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THE ASSESSMENT OF AGEISM IN DENTAL HYGIENE STUDENTS AND DENTAL HYGIENISTS: A CROSS-SECTIONAL STUDY

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Objectives: Ageism is a common type of discrimination and prejudice that consists in the stereotyping and discrimination against individuals or groups on the basis of their age.The purpose of this study was to assess dental hygienists and dental hygiene students' attitudes toward geriatric patients, the perceptions of curriculum suitability, and their confidence in treating geriatric patients, together with an assessment of ageism in the study population.

Methods: A survey was conducted among dental hygienists and dental hygiene students. The first part of the questionnaire contained questions related to demographics, and regarding their opinion on treatment in the geriatric population. The second part of the survey included the ASDS scale.

Results: A total of 57 participants responded to the survey with a mean age of 26.2 years. Second year and third year students, as well as graduate dental hygienists, were significantly more confident in treating and managing geriatric patients on their own compared to first year students ($P = 0.02$). The lowest values (less ageism) of ASDS were recorded in factor 1 (values/ethics about older people; 2.51 in Q8 item) and the highest (more ageism) in factor 3 (barriers to dental care; 4.70 in Q20 item) and factor 2 (patient compliance; 4.37 in Q11 item).

Conclusions: The current study shows that, in spite of low ageist starting attitudes, the behavior dental hygiene students and dental hygienists toward geriatric patients could still be improved.

Keywords: Ageism, Dental hygiene, Education, Elderly, Old.

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Conflicts of interest:
The authors declare no conflicts of interest.

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L'ÉVALUATION DE L'AGISME CHEZ LES ÉTUDIANTS EN HYGIENE DENTAIRE ET LES HYGIENISTES DENTAIRES: UNE ÉTUDE TRANSVERSALE.

Objectifs: L'âgisme est une forme courante de discrimination et de préjugé qui consiste à stéréotyper et à discriminer des individus ou des groupes en raison de leur âge.Cette étude visait à évaluer l'attitude des hygiénistes dentaires et des étudiants en hygiène dentaire envers les patients gériatriques, leur perception de la pertinence du programme d'études et leur confiance dans la prise en charge de ces patients, ainsi qu'à évaluer l'âgisme au sein de la population étudiée.

Méthodes: Une enquête a été menée auprès d'hygiénistes dentaires et d'étudiants en hygiène dentaire. La première partie du questionnaire comportait des questions d'ordre démographique et portait sur leur opinion concernant les traitements en gériatrie. La seconde partie incluait l'échelle ASDS.

Résultats: Au total, 57 participants ont répondu à l'enquête, leur âge moyen étant de 26,2 ans. Les étudiants de deuxième et troisième année, ainsi que les hygiénistes dentaires diplômés, étaient significativement plus confiants dans le traitement et la prise en charge autonomes des patients gériatriques que les étudiants de première année ($p = 0,02$). Les valeurs les plus faibles (moins d'âgisme) de l'échelle ASDS ont été enregistrées pour le facteur 1 (valeurs/éthiques concernant les personnes âgées ; 2,51 à la question 8) et les plus élevées (plus d'âgisme) pour le facteur 3 (obstacles aux soins dentaires ; 4,70 à la question 20) et le facteur 2 (observance du traitement par le patient ; 4,37 à la question 11).

Conclusions: L'étude actuelle montre que, malgré des attitudes initiales peu âgistes, le comportement des étudiants en hygiène dentaire et des hygiénistes dentaires envers les patients gériatriques pourrait encore être amélioré.

Mots clés: âgisme, éducation, hygiène dentaire, personnes âgées, vieux.

Introduction

The progressive aging of the European population represents a challenge for healthcare providers. The increasing longevity, the more active lifestyles, and a growth in the ratio of the elderly in the population involve an increase in the frequency of old patients in dental settings too [1-10]. Therefore, a real understanding of oral health in geriatric patients together with psychological and social aspects of aging is essential for any dental practitioner to provide an appropriate dental care to geriatric patients and to develop more effective treatment strategies [1-7].

The training of dental hygienists, in addition to knowledge and skills, should also include the education and development of appropriate attitudes (such as an effective communication and confidence-building) and a sense of social responsibility in geriatric dentistry.

Ageism is a common type of discrimination and prejudice that consists in the stereotyping and discrimination against individuals or groups on the basis of their age [1-4, 6-13].

Ageism may be directed at both young and old, athough older individuals are the most frequent victims of this kind of prejudice. Ageist attitudes may manifest in several different ways ,such as disrespect, unfair treatment, abuse, or denied services or healthcare.

The ageist prejudices can be observed among health professionals too, thus negatively affecting the quality of medical care provided to elderly patients and finally impacting their health outcomes [2, 4, 7, 10, 13].

In healthcare settings ageism may be expressed by providing health care based on chronological age alone, expressing patronising behaviour, avoiding discussions with older patients about their treatment preferences, or providing limited treatment choices.

It is important to identify ageism in healthcare contexts, so that measures to control relevant behaviors and reduce their impact on the quality of care for elderly patients may be developed.

To this aim, the Ageism Scale for Dental Students (ASDS) was developed and tested in the USA, Europe, Asia, and South America.

The purpose of this study was to assess dental hygienists and dental hygiene students' attitudes toward geriatric patients, the perceptions of curriculum suitability, and their confidence in treating geriatric patients, together with an assessment of ageism in the study population.

Materials and Methods

A survey was conducted among dental hygienists and dental hygiene students during their clinical training with patients. While the curriculum of Dental Hygiene Degree does not include a dedicated course in gerodontology, students regularly encounter older patients.

Participants were informed about the survey, its aim, and methodology. Participation in the survey was voluntary and anonymous. A link to the online questionnaire was emailed to dental hygienists and dental hygiene students, and completing the survey constituted their consent to participate.

Informed consent was obtained from those willing to participate and all participants were assured confidentiality of the data. Ethical committee was not necessary as a survey of personal opinions according to local laws.

Participants were recruited among the dental hygienists of the North West of Italy and dental hygiene students from a University of the North West of Italy. Inclusion criteria were: age above 18 years; practical experience with dental hygiene execution; personal experience with patient management; knowledge of English language.

The survey was conducted between September 2024 and March 2025.

A sample size of 50 participants was considered to be sufficient in agreement with previous studies involving ASDS scale [3, 13].

The questionnaire was divided into two parts.

The first part contained questions related to demographics, year of studies, obtained dental hygiene degree, and questions regarding their opinion on treatment in the geriatric population, the experience with older subjects, the current geriatric degree curriculum, and the need for specific training in geriatric dentistry, according to Singh et al [2].

The second part of the survey included the ASDS scale (English version) [3, 13]. Participants were required to respond to the 27 items using a sixpoint Likert scale (strongly disagree, 1 point; disagree, 2 points; slightly disagree, 3 points; slightly agree, 4 points; agree, 5 points; strongly agree, 6 points). Higher scores indicating more "ageist" attitudes. Therefore, items Q5, Q6, Q7 and Q9 were scored in reverse.

Data was entered into a Microsoft Excel spreadsheet (Microsoft Corporation, Redmond, USA). Summarized data was presented using tables and graphs. The quantitative data were expressed in

frequency and percentages. Independent samples t tests and chi-square correlations were used as appropriate, and the statistical significance was set at $P < 0.05$.

Results

A total of 57 participants responded to the survey. Among the participants, 10 (17.5%) were male, 47 (82.5%) were female.

The mean age was 26.2 years (range, 19 – 59 years; median, 23 years; SD, 9.2).

Twenty-four participants students (42.1%) were first year students, 17 (29.8%) second year students, 9

(15.8%) third year students, and 7 (12.3%) were already graduate dental hygienists.

Table 1 presents different attitude items regarding the treatment of geriatric patients.

Second year and third year students, as well as graduate dental hygienists, were significantly more confident in treating and managing geriatric patients on their own compared to first year students (P = 0.02). Likewise, first year students were significantly less confident in communicating with geriatric patients appropriately (p = 0.03)

No statistically significant differences were found between different participants categories regarding the impact of aging related changes on treatment procedures, the time geriatric patients take to adapt to new treatments, the need of a more sympathetic attitude while treating geriatric patients, whether current dental curriculum adequately prepares them for treating geriatric patients, and the need of specific training on management of geriatric patients. Instead, the thinking that geriatric patients would require longer appointments for a procedure was significantly associated with the first year and second year students compared to third year students and graduate dental hygienists (P = 0.0009).

Tables 2, 3, 4, and 5 presents the results of the four main factors of the ASDS, in agreement with Kossioni et al[3]. The lowest values (less ageism) were recorded in factor 1 (values/ethics about older people) and the highest (more ageism) in factor 3 (barriers to dental care) and factor 2 (patient compliance).

Occupation, history of taking care of older persons, and gender did not show any statistically significant variation in relation to the total scale score, with few exceptions.

In fact, in item Q19 ("It is too costly to provide out of office dental care to homebound elderly patients"), participants that had reported a previous experience of taking care of elderly persons were statistically significantly associated with a less ageist attitude (p = 0.003).

Furthermore, in item Q17 ("The elderly patient does not live long enough to make it worthwhile to invest money in expensive dental treatment"), a statistically significant less ageist attitude (p = 0.019) was associated with graduate dental hygienists and third year students, in comparison with first year and second year students.

Table 1. Comparison of responses to different items in the questionnaire between participants

Item	Participants	Disagree		Agree		
		N	%	N	%	
I am confident in treating and managing geriatric patients on my own	1st year	14		10		P= 0.02*
	2nd year	2		15		
	3rd year	3		6		
	graduate	2		5		
	TOTAL	21	37%	36	63%	
Aging-related changes impact treatment procedure	1st year	2		22		P= 0.15
	2nd year	1		16		
	3rd year	0		9		
	graduate	0		7		
	TOTAL	3	5%	54	95%	
Communicating with geriatric patient is different from other age group.	1st year	5		19		P= 0.13
	2nd year	1		16		
	3rd year	0		9		
	graduate	0		7		
	TOTAL	6	10%	51	90%	
I am able to communicate with geriatric patients appropriately	1st year	10		14		P= 0.03*
	2nd year	1		16		
	3rd year	1		8		
	graduate	0		7		
	TOTAL	12	21%	45	79%	

Geriatric patients require longer appointments for a procedure.	1st year	4		20		P = 0.0009 *
	2nd year	8		9		
	3rd year	7		2		
	graduate	6		1		
	TOTAL	25	44%	32	56%	
Meeting expectation of a geriatric patient is different than other age group	1st year	13		11		P= 0.18
	2nd year	8		9		
	3rd year	3		6		
	graduate	3		4		
	TOTAL	27	47%	30	53%	
Geriatric patient tends to take more time in adapting to new treatment.	1st year	6		18		P= 0.25
	2nd year	0		17		
	3rd year	1		8		
	graduate	1		6		
	TOTAL	8	14%	49	86%	
One should be more sympathetic and attentive while treating geriatric patients.	1st year	1		23		P= 0.31
	2nd year	2		15		
	3rd year	0		9		
	graduate	0		7		
	TOTAL	3	5%	54	95%	
I would like to treat geriatric patients in my upcoming professional years.	1st year	8		16		P= 0.42
	2nd year	6		11		
	3rd year	3		6		
	graduate	2		5		
	TOTAL	19	33%	38	67%	
The current dental curriculum is helping in treating geriatric patients better.	1st year	2		22		P= 0.19
	2nd year	4		13		
	3rd year	1		8		
	graduate	1		6		
	TOTAL	8	14%	49	86%	
There should be a specific training on management of geriatric patients.	1st year	4		20		P= 0.23
	2nd year	7		10		
	3rd year	2		7		
	graduate	2		5		
	TOTAL	15	26%	42	74%	

* Significant if $p<0.05$

Table 2. ASDS – Factor 1: *Values /ethics about older people*

Items	Participants Study/job position			Gender			Living			Elderly care		
	Categories	Mean	p	Categories	Mean	p	Categories	Mean	P	Categories	Mean	P
Q7In general, elderly people contribute a lot to society	1st year	2.96	P= 0.24	Female	2.91	P= 0.22	Village/city < 20.000	3.7	P = 0.14	Yes	2.85	P= 0.12
	2nd year	3.35		Male	3.3		City > 20.000	4.2		No	3.54	
	3rd year	2.67										
	graduate	2.57										
	TOTAL	2.98		TOTAL	2.98		TOTAL	2.98		TOTAL	2.98	
Q8 Elderly patients are better off in nursing homes	1st year	2.5	P= 0.41	Female	2.47	P= 0.36	Village/city < 20.000	2.52	P = 0.33	Yes	2.48	P= 0.17
	2nd year	2.41		Male	2.7		City > 20.000	2.5		No	2.64	
	3rd year	2.89										
	graduate	2.28										
	TOTAL	2.51		TOTAL	2.51		TOTAL	2.51		TOTAL	2.51	
Q16 The elderly patient does not live long enough to make it worthwhile to invest time and effort in complex dental treatment	1st year	3.21	P= 0.26	Female	2.57	P= 0.72	Village/city < 20.000	2.61	P = 0.11	Yes	2.56	P= 0.19
	2nd year	1.94		Male	2.7		City > 20.000	2.59		No	2.73	
	3rd year	2.67										
	graduate	2										
	TOTAL	2.60		TOTAL	2.60		TOTAL	2.60		TOTAL	2.60	
Q17 The elderly patient does not live long enough to make it worthwhile to invest money in expensive dental treatment	1st year	3.17	P= 0.019*	Female	2.53	P= 0.08	Village/city < 20.000	2.65	P = 0.07	Yes	2.59	P= 0.23
	2nd year	2.35		Male	3.2		City > 20.000	2.65		No	2.91	
	3rd year	2.55										
	graduate	1.71										
	TOTAL	2.65		TOTAL	2.65		TOTAL	2.65		TOTAL		
Total Factor 1 mean: 2.68												

* Significant if $p<0.05$

Table 3. ASDS – Factor 2: *Patient compliance*

Items	Participants Study/job position			Gender			Living			Elderly care		
	Categories	Mean	p	Categories	Mean	p	Categories	Mean	P	Categories	Mean	P
Q10 Elderly patients often won't accept recommended treatment plans	1st year	3.96	P= 0.18	Female	3.96	P= 0.11	Village/city < 20.000	4.13	P= 0.21	Yes	3.93	P= 0.16
	2nd year	4.12		Male	4.1		City > 20.000	3.88		No	4.18	
	3rd year	4.44										
	graduate	3.14										
	TOTAL	3.98		TOTAL	3.98		TOTAL	3.98		TOTAL	3.98	
Q11 Elderly patients have fixed ideas about what is proper dental treatment	1st year	4.21	P= 0.31	Female	4.36	P= 0.17	Village/city < 20.000	4.52	P= 0.34	Yes	4.35	P= 0.32
	2nd year	4.70		Male	4.4		City > 20.000	4.26		No	4.45	
	3rd year	4.67										
	graduate	3.71										
	TOTAL	4.37		TOTAL	4.37		TOTAL	4.37		TOTAL	4.37	
Q13 Elderly people do not take good care of their teeth	1st year	3.79	P= 0.34	Female	3.76	P= 0.12	Village/city < 20.000	3.61	P= 0.08	Yes	3.65	P= 0.09
	2nd year	3.59		Male	3.5		City > 20.000	3.79		No	4	
	3rd year	4.33										
	graduate	3										
	TOTAL	3.72		TOTAL	3.72		TOTAL	3.72		TOTAL	3.72	
Q14 Elderly patients do not usually comply with dental advice	1st year	3.96	P= 0.26	Female	3.89	P= 0.18	Village/city < 20.000	3.83	P= 0.11	Yes	3.72	P= 0.16
	2nd year	3.76		Male	3.6		City > 20.000	3.85		No	4.36	
	3rd year	4.55										
	graduate	2.71										
	TOTAL	3.84		TOTAL	3.84		TOTAL	3.84		TOTAL	3.84	
Total Factor 2 mean: 3.98												

* Significant if $p<0.05$

Table 4. ASDS – Factor 3: *Barriers to dental care*

Items	Participants Study/job position			Gender			Living			Elderly care		
	Categories	Mean	p	Categories	Mean	p	Categories	Mean	P	Categories	Mean	P
Q19 It is too costly to provide out of office dental care to homebound elderly patients	1st year	3.75	P= 0.23	Female	3.34	P= 0.09	Village/city < 20.000	3.48	P= 0.18	Yes	3.13	P= 0.003*
	2nd year	3.18		Male	3.5		City > 20.000	3.29		No	4.36	
	3rd year	3.33										
	graduate	2.57										
	TOTAL	3.37		TOTAL	3.37		TOTAL	3.37		TOTAL	3.37	
Q20 Cost is a major barrier to many elderly patients seeking dental care	1st year	4.87	P= 0.09	Female	4.79	P = 0.14	Village/city < 20.000	4.56	P= 0.18	Yes	4.65	P= 0.23
	2nd year	4.65		Male	4.3		City > 20.000	4.79		No	4.91	
	3rd year	4.33										
	graduate	4.71										
	TOTAL	4.70		TOTAL	4.70		TOTAL	4.70		TOTAL	4.70	
Q23 It is normal for elderly people to have oral problems	1st year	3.92	P= 0.24	Female	3.64	P= 0.31	Village/city < 20.000	3.91	P= 0.16	Yes	3.80	P= 0.19
	2nd year	3.41		Male	4.3		City > 20.000	3.65		No	3.54	
	3rd year	4.22										
	graduate	3.43										
	TOTAL	3.75		TOTAL	3.75		TOTAL	3.75		TOTAL	3.75	
Q25 Elderly patients should be treated by a someone with advanced training in geriatric dentistry	1st year	4.14	P= 0.18	Female	4.30	P= 0.33	Village/city < 20.000	4.22	P= 0.09	Yes	4.33	P= 0.12
	2nd year	4.33		Male	4.3		City > 20.000	4.35		No	4.18	
	3rd year	4.23										
	graduate	4.44										
	TOTAL	4.30		TOTAL	4.30		TOTAL	4.30		TOTAL	4.30	
Total Factor 3 mean: 4.03												

* Significant if $p<0.05$

Table 5. ASDS – Factor 4: *Dentist–older patient interaction*

Items	Participants Study/job position			Gender			Living			Elderly care		
	Categories	Mean	p	Categories	Mean	p	Categories	Mean	P	Categories	Mean	P
Q5 I tend to pay more attention towards my elderly patients than my younger patients	1st year	3.83	P= 0.31	Female	3.96	P= 0.16	Village/city < 20.000	3.87	P= 0.19	Yes	3.82	P= 0.09
	2nd year	3.76		Male	3.5		City > 20.000	3.88		No	4.09	
	3rd year	4.33										
	graduate	3.71										
	TOTAL	3.88		TOTAL	3.88		TOTAL	3.88		TOTAL	3.88	
Q6 I tend to have more sympathy towards my elderly patients than my younger patients	1st year	4.12	P= 0.18	Female	4	P= 0.32	Village/city < 20.000	3.91	P = 0.11	Yes	3.89	P= 0.26
	2nd year	3.76		Male	3.8		City > 20.000	4		No	4.27	
	3rd year	4.11										
	graduate	3.71										
	TOTAL	3.96		TOTAL	3.96		TOTAL	3.96		TOTAL	3.96	
Q9 Elderly patients tend to be more appreciative of the dental care I provide than younger patients	1st year	3.71	P= 0.22	Female	3.51	P= 0.15	Village/city < 20.000	3.43	P= 0.28	Yes	3.45	P= 0.31
	2nd year	3.76		Male	3.7		City > 20.000	3.62		No	3.56	
	3rd year	3.33										
	graduate	2.71										
	TOTAL	3.54		TOTAL	3.54		TOTAL	3.54		TOTAL	3.54	
Total Factor 4 mean: 3.79												

* Significant if $p<0.05$

Discussion

Dental care of elderly people relies not only on medical knowledge and skills but also on empathy.

Therefore, the improvement of the attitudes of dental hygiene students towards the elderly people should be a crucial goal of dental hygiene degree programs.

Ageism has a strong cultural and social rooting. In fact, the total score of both the first questionnaire and the ASDS test was more or less uniform across the sample, regardless of gender, demographic comparison, year of studying, or previous experience of taking care of elderly people.

Positively oriented dental hygienists may offer customized care in a more appropriate way to elderly patients, that may have cognitive and physical impairments that might make it difficult to get comfortable dental care [2, 3, 5, 6, 8, 10, 13].

Therefore, the aim of the present study was to assess the attitude of dental hygiene students and dental hygienists toward the elderly patients.

The study showed an overall positive attitude of dental hygiene students and dental hygienists toward geriatric patients in agreement with previous studies. In fact, items related to factor 1 (values /ethics about older people) revealed a low score as for an ageist attitude.

This result seems to be extremely important as dental hygiene students enter the dental school with pre-existing personal values on ageing, developed within the family environment and the local society and culture.

In Italy, the lifestyle and social changes in the past decades have altered the traditional family structure, but close relationships with grandparents and other older relatives still exist. Therefore, it should not be surprising that the 81% of participants reported to have taken care of elderly people in the past. This may explain why factor 1 (values/ethics about older people) scoring mean was 2.68, that is a low value. In fact, most participants seemed to agree that elderly people contribute a lot to society (Q7), while most participants disagree that the elderly patient does not live long enough to make it worthwhile to invest money in expensive dental treatment (Q17), or to invest time and effort in complex dental treatment (Q16).

Unfortunately, in spite of rooted values with low ageism, the results of the present study seem to highlight that attitudes related to Patient compliance

(factor 2) and Barriers to dental care (factor 3) seem to be more ageist in the study population. These two factors include more practical items such as "It is too costly to provide out of office dental care to homebound elderly patients" (Q19), "Cost is a major barrier to many elderly patients seeking dental care" (Q20), or "Elderly patients often won't accept recommended treatment plans" (Q10). Therefore, it seems that, in spite of adequate and appropriate values, dental hygiene students and dental hygienists, when they face the reality, tend to develop a more ageist thinking.

As for gender, there is large variability in the dental literature on different attitudes towards older people. In the present study population, no significant differences between sexes were reported by dental hygiene students or dental hygienists.

The role of dental training is extremely important. In the present study, although in general no statistically significant differences was calculated according to the year of study, a general trend of improvement with lower ageist attitudes was observed in almost all items. Item Q17 ("The elderly patient does not live long enough to make it worthwhile to invest money in expensive dental treatment") even revealed a statistically significant difference with graduate dental hygienists and third year students being less ageist in comparison with first year and second year students.

The topic of ageism is not extensively addressed in the literature, even though it can pose a significant obstacle to proper and appropriate patient care, not only in medicine but also in dentistry [2, 3, 5, 6, 8, 10, 13]. Specifically in dental hygiene, the topic is virtually unrecognized. However, the responses obtained in this study reveal how biases and prejudices can also influence treatment decisions and care plans.

For example, a dental hygienist who is more likely to develop ageist-biased thinking may be less likely to recommend long-term treatments to elderly patients who could otherwise benefit greatly from such treatment options.

Of course, the present study has several limitations, including the potential selection bias and the self-reported data through an online survey that introduces the potential for response bias with socially desirable or inaccurate responses.

The fact that the survey is based on self-reported data may represent a significant bias for several reasons. Some participants may have been confronted and succumbed to social pressure. On the other hand, the possibility of choosing more idealistically politically correct answers without any possibility of objective verification may have pushed some survey participants to choose answers that were more acceptable to current society. Therefore, survey responses should be compared with an objective assessment of participants' behavior toward real patients.

Practical recommendations for dental hygiene education

The importance of ageism has important potential implications for university education. Indeed, changes to the university curriculum could be envisioned so that dental hygiene students understand the importance of an empathetic approach to older patients. In several countries, dental hygiene curricula include courses in psychology or the healthcare professional-patient relationship. Appropriate implementation of such courses, including simulation initiatives, could help students develop a healthy relationship with older and more fragile patients and avoid limiting treatment options in such cases.

Conclusions

In conclusion, further research is needed to obtain a deeper understanding of the ageism in dental practitioners and dental hygienists and to assess the improvement of ageist attitudes during dental degree programs.

Gerodontology plays an extremely important role in the training of future dental hygienists. The current study shows that, in spite of low ageist starting attitudes, the behavior dental hygiene students and dental hygienists toward geriatric patients could still be improved.

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