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Attitudes towards ageing of Speech-language Pathology students in a Chilean University

Actitudes hacia el envejecimiento por parte de los estudiantes de Fonoaudiología de una Universidad Chilena

Keywords

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ABSTRACT

Purpose: Describe the attitudes towards ageing of senior undergraduate Speech-language Pathology students in a Chilean University. **Methods:** This is a cross-sectional study in which the validated Spanish version of the Kogan's Attitudes Toward Old People Scale (KAOP) was applied to 43 students in the aforementioned course. The average scores were compared for the variables gender and interaction with the elderly. **Results:** A trend towards a positive attitude was observed. No differences were found for the variables described. An analysis was carried out with the items in which trends towards negative attitude were reported, and the implications were discussed. **Conclusion:** Although a positive attitude was reported, aspects of student academic training should be more comprehensively studied with a view to improving the quality of assistance provided to the elderly.

RESUMEN

Objetivo: Describir las actitudes hacia el envejecimiento por parte de los estudiantes de último año de estudios pertenecientes a la Carrera de Fonoaudiología de una Universidad Chilena. **Método:** Se llevó a cabo un estudio de Corte Transversal, mediante el cual se aplicó la validación al español de la Escala de Actitudes Hacia el Envejecimiento de Kogan (KAOP) a 43 estudiantes de esta carrera. Se compararon los promedios de puntuación según variable género, y aquellas relacionadas a la interacción con adultos mayores. **Resultados:** Hubo una tendencia hacia la actitud positiva. No se encontraron diferencias según las variables mencionadas. Se llevó a cabo un análisis de aquellos ítems donde se reportaron tendencias hacia actitud negativa, discutiendo sus implicancias. **Conclusión:** Si bien hubo reporte de actitud positiva, resulta necesario continuar profundizando en aspectos de la formación académica de los estudiantes, con miras a mejorar la calidad de la atención de los adultos mayores.

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INTRODUCTION

Ageing is understood as a process of changes which involves physical, biological, psychological and contextual modifications inherent in the human life course⁽¹⁾. Changes in the ageing process are currently considered to be an achievement; they express quantifiable improvements, generally in terms of increased life expectancy, better health services and better basic conditions, since in the past not many people lived to or beyond the age of 60. Nevertheless, the substantial increase in the number of elderly people, now known as Senior Citizens⁽²⁾, raises important considerations and challenges, not only for health but for society as a whole.

Internationally, one of the reasons why ageing has become a topical issue is the sustained increase in the number of people who fall into this category. If Senior Citizens are considered to be persons aged over 60, the only country which will have more than 30% of Senior Citizens in its population by 2050 is Japan. However, the proportion of Senior Citizens is expected to rise above this level in other countries during the second half of the century, principally in North America and Europe, but also in South America, and specifically Chile⁽²⁾. In this country, the importance of this development arises from its multiple impacts on society, in terms of education, health, the economy and the composition of the work force⁽³⁾, which have favoured the rise in life expectancy. Historically, this index has been rising due to better medical care, together with better public health policies. In the mid-20th century, the mean life expectancy was 54.8 years. Today it is around 60. During the period 2020-2025, it is expected to reach approximately 80 years⁽³⁾.

Nevertheless, the improvement in the living conditions of senior citizens is not free of difficulties. Not everybody goes through a process of “healthy ageing”. During this stage of life, various complications appear which are associated with age and constitute a risk of increased morbidity or multi-morbidity⁽⁴⁾.

Although promising progress has been made in this area in Chile (increased life expectancy, better nutrition, marked reduction in mortality due to infectious diseases and sanitary conditions in general), current challenges focus on how to address the contextual elements surrounding people as they age, since they have encouraged conditions and habits which favour the appearance of pathologies typical of senior elderly people⁽⁵⁾. These conditions include social elements, since longer life expectancy does not necessarily translate into better quality of life. Years ago, elderly people were considered in many cultures to be sources of wisdom, people to go to for advice or support in certain stages of life; they were an element of family and social life worthy of respect on account of all the experiences and exertions imprinted on them over the course of their own lives and those of others around them⁽¹⁾.

Today the prevailing view of old age in western society is diametrically opposed to this. It is associated with illness, disability, unproductiveness and being a burden on families, individuals, society or the health system⁽⁶⁾; old people are now often abandoned, or ignored in the families where they used to be considered an essential element. Although it is not safe to generalize, such cases are reported more and more frequently. It is therefore important for any society to investigate the attitudes of its members towards its Senior Citizens.

Attitude is defined as an organized predisposition to feel, perceive and behave towards a referent (phenomenon, object, event, hypothetical construction, etc.). It consists of a stable structure of beliefs which predispose the individual to behave selectively⁽⁷⁾. It may be positive if the subject shows empathy or a tendency to proximity, or negative when it denotes rejection or avoidance. In the context of health attention to elderly people, a positive attitude by the professional will encourage them to keep active and prevent depression⁽⁸⁾. A negative attitude will have the reverse effect on the quality of attention in the first instance, and subsequently on the person's general quality of life. It is a priority for public health to maintain quality of life in old age and increase the years of life⁽²⁾.

Modifying these paradigms of how the ageing process is currently conceived is a health challenge; this is especially so in Gerontology, which has interested itself in the study of the stereotypes and prejudices that society harbours with respect to old age. It is postulated that these attitudes or stereotypes are formed at an early age and become factors of either psychic risk or protection which can produce positive or negative behaviours with respect to ageing⁽¹⁾. Thus it is important to address the problem not only specifically, but recognizing its bio-psychosocial complexity and seeking to modify attitudes and behaviours which are not restricted to any particular generation but are present throughout society.

It must therefore be understood that these attitudes are not limited to the professional context, nor do they concern only people with health requirements of this kind, but that they may also affect the training of future health professionals, with the consequence that some students may decide not to continue their academic or professional training for a career that implies attending old people⁽⁹⁾.

It used to be supposed that discrimination against this group occurred in disciplines with a more direct approach (at all levels of health), like nursing, medicine and dentistry; however it is now reported that these behaviours are prevalent in all areas of health services⁽¹⁰⁾.

Health services are an important point in this context, due to their importance and the ever-increasing need to provide appropriate gerontological services; their quality needs to be improved through academic training, making students in the different health-related disciplines aware of this stage of life.

One of the professions working on promoting the quality of life of elderly people in Chile is Speech and Language Therapy, a discipline which in this context seeks to address the difficulties in communication suffered by the elderly⁽¹¹⁾. This role must be performed from professional practice, for which it is especially important to identify students' attitudes during their training, since these can have an impact on how elderly patients are attended.

There is little research into the attitudes and stereotypes of speech and language therapy students; more is available for other disciplines. Although the existence of negative stereotypes and attitudes about old age has been researched for some five decades by disciplines like psychology and sociology, it is only quite recently that the number of such investigations began to multiply with the creation of different tests to evaluate these stereotypes⁽¹²⁾.

Research into stereotypes and attitudes about ageing among health students has developed the state of the art most strongly in nursing and nursing students. In general, studies may report positive^(13,14) negative^(15,16) or neutral attitudes⁽¹⁷⁾. There are no conclusive systematizations of findings.

Attitudes mold the individual's ability to understand, clarify or organize the world; they influence his/her behaviour and even knowledge acquisition⁽¹⁸⁾. Considering the influential nature of these attitudes, it must be understood that they have implications for the training of those who hope to qualify as health professionals⁽¹⁵⁾. When these negative attitudes are extrapolated to the field of professional attention, a corresponding devaluation is reported in the health care provided to senior citizens⁽¹⁹⁾.

In this context, various factors like age, gender, educational achievement, gerontological education, experience with elderly people, contact or living with elderly people, and work preferences have been studied and appear to influence attitudes towards senior citizens⁽²⁰⁾. It has also been observed that women display more positive attitudes than men. Negative attitudes can result in negligence or abuse of elderly people⁽²¹⁾.

There is little evidence concerning students of other disciplines on this topic. Similar studies to those done in nursing have been reported for dentistry. Hatami et al.⁽²²⁾ carried out a study with 464 dentistry students, seeking to determine their levels of knowledge and their attitudes to ageing. They were asked to fill out a questionnaire on their knowledge about dental aspects associated with senior citizens, as well as the Geriatrics Attitudes Scale. The results show a more positive attitude to this age group among women than men. A better attitude was also associated with those who had greater knowledge about attending senior citizens. These results contradict those of Nochajski et al.⁽²³⁾, who carried out a follow-up study on 328 dentistry students, applying the Ageing Semantic Differential in each of their four years' training; they found that women presented less positive attitudes than men. They also hypothesized about training

for the geriatric area, considering that it was insufficient to improve students' attitudes. It was reported that fourth year students showed the greatest changes, consistent with greater exposure to elderly people.

The only study which reports the participation of speech and language therapy students is León et al.⁽²⁴⁾, who explored stereotypes on ageing among students (n = 32) and teachers (n = 214) of speech and language therapy, medicine, and dentistry by applying the Spanish language Questionnaire on Negative Stereotypes (CENVE). They reported neutral stereotypes or attitudes in students (which appeared to improve in students with some clinical experience and students of lower socio-economic levels) and positive ones in teachers with no evidence of differences by age, type of course or socio-economic level. Furthermore, people of medium/low socio-economic level maintained positive stereotypes more than those of high or medium level. It should be noted that in this case the number of speech and language therapy students was small, showing a latent need to investigate this topic in greater depth.

In view of the above, the object of the present study is to describe the attitudes to ageing of students in the final year of the Speech and Language Therapy course.

METHODS

This work forms part of the project for a doctoral thesis in the Doctorate in Gerontological Research programme of Universidad Maimonidés, Argentina.

A descriptive, cross-sectional, observational study was carried out⁽²⁵⁾. Consequently, the data were obtained at a particular moment in order to draw up a socio-demographic characterization and obtain a general view on the attitudes of students in the final year of the Speech and Language Therapy course of the Catholic University of Temuco, Chile, towards senior citizens as a result of their training.

The participants were all the final year students on the course.

The inclusion criterion was: those students who, at the time of the research, were active and regularly carrying out their professional practice, regardless of whether they had failed any exams previously during the course.

The exclusion criterion was: students who, due to their study programme, had no direct contact with senior citizens in any of their professional practices. All these details were verified in the records, documents or other information provided by the university's professional practice management. No students were excluded from the study. The total population consisted of 43 students.

The participants were first asked to fill in a form with general information (own preparation) to establish the socio-demographic characterization of the study population. The Kogan Attitudes toward Old People scale (KAOP)⁽²⁶⁾ was then applied, which addresses the attitudes of university

students towards elderly people. It consists of 34 statements about senior citizens, half of which are positive and half negative (17 each). The respondents react to each statement on a six-point Likert-type scale from “strongly disagree” to “strongly agree”. The minimum and maximum scores are 34 and 204 respectively. The instrument is interpreted, in the first place, by assigning a cut-off score for whether the reactions to the items are positive or negative. Thus the highest score for the positive statements is assigned to the category “strongly agree” (6pts) and the lowest to “strongly disagree” (1pt), and vice-versa for the negative statements. Secondly, if the total score is below 102 points, the student is judged to have a negative attitude; a score of 102 indicates a neutral attitude, and over 102 a positive one. The instrument has been validated for Spanish with good reliability values⁽²⁷⁾. The instrument was applied once, individually to each student, in a well-lit room free of distractions. No course teachers were present.

The study was approved by the Scientific Ethics Committee, resolution N° 8/18. The participants were informed of the risks and benefits of the research and signed an informed consent, ensuring that their participation was voluntary. All the actions included in the study comply with the ethical norms of the Helsinki declaration on research with human beings⁽²⁸⁾.

The results were analyzed using descriptive and inferential statistical techniques, specifically Student’s t-test for comparing performance under the different study variables. The general characteristics of the participants are summarized in Table 1. Table 2 details the items of the instrument.

RESULTS

When the KAOP scores are analysed by gender, we observe that men obtained a mean of 137.3 ± 13.8 points and women 135.9 ± 11.4 . This difference was not significant (Student’s t-test, $p=0.78$). Students with senior citizen parents obtained a mean score of 138.2 ± 15.3 points, while the mean score of other students was 136.5 ± 10.4 (Student’s t-test, $p=0.78$). For the item “sharing space with senior citizens”, students who shared obtained a mean score of 136.8 ± 10.9 points while those who did not scored 134.9 ± 13.4 . These differences were also not significant (Student’s t-test, $p = 0.6$).

For the variable “having living grandparents”, the mean score of students with living grandparents was 137.1 ± 10.3 and of those without 134.7 ± 15.7 (Student’s t-test, $p = 0.70$).

Finally, for the variable “having a religious or spiritual belief”, the mean score of students with such a belief was 138.6 ± 11.1 and of those without 131.7 ± 12.2 (Student’s t-test, $p = 0.1$).

Table 3 analyses in detail the questions in which a mean score was recorded indicating a negative attitude to senior citizens.

Table 1. Socio-demographic characterisation of the study population

Topic	n (%)
Total	43 (100)
Age	23.95 ± 1.5 years
Gender	
- Female	35(81)
- Male	8(19)
Marital status	
- Single	30(70)
- In a relationship	13(30)
Shares space with senior citizens	
- Yes	28(65)
- No	15(35)
Parents are senior citizens	
- Yes	4(14)*
- No	24(86)*
Grandparents living	
- Yes	24(86)*
- No	4(14)*
Senior citizen neighbours	
- Yes	12(43)*
- No	16(57)*
Volunteer in a seniors group	
- Yes	3(11)*
- No	25(89)*
Has a disabled family member	
- Yes	15(35)
- No	28(65)
Responsible for a disabled senior citizen	
- Yes	3(7)*
- No	40(93)*
Personally, without help	
- Yes	0(0)*
- No	3(100)*
Personally, with help	
- Yes	3(100)*
- No	0(0)*
Gives economic support by paying a family member	
- Yes	0(0)*
- No	3(100)*
Gives economic support by paying a carer	
- Yes	0(0)*
- No	3(100)*
Religious believer	
- Yes	28(65)
- No	15(35)

*Of the total number of positive responses (multiple response question)

Table 2. Detail of the items in the KAOP instrument. The statements are marked as positive (+) or negative (-)

ITEM
1(-) It would probably be better if most old people lived in residential units with people of their own age.
2(+) It would probably be better if most old people lived in residential units that also housed younger people.
3(-) There is something different about most old people: it's hard to figure out what makes them tick.
4(+) Most old people are really no different from anybody else: they're as easy to understand as younger people.
5(-) Most old people get set in their ways and are unable to change.
6(+) Most old people are capable of new adjustments when the situation demands it.
7(-) Most old people would prefer to quit work as soon as pensions or their children can support them.
8(+) Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody.
9(-) Most old people tend to let their homes become shabby and unattractive.
10(+) Most old people can generally be counted on to maintain a clean, attractive home.
11(-) It is foolish to claim that wisdom comes with old age.
12(+) People grow wiser with the coming of old age.
13(-) Old people have too much power in business and politics.
14(+) Old people should have more power in business and politics.
15 (-) Most old people make one feel ill at ease.
16(+) Most old people are very relaxing to be with.
17(-) Most old people bore others by their insistence on talking about the "good old days".
18(+) One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences.
19(-) Most old people spend too much time prying into the affairs of others and giving unsought advice.
20(+) Most old people tend to keep to themselves and give advice only when asked.
21(-) If old people expect to be liked, their first step is to try to get rid of their irritating faults.
22(+) When you think about it, old people have the same faults as anybody else.
23(-) In order to maintain a nice residential neighborhood, it would be best if too many old people did not live in it.
24(+) You can count on finding a nice residential neighborhood when there is a sizeable number of old people living in it.
25(-) There are a few exceptions, but in general most old people are pretty much alike.
26(+) It is evident that most old people are very different from one another.
27(-) Most old people should be more concerned with their personal appearance; they're too untidy.
28(+) Most old people seem to be quite clean and neat in their personal appearance.
29(-) Most old people are irritable, grouchy, and unpleasant.
30(+) Most old people are cheerful, agreeable, and good humored.
31(-) Most old people are constantly complaining about the behavior of the younger generation.
32(+) One seldom hears old people complaining about the behavior of the younger generation.
33(-) Most old people make excessive demands for love and reassurance.
34(+) Most old people need no more love and reassurance than anyone else.

Table 3. Report of the items in which negative attitudes are detected in speech and language therapy students. The signs (+) and (-) represent positive and negative statements

KOAP item	Strongly agree n (%)	Agree n (%)	Slightly agree n (%)	Slightly disagree n (%)	Disagree n (%)	Strongly disagree n (%)	x ± S.D.	CI (95%)
5(-)	11(25.6%)	7(16.3%)	21(48.8)	3(7.0)	1(2.3)	0(0.0)	2.4 ± 1.0	2.1-2.8
6(+)	3(7.0)	6(14.0)	5(11.6)	11(25.6)	13(30.2)	5(11.6)	4.8 ± 1.3	2.6-3.6
31(-)	6(14.0)	13(30.2)	20(46.5)	1(2.3)	2(4.7)	1(2.3)	2.6 ± 1.0	2.3-2.9
32(+)	2(4.7)	0(0.0)	5(11.6)	18(41.9)	11(25.6)	7(16.3)	4.2 ± 1.5	2.3-3.0
34(+)	0(0.0)	0(0.0)	6(14.0)	10(23.3)	6(14.0%)	21(48.8)	3.6 ± 1.4	1.2-2.4

DISCUSSION

In general, the results of this study show mean scores by which speech and language therapy students' attitudes towards ageing can be categorised as positive. This conclusion agrees with studies carried out in nursing students^(13,14), and with León et al.⁽²⁴⁾ carried out in health sciences students. In the latter study, attitudes tend towards the positive in dentistry and physiotherapy students, while

speech and language therapy students show a profile of neutral attitudes. In view of the scarcity of previous studies in speech and language therapy students, the discrepancy in the results may perhaps be explained by a different context or educational model, the use of a different questionnaire to that used in this research⁽²⁴⁾ or dissimilar socio-demographic characteristics.

There were no significant differences in the analyses under different variables, such as sex, presence of senior citizens

or some kind of interaction with them. Since there is a clear tendency towards a positive attitude, and since the distribution of the participants' responses for these factors is variable, this attitude may also be explained by the gerontology training received by the study participants, and by their experiences in professional practices. From another angle, it must be born in mind that the conception of ageing is a constant construction, currently conceived as a trajectory or course of life (life course paradigm). There may be personal or psychogerontological factors which influence the attitudes of this group of participants⁽¹⁾.

The statements from the list of those where a trend towards negative attitudes was detected include particularly those referring to senior citizens being "Set in their ways and unable to change" (items 5 and 6 of the KAOP); "Complaining about the behaviour of the younger generation" (items 31 and 32) and their "Need for love and reassurance" (item 34). There was a trend towards agreement that the behaviour of senior citizens tends to be rigid. This perception of rigidity may be attributed to the conceptual relationship between these statements and the theoretical characterisation of the changes that occur during ageing⁽²⁹⁾, when they do not agree with the current view of ageing as a life course⁽¹⁾; or to experiences or interactions resulting from therapeutic interventions witnessed during the professional practice in the student's training. Professional training thus needs to stress demographic changes, the quality of health attention, and the view that elderly people currently have of themselves, since many reach an advanced age feeling that they are autonomous, fully functioning members of society⁽¹⁾. This will improve the quality of attention, which results in part from professionals' attitudes^(15,19) and minimising expressions of ageism⁽³⁰⁾.

One of the limitations of this study is that although it included all the final year speech and language therapy students of this university, the results are not generalizable. The context of the training of these participants must be taken into account, since they are being trained for family and community health; the findings might differ in different study cases across the country. The findings of this study therefore need to be complemented with studies addressing a wider range of institutions and a larger population. Another limitation is the study design, since it would be desirable to carry out a follow-up of the participants during different phases or cycles of their academic training. It is also important to remember that a report on quantitative data does not provide insight into perceptions, opinions, experiences or elements which give a deeper understanding of the results, whereas the use of mixed methodologies would favor this process.

CONCLUSIONS

Within the constrictions of the present study, the object was to provide information to enable us to describe the situation of students in the final year of the Speech and Language Therapy course, in order to improve both their training and processes related with the quality of health attention. In this context, we suggest advancing towards an academic view of old age, seeing it as a life course and in line with the health challenges affecting this population sector; in this way the training process can produce respectful professionals free of expressions of ageism and trained to respond to these new needs.

REFERENCES

- Zarebski G. Cuestionario Mi Envejecer - CME: un instrumento psicogerontológico para evaluar la actitud frente al propio envejecimiento. 1. ed. Buenos Aires: Paidós; 2014.
- OMS: Organización Mundial de la Salud. Informe mundial sobre el envejecimiento y la salud. Genova: OMS; 2015. (vol. 53).
- INE: Instituto Nacional de Estadística de Chile. Adulto mayor en Chile [Internet]. Santiago de Chile: Subdepartamento de Estadísticas Demográficas; 2007. Available from: http://www.ine.cl/canales/sala_prensa/noticias/2007/septiembre/boletin/ine_adulto_mayor.pdf
- Ferrucci L, Giallauria F, Guralnik JM. Epidemiology of aging. *Radiol Clin North Am.* 2008;46(4):643-52, v. <http://dx.doi.org/10.1016/j.rcl.2008.07.005>. PMID:18922285.
- Departamento de Estudios y Desarrollo. Perfil epidemiológico del adulto mayor en Chile [Internet]. Superintendencia de Salud; 2006. Available from: http://www.supersalud.gob.cl/documentacion/569/articles-4020_recurso_1.pdf
- Alberich T. Envejecimiento físico, psicológico y social. In: Barranco A, Funes A, editors. *Intervención social y sanitaria con mayores: manual de trabajo con la 3º y 4º edad*. Madrid: Dykinson; 2008. p. 17-47.
- Kerlinger FN, Lee HB. *Investigación del comportamiento*. 4. ed. México: McGraw-Hill; 2002.
- Chachamovich E, Fleck M, Laidlaw K, Power M. Impact of major depression and subsyndromal symptoms on quality of life and attitudes toward aging in an international sample of older adults. *Gerontologist.* 2008;48(5):593-602. <http://dx.doi.org/10.1093/geront/48.5.593>. PMID:18981276.
- Hovey S, Dyck MJ, Reese C, Kim M. Nursing students' attitudes toward persons who are aged: an integrative review. *Nurse Educ Today.* 2017;49:145-52. <http://dx.doi.org/10.1016/j.nedt.2016.11.018>. PMID:27930921.
- Özdemir Ö, Bilgili N. Attitudes of Turkish Nursing Students Related to Ageism. *J Nurs Res.* 2016;24(3):211. <http://dx.doi.org/10.1097/jnr.000000000000131>. PMID:26998768.
- American Speech-Language-Hearing Association. Knowledge and skills needed by speech-language pathologists providing services to individuals with swallowing and/or feeding disorders. *ASHA Suppl.* 2002;22(81):447-53.
- Kagan SH, Melendez-Torres GJ. Ageism in nursing. *J Nurs Manag.* 2015;23(5):644-50. <http://dx.doi.org/10.1111/jonm.12191>. PMID:24238082.
- Mansfield-Green S, Morrisseau N-R, Valliant PM, Caswell JM. Undergraduate students' attitudes toward, and personality correlates in relation to, older adults. *Soc Behav Personal.* 2015;43(10):1741-8. <http://dx.doi.org/10.2224/sbp.2015.43.10.1741>.
- Yildiz A, Usta YY, Demir Y, Yo M. Nursing students' attitudes toward ageism in Turkey. *Arch Gerontol Geriatr.* 2012;2012(54):90-3.
- Holroyd A, Dahlke S, Fehr C, Jung P, Hunter A. Attitudes toward aging: implications for a caring profession. *J Nurs Educ.* 2009;48(7):374-80. <http://dx.doi.org/10.3928/01484834-20090615-04>. PMID:19634262.
- Flood MT, Clark RB. Exploring knowledge and attitudes toward aging among nursing and nonnursing students. *Educ Gerontol.* 2009;35(7):587-95. <http://dx.doi.org/10.1080/03601270802605333>.
- Yen CH, Liao WC, Chen YR, Kao MC, Lee MC, Wang CC. A Chinese version of kogan's attitude toward older people scale: reliability and validity assessment. *Int J Nurs Stud.* 2009;46(1):37-43. <http://dx.doi.org/10.1016/j.ijnurstu.2008.05.004>. PMID:18701105.
- Wesley SC. Enticing students to careers in gerontology: faculty and student perspectives. *Gerontol Geriatr Educ.* 2005;25(3):13-29. http://dx.doi.org/10.1300/J021v25n03_02. PMID:15772016.
- Plonczynski DJ, Ehrlich-Jones L, Robertson JF, Rossetti J, Munroe DJ, Koren ME, et al. Ensuring a knowledgeable and committed gerontological nursing workforce. *Nurse Educ Today.* 2007;27(2):113-21. <http://dx.doi.org/10.1016/j.nedt.2006.04.004>. PMID:16759757.

20. Hweidi IM, Al-obeisat SM. Jordanian nursing students' attitudes toward the elderly. *Nurse Educ Today*. 2006;26(1):23-30. <http://dx.doi.org/10.1016/j.nedt.2005.06.003>. PMID:16115699.
21. Deltsidou A, Gesouli-Voltyraki E, Mastrogiannis D, Mantzorou M, Noula M. Nurse teachers' and student nurses' attitudes towards caring the older people in a province of Greece. *Health Sci J*. 2010;4(4):245-57.
22. Hatami B, Ebn Ahmady A, Khoshnevisan MH, Lando HA. Senior dental student's attitudes toward older adults and knowledge of geriatric dental care in the Islamic Republic of Iran. *East Mediterr Health J*. 2013;19(3):172-7. PMID:24995742.
23. Nochajski TH, Waldrop DP, Davis EL, Fabiano JA, Goldberg LJ. Factors that influence dental students' attitudes about older adults. *J Dent Educ*. 2009;73(1):95-104. PMID:19126770.
24. León S, Correa-Beltrán G, Giacaman RA. Negative ageing stereotypes in students and faculty members from three health science schools. *Gerodontology*. 2015;32(2):141-8. <http://dx.doi.org/10.1111/ger.12065>. PMID:23822151.
25. Hernández R, Fernández C, Baptista MP. *Metodología de la Investigación*. 6. ed. México D.F.: McGraw Hill; 2014.
26. Kogan N. Attitudes toward old people: the development of a scale and an examination of correlates. *J Abnorm Soc Psychol*. 1961;62(1):44-54. <http://dx.doi.org/10.1037/h0048053>. PMID:13757539.
27. Sampén J, Varela LF, Díaz C, Tello T, Ortiz PJ. Validación de la Escala de Actitudes hacia el adulto mayor por parte del personal de salud del primer nivel asistencial. *Acta Médica Peru*. 2012;29(3):148-54.
28. Asociación Médica Mundial. Declaración de Helsinki de la AMM – Principios éticos para las investigaciones Médicas en seres humanos [Internet]. 2013. Available from: <https://www.wma.net/es/politicas-post/declaracion-de-helsinki-de-la-amm-principios-eticos-para-las-investigaciones-medicas-en-seres-humanos/>
29. Cardona P, Agudelo H. *La Flor de la vida. Pensemos en el adulto*. Medellín: Universidad de Antioquía. Facultad de Salud Pública; 2006.
30. Butler RN. Ageism: a foreword. *J Soc Issues*. 1980;36(2):8-11. <http://dx.doi.org/10.1111/j.1540-4560.1980.tb02018.x>.

Author contributions

FH: *Acted as principal author, took part in designing the study, data collection, analysis and interpretation, and in writing the article.* NR and FS: *Participated in data collection, analysis and interpretation.* CM: *Acted as supervisor in study design, data analysis and interpretation and in writing the article.*