Students of the Faculty of Maritime Studies were selected as a comparative group, representative of the general population with no gerontology education during the course of their studies.

Two hypotheses were defined. According to the first hypothesis, attitudes of the School of Medicine students concerning ageing are more positive than those of students of the Faculty of Maritime Studies of the University of Split, partly due to gerontology education in the course of studies, and this hypothesis was confirmed. The second hypothesis was that negative attitudes of the School of Medicine students concerning ageing and the elderly are linked with the preferred residency upon completion of the studies, and that students do not wish to become specialized in gerontology due to their negative attitude. This hypothesis was rejected.

Attitudes concerning ageing and elderly persons are formed under the influence of various factors (14). Since the number of elderly persons is on a rise, there is a growing need to change negative attitudes among the public towards ageing and elderly persons (15). Academic findings and research see the average age of the population of a given community as the first indicator and benchmark of the quality of life. Extension of life expectancy is a major achievement. Each individual, regardless of age, wants to live as many years as possible, but without the negative connotations of old age, and with the highest achievable quality of life (16).

When considering the elderly, it is often forgotten that most people in this population group are in the period of early old age, when changes caused by ageing are not pronounced to such a degree that they would substantially limit their daily activities, except for cases of complications caused by chronic illness (11).

In this study, students expressed their own attitudes concerning ageing and elderly persons using the Kogan scale, by selecting the number closest to their perception of a given claim. They agreed most with the claim that most elderly persons have their own habits that cannot be changed. On the other hand, students agreed least with the claim that most elderly persons allow their homes to become shabby and unpleasant.

The impact of knowledge on the formation and change of attitudes has already been proven (17). Palmer's questionnaire comprised claims that respondents assessed as true or false. There were 34 claims where more than 50% of the respondents knew the correct answer, and four claims where the majority of the respondents did not know the correct answer. Student responses included stereotypes and fallacies most frequently connected

with social life of the elderly, and correct answers were typically those pertaining to physical condition of the body and changes arising due to ageing.

In case of our respondents, there was a positive and statistically significant link between the results of Kogan and Palmer scales, i.e., persons with a higher degree of knowledge concerning aged persons had more positive attitudes towards ageing and the elderly, and the opposite was true as well. Fallacies in connection with ageing include lack of knowledge on the plasticity of the central nervous system and decay of brain activity excluding neurological disorders (18). Elderly persons can learn, but their motivation and learning methods differ, which requires adaptation of teaching methods to their age and needs. While the manner in which they memorize new data and written material can be considered through proper teacher training, various games help maintain mental fitness, just as in other organic systems (19). It is important to point out that elderly persons do not memorize new data as young persons do; however, their learning capacity, as well as long-term memory are preserved. It is therefore extraordinarily important to initially assess the psychological independence of a person, and to exclude depression and neurological disorders that are frequent in old age (11).

Among our respondents, a more positive attitude towards ageing and the elderly was recorded in medical students than in students of Maritime Studies.

Age, sex and domicile have also been shown to have an impact on the formation of attitudes concerning ageing and the elderly (20). Male students scored lower median values in both Kogan scale and Palmer questionnaire, when compared to female students. Furthermore, female students exhibited a more positive attitude towards ageing and the elderly compared to their male counterparts (1.898 times higher probability for Kogan scores higher than 133; B=1.898; p=0.038). In most cultures, the role of woman in family is to care for the children, the ill, the old and disabled persons; as a result of upbringing, female children have a pronounced sensitivity for the needs of other family members (21).

Each subsequent year of the study increased the probability that a person would achieve a Kogan scale score higher than 133 by 1.234 times (B=1.234; p=0.017), which points to a conclusion that a more positive attitude among students is developed in the course of years of the study.

Respondents from urban settlements showed a more positive attitude towards ageing and the elderly compared to respondents residing in rural settlements, but difference in knowledge (Palmer's test) was not determined. This result was contrary to our expectations. In fact, rural areas are frequently perceived through the prism of a traditional form of life and nurturing of family values, where care for the needs of each family member is pronounced and, in line with that, we expected respondents living in rural areas to have more positive attitudes concerning ageing and the elderly.

Students were divided into three age groups, i.e., 18-22, 23-27 and ≥33 years. The youngest age group (18-22 years) showed a lower level of Palmer scale results (knowledge) compared to older age groups. The highest results on Kogan scale were achieved by the 23-27 age group, which means that attitudes towards ageing and the elderly turned more positive as life experience increased. However, if students had no gerontology training scheduled in their study programme, the chance to form positive attitudes will remain unused (22).

Experience of living with the elderly did not result in differences in Kogan scale and Palmer questionnaire results between persons who had such experience and those who did not.

Desired residency among students of the School of Medicine did not influence their attitudes concerning ageing and the elderly. Tests showed no statistically significant difference (H=14.62; p=0.931), which means that attitudes towards ageing and the elderly are not linked to professional preferences/preferred residency, rejecting the second hypothesis. This outcome might be the consequence of poor information about residency opportunities upon completion of studies.

The reason why relatively few students chose Gerontology as future residency in the course of professional life is probably grounded in insufficient information concerning the opportunities and education methods in this branch of medicine, and probably also due to insufficient attractiveness of the specialty (23).

We compared the results obtained through our survey with two existing pieces of research. An earlier research from Slovenia compared attitudes towards ageing and the elderly between Croatian and Slovenian nursing students (13). The total number of respondents in the Slovenian study amounted to 825 nursing students, 408 of whom were from Croatia and 417 from Slovenia. The same questionnaires were applied as in our research. As regards important characteristics of the two groups, it is important to point out that 22.55% of the Croatian student group had no education concerning care for the elderly, compared with only 8.39% of the total number of Slovenian students covered by the study who had no such education. In accordance with

that, 81.86% of Croatian students believed that additional educational programmes were needed concerning ageing and the elderly, with 70.74% of Slovenian students believing the same.Differences in student attitudes towards ageing and the elderly were identified as depending on training in gerontology, i.e., on differences in educational programmes between Croatia and Slovenia. Slovenian respondents had substantially better indicators as regards perception and attitudes of students compared to Croatian respondents/students, while respondents with prior education in care for the elderly also exhibited substantially better attitudes and perception compared to those who had no prior education (13).

Whenever results differ according to on sex, domicile, type of study and employment, such results obtained in the Slovenian study are similar to the ones identified in our research. Answers from the Slovenian survey show that female respondents perceive ageing and elderly persons substantially better than men. However, in the Slovenian study, respondents residing in rural areas showed better results (more positive attitudes and a higher level of knowledge) compared to those living in urban areas, which is opposite to our findings.

Links between professional preferences following completion of the studies on the one hand, and attitudes towards ageing and the elderly on the other, were not found in the mentioned Slovenian survey either.

Attitudes of medical students towards ageing and elderly persons were also examined in a study performed in Turkey, involving students of the School of Medicine. The research encompassed 324 students of the fourth, fifth and sixth year of medical faculty, and attitudes were examined using Kogan scale (24). The Turkish respondent median value on Kogan's scale was lower than that of our respondents from the School of Medicine, suggesting a more benevolent attitude towards ageing and the elderly at the University of Split. In addition, the Kogan scale result was higher for female students compared with male students, which is identical to our results. No differences were found concerning other socio-demographic factors. The use of the same instrument for the examination of attitudes in three culturally different environments is interesting in terms of the diverse character of the results obtained. Differences in Kogan scores on the examined attitudes revealed when comparing the data obtained point to the need to educate young people and to adapt educational programmes. Through this research, we have shown that knowledge is the only effective measure in combating prejudice and negative stereotypes. Correct information is the only cure against ill-informed beliefs. That is why young people need to be made aware of societal problems and of the increasingly older community as early as possible. Moreover, Medicine, Dental Medicine and Pharmacy students need to be better acquainted with the possibilities of resolving health issues of elderly persons through study programmes (23).

Comparative analysis of surveys is even more interesting considering that respondents were chosen among students of Nursing (Slovenia and Croatia) and Faculties of Medicine (in Croatia and Turkey). Our research provides an additional dimension by providing comparison with students of the Faculty of Maritime Studies, whose education is not founded on healthcare programs, and whose attitudes are not impacted by their professional knowledge but rather by general health literacy. A positive impact on the formation of attitudes and knowledge shown in the survey was found among first-year medical students who had obtained education in the optional course of Gerontology.

Our research found that there was a difference in attitudes between students who were exposed to educational contents from gerontology and those who were not. The group that was not exposed to gerontology training had a negative attitude compared to the group having had gerontology lessons. This paper confirms that providing truthful and timely information is the best method of preventing negative attitudes and stigmatization of the groups that have increased needs in the society.

POTENTIAL LIMITATIONS AND GAPS

This was a cross-sectional study involving students of two faculties of the University of Split at one point in time. Although the male to female ratio of respondents was approximately the same (160/53.16% females; 141/46.84%; p=0.273 males), it is possible that medical students have more positive attitudes towards and more knowledge of ageing and the elderly due to the fact that there is a greater share of female than male students at that faculty. The female group of students is also made up of a part of female students of Maritime Studies since the overall number of medical students was 148, and the total number of female respondents 160. According to a research conducted in Croatia, males make up the majority of enrolled students (73.1%) only in regular and full-time university specialist courses in the field of technical sciences. The highest ratio of females at the Faculty of Maritime Studies is in the Maritime Management study programme. In the areas such as biomedicine and health, males make up less than one-third (28.06%)of all students enrolled (25), and the situation at the University of Split is in line with the trends at the national level.

CONCLUSION

The attitudes among students of medical sciences are generally more positive in two categories: they scored 6 points higher on Kogan scale than their Maritime Studies counterparts, and had 4.65 points higher test results in Palmer's competence questionnaire, which means that individuals who know more about the issue at stake tend to have a more positive attitude towards it. Student attitudes and knowledge differ depending on their demographic characteristics (age, sex, domicile, and study year).

Differences in attitudes exist depending on whether students had gerontology courses; it has been proven that students who attended such courses have a more positive attitude than those who had none.

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SAŽETAK

UČINAK ZNANJA NA FORMIRANJE STAVOVA O STARENJU I STAROSTI U STUDENATA SVEUČILIŠTA U SPLITU

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Uvod: Prisutan globalni trend starenja stanovništva rezultira sve većim udjelom starog stanovništva i sve većim potrebama za zdravstvenim uslugama, što opterećuje zdravstveni sustav. Stavovi zdravstvenih radnika bitan su čimbenik koji utječe na njihovo ponašanje. Prema dostupnim istraživanjima čimbenici utjecaja na rad zdravstvenih radnika prema starim osobama u gerijatrijskim ustanovama uključuju znanje, stav i gerontološko obrazovanje. ***Cilj:*** Cilj istraživanja bio je ispitati utjecaj izobrazbe iz područja gerontologije na formiranje stavova studenata prema osobama starije životne dobi i prema procesu starenja. Uz izobrazbu iz gerontologije ispitali smo kako demografski čimbenici (spol, dob, boravište), različiti obrazovni sadržaji kojima su studenti bili izloženi i suživot s osobama starije dobi utječu na formiranje stava studenta prema starenju i starijoj životnoj dobi. ***Ispitanici i metode:*** Istraživanje je obuhvatilo studente Sveučilišta u Splitu, a pristupio mu je 301 student. Istraživanje je provedeno anonimnim anketnim upitnikom u razdoblju od 1. prosinca 2020. do 31. ožujka 2021. godine. Najveći broj studenata je na studijskim programima Pomorskog fakulteta (n=153). Istraživanju je pristupilo i 148 studenata Medicinskog fakulteta. Studenata koji su prošli izobrazbu iz gerontologije bilo je 45, a 265 nije imalo nikakav oblik izobrazbe iz gerontologije. Podatci su dobiveni anketnim upitnikom koji se sastojao od 3 dijela, i to dijela koji se odnosi na sociodemografska obilježja, dio kojim se ispituje stav prema starijim osobama (Koganova ljestvica) te testa znanja (Palmerov upitnik). Za testiranje statističke značajnosti primijenjeni su χ2-test, Mann Whitneyev U test i Kruskal-Wallisov test. ***Rezultati:*** Stavovi studenata Medicinskog fakulteta, različitih studija, statistički su značajno pozitivniji u odnosu na ispitanike Pomorskog fakulteta. Postoje razlike u stavovima prema starenju i starijim osobama među skupinama studenata s obzirom na različitost obrazovnih sadržaja iz gerontologije. Čimbenici kao što su demografski čimbenici, obrazovni čimbenici, različiti obrazovni sadržaji kojima su studenti bili izloženi te suživot s osobama starije dobi značajno utječu na stavove o starenju i starijoj životnoj dobi kod studenata. ***Zaključak:*** Postojanje obrazovnog sadržaja iz gerontologije utječe na formiranje pozitivnog stava o starenju i starijoj životnoj dobi među studentima te bi, s obzirom na demografske promjene u društvu, trebalo prilagoditi obrazovne programe, što bi trebalo rezultirati smanjenjem stigmatizacije osoba treće životne dobi.

Ključne riječi: stavovi, starenje, izobrazba