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Attitudes of dental students towards treating elderly patients

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SUMMARY

The purpose of this questionnaire-based survey was to evaluate the attitudes of the undergraduate dental students towards elders. The 14-item Geriatric attitudes scale (GAS) questionnaire, along with a 9-item questionnaire with specific questions on the current dental geriatrics curriculum, confidence, and preference in treating elderly patients were administered to the undergraduate dental students (3rd bachelor, 1st master, and 2nd master) in the four Swiss university dental schools. Mean GAS scores were calculated and inter- and intra-group differences were analyzed with ANOVA and post hoc tests (level of significance set at $\alpha = 0.05$). Responses to the 9-item questionnaire were reported descriptively. Further analyses were performed to evaluate the effect of demographic factors on the GAS scores. 305 students (mean age: 25.8 ± 4.0 y)

participated in this study. The mean overall GAS score of the students was 3.5 ± 0.4 . There were no significant differences in the GAS scores between the centers ($p = 0.081$) or between the years of training ($p = 0.154$). Demographic factors did not influence the GAS scores. Students considered geriatric dentistry as an important part of their dental undergraduate education. The current geriatrics curriculum was perceived to be on an adequate level. Hands-on experience in treating geriatric patients in the undergraduate curriculum was positively opinionated, and mobile dental services for elders with limited access to care was considered a good solution. In conclusion, the attitudes of the Swiss undergraduate dental students towards an elderly patient seem acceptable but could still be improved.

Introduction

As a consequence of current population demographic trends, medical and dental practices are presented with increasing numbers of geriatric clients. Moreover, the elderly patient nowadays presents with increasing numbers of natural teeth and with complex treatment needs (ZITZMANN ET AL. 2007; SCHNEIDER ET AL. 2017). The situation is further complicated due to the complex health and cognitive statuses of the elderly patient. The dental and medical curricula have accordingly started increasing their geriatric content (REUBEN ET AL. 1998). The aims of these measures are to somehow increase the awareness and the students' knowledge as well as to accomplish a better understanding of the geriatric subjects. An additional focus, however, lies on implementing a positive attitude towards older persons along with the necessary care that needs to be rendered. More importantly, the geriatric modules in the dental curriculum will help the young students to be better experienced in treating the complex geriatric patient efficiently, confidently, and deliver quality care.

Discrimination due to age is not uncommon, especially in Europe (ABRAMS ET AL. 2011). Findings from the European Social Survey indicated that 57% of the participants find that elders over 70 years contribute very little to the society. The same survey also documented that 49% of the participants believe that the elderly are a burden on the health care services. Studies indicated that the attitudes of health care professionals, including dentists, towards the elderly have ranged between moderately positive to even negative (BECK ET AL. 1979; FABIANO ET AL. 2005; WALDROP ET AL. 2006; DE VISSCHERE ET AL. 2009; NOCHAJSKI ET AL. 2009, 2011; ETTINGER 2012; MOREIRA ET AL. 2012). These findings are a cause for concern because these may affect the treatment choices offered to older patients (BOWLING 1999; ROBB ET AL. 2002). Therefore, it is important to cultivate an accepting and positive attitude in the minds of the students early in their medical or dental curriculum towards elders in order to foster an aspect of responsibility towards treating them. Hence, it is important to assess whether the modules of geriatric content in the current study curriculum are adequate to instill confidence in the young graduates to treat the complex elderly patient.

The aim of this questionnaire-based survey was to assess the attitudes of dental students on treating elderly patients. Therefore, the null hypothesis set for this survey was that, irrespective of the year of training, there would be no differences in the attitudes of the dental students towards elderly patients. The secondary aim was to evaluate the opinions of the students on the adequacy of the geriatric modules present in their training curriculum and their confidence levels in hypothetically treating the elderly unsupervised.

Materials and methods

This Swiss nation-wide survey was conducted amongst the dental students from the Swiss universities of Basel, Bern, Geneva, and Zurich. The validated 14-item Geriatric Attitudes Scale (GAS-14, Tab. I) questionnaire (REUBEN ET AL. 1998) was reviewed by the cantonal ethics committee of Zurich (Kantonale Ethikkommission Zürich [KEK ZH]) and they decided that an ethics approval was not required to conduct this survey (Basec-Nr.: Req-2019-00840) as it did not fall within the scope of the Human Research Act (HRA). Following the decision from KEK ZH, the respective ethics committees of Basel (Ethikkommission Nordwest- und Zentralschweiz [EKNZ]), Bern (Kantonale Ethikkommission Bern [KEK Bern]), and Geneva (Com-

mission cantonale d'éthique de la recherche [CCER]) were contacted and all authorities confirmed that an ethics approval was not required to conduct this survey.

Survey questionnaires

The GAS-14 questionnaire has 14 items which were designed to evaluate the attitudes of health care providers/students towards older adults as well as in providing care for these individuals (Tab. I). The items are such designed that they are sensitive to detect changes in the attitudes of the students. Each of the questions has a 5-point Likert scale response type (1 = strongly disagree, 2 = somewhat disagree, 3 = neutral, 4 = somewhat agree, 5 = strongly agree). The questions are either positively or negatively phrased with reversed response scores for the latter (i.e., 1 to 5, 2 to 4, 3 stays, 4 to 2, and 5 to 1). The scores for negatively phrased questions are reversed (nos. 2, 3, 5, 6, 8, 10, 11, 12, and 13) before being added to the scores of the positively worded items to obtain a total score. A second questionnaire with 9 items related to students' opinions on the current gerontology modules in their study curriculum was also presented (Tab. I). This 9-item questionnaire also has a Likert scale response-type system. General demographic data about the participants such as age, sex, nationality, country of origin, religion, marital status, accommodation status, whether they lived with their parents or grandparents or both, were also collected.

Translation

The GAS-14 questionnaire was translated according to the Medical Outcomes Trust criteria (1997). The questionnaire was translated from English to French, and to German. Then it was back-translated from French and German to English and adjusted where necessary. The questionnaires were reviewed and checked for any problems in comprehension. If any such problems were encountered, appropriate corrections were made accordingly.

Participants

The survey included the dental students in Switzerland. The participation was completely voluntary and responses were anonymous. The questionnaires were printed out, then manually handed over to the students in a classroom session (Bern, Geneva and Zurich) and supervised by one investigator from the respective dental school, who observed that the questionnaires were completed properly. Any doubts (if any) that arose during the completion of the questionnaire, were clarified by the supervising investigator. All efforts were made to ensure that a maximum participation was achieved. The students in each of the academic years at each university dental school were informed by proper communication channels beforehand and were requested to participate. The manual distribution of the questionnaires in the classrooms were aimed to achieve this end. Due to the COVID-19 lockdown restrictions, the dental school at the University of Basel administered the questionnaires electronically to their students.

Statistical analysis

Responses collected from the GAS-14 questionnaire were scored; means and standard deviations (SD) were calculated. The calculated means were verified for a normal distribution. ANOVA and post hoc tests (LSD test) were applied with the level of significance set at $\alpha = 0.05$. Ancillary analyses were conducted

Tab.1 Geriatric Attitudes Scale (GAS-14) questionnaire (part 1) and a 9-item specific questionnaire (part 2) related to the geriatric dentistry curriculum, confidence, and preference in treating elderly patients

| Part 1: Geriatrics Attitudes Scale (REUBEN ET AL. 1998) | Strongly disagree | Somewhat disagree | Neutral | Somewhat agree | Strongly agree |
|--|--------------------------|--------------------------|----------------|-----------------------|-----------------------|
| 1. Most old people are pleasant to be with. | 1 | 2 | 3 | 4 | 5 |
| 2. The federal government should reallocate money from Medicare to research on AIDS or pediatric diseases. | 1 | 2 | 3 | 4 | 5 |
| 3. I would rather see younger patients than elderly ones. | 1 | 2 | 3 | 4 | 5 |
| 4. It is society's responsibility to provide care for the elderly. | 1 | 2 | 3 | 4 | 5 |
| 5. Medical care for old people uses up too much human and material resources. | 1 | 2 | 3 | 4 | 5 |
| 6. As people grow older, they become less organized and more confused. | 1 | 2 | 3 | 4 | 5 |
| 7. Elderly patients tend to be more appreciative of the medical care I provide than younger patients. | 1 | 2 | 3 | 4 | 5 |
| 8. Taking a medical history from elderly patients is frequently an ordeal. | 1 | 2 | 3 | 4 | 5 |
| 9. I tend to pay more attention and have more sympathy towards my elderly patients than my younger patients. | 1 | 2 | 3 | 4 | 5 |
| 10. Old people in general do not contribute much to society. | 1 | 2 | 3 | 4 | 5 |
| 11. Treatment of chronically ill old patients is hopeless. | 1 | 2 | 3 | 4 | 5 |
| 12. Old persons don't contribute their fair share towards paying for their health care. | 1 | 2 | 3 | 4 | 5 |
| 13. In general, old people act too slowly for modern society. | 1 | 2 | 3 | 4 | 5 |
| 14. It is interesting listening to old people's accounts of their past experiences. | 1 | 2 | 3 | 4 | 5 |
| Part 2: Specific Questions | | | | | |
| 1. Geriatric dentistry is an important aspect of the dental curriculum. | 1 | 2 | 3 | 4 | 5 |
| 2. The geriatrics program in the teaching curriculum is adequate. | 1 | 2 | 3 | 4 | 5 |
| 3. I am confident in treating the elderly patient on my own independently. | 1 | 2 | 3 | 4 | 5 |
| 4. I am not confident in treating the elderly patient unsupervised. | 1 | 2 | 3 | 4 | 5 |
| 5. I would like to have hands-on experience in treating elderly patients during my undergraduate curriculum. | 1 | 2 | 3 | 4 | 5 |
| 6. I would prefer to treat elderly patients in a clinic setting. | 1 | 2 | 3 | 4 | 5 |
| 7. I would prefer to treat elderly patients in a hospital setting. | 1 | 2 | 3 | 4 | 5 |
| 8. I would prefer to treat elderly patients in a nursing home setting. | 1 | 2 | 3 | 4 | 5 |
| 9. Mobile dental clinics are a good solution for elders without access to care. | 1 | 2 | 3 | 4 | 5 |

| Tab. II Demographics of participants | | | | | | |
|---|--------------|-------------|---------------|---------------|--------------|----------------|
| | Basel | Bern | Geneva | Zurich | Total | p-value |
| Year of training (n) | | | | | | |
| 3rd year | 26 | 29 | 26 | 24 | 105 | 0.498 |
| 4th year | 23 | 34 | 17 | 27 | 101 | |
| 5th year | 22 | 29 | 18 | 30 | 99 | |
| Total | 71 | 92 | 61 | 81 | 305 | |
| Age (mean ± SD) | 25 ± 3 | – | 25 ± 4 | 26 ± 4 | 26 ± 4 | 0.394 |
| Sex (n [%]) | | | | | | |
| Women (n [%]) | 45 (63.4%) | – | 43 (70.5%) | 45 (55.6%) | 133 (43.6%) | 0.320 |
| Men (n [%]) | 26 (36.6%) | – | 17 (27.9%) | 31 (38.3%) | 74 (24.3%) | |
| Did not respond (n [%]) | – | 92 (100%) | 1 (1.6%) | 5 (6.2%) | 98 (32.1%) | |
| Nationality (n [%]) | | | | | | |
| Swiss | 61 (85.9%) | – | 44 (72.1%) | 64 (79.0%) | 169 (55.4%) | 0.954 |
| EU and UK | 8 (11.3%) | – | 11 (18.0%) | 9 (11.1%) | 28 (9.2%) | |
| USA and Canada | – | – | – | – | – | |
| Others | 2 (2.8%) | – | 5 (8.2%) | 3 (3.7%) | 10 (3.3%) | |
| Did not respond | – | 92 (100%) | 1 (1.6%) | 5 (6.2%) | 98 (32.1%) | |
| Origin (n [%]) | | | | | | |
| Swiss | 64 (90.1%) | – | 40 (65.6%) | 63 (77.8%) | 167 (54.8%) | 0.828 |
| Others | 7 (9.8%) | – | 18 (29.5%) | 13 (16.0%) | 38 (12.3%) | |
| Did not respond | – | 92 (100%) | 3 (4.9%) | 5 (6.2%) | 100 (32.8%) | |
| Religion (n [%]) | | | | | | |
| Christianity | 22 (31.0%) | – | 27 (44.3%) | 35 (43.2%) | 84 (27.5%) | 0.053 |
| Islam | – | – | 5 (8.2%) | 5 (6.2%) | 10 (3.3%) | |
| Hinduism/Buddhism | 2 (2.8%) | – | – | 2 (2.5%) | 4 (1.3%) | |
| No religion/others | 7 (9.8%) | – | 11 (18.1%) | 12 (14.8%) | 30 (9.8%) | |
| Did not respond | 40 (56.3%) | 92 (100%) | 18 (29.5%) | 27 (33.3%) | 85 (27.9%) | |
| Marital status (n [%]) | | | | | | |
| Single | 66 (93.0%) | – | 52 (85.2%) | 70 (86.4%) | 188 (61.6%) | 0.666 |
| Married | 3 (4.2%) | – | 6 (9.8%) | 4 (4.9%) | 13 (4.3%) | |
| Divorced | 1 (1.4%) | – | 1 (1.6%) | – | 2 (0.7%) | |
| Common law partner | – | – | – | – | – | |
| Did not respond | 1 (1.4%) | 92 (100%) | 2 (3.3%) | 7 (8.6%) | 102 (33.4%) | |

n: number; %: percentage; p-value: ANOVA; significance: p < 0.05

Tab. II Demographics of participants

continued

| | Basel | Bern | Geneva | Zurich | Total | p-value |
|--|------------|-----------|------------|------------|-------------|---------|
| Living situation (n [%]) | | | | | | |
| Alone | 9 (12.7%) | – | 13 (21.3%) | 8 (9.9%) | 30 (9.8%) | 0.219 |
| With partner/family | 9 (12.7%) | – | 9 (14.8%) | 8 (9.9%) | 26 (8.5%) | |
| Sharing | 23 (32.4%) | – | 13 (21.3%) | 24 (29.6%) | 60 (19.7%) | |
| With parents | 25 (35.2%) | – | 23 (37.7%) | 30 (37.0%) | 78 (25.6%) | |
| With grandparents | – | – | – | – | – | |
| With parents and grandparents | – | – | 1 (1.6%) | 4 (4.9%) | 5 (1.6%) | |
| Others | 4 (5.6%) | – | 1 (1.6%) | 1 (1.2%) | 6 (2.0%) | |
| Did not respond | 1 (1.4%) | 92 (100%) | 1 (1.6%) | 6 (7.4%) | 100 (32.8%) | |
| n: number; %: percentage; p-value: ANOVA; significance: p < 0.05 | | | | | | |

to study the influence of the demographic parameters on the GAS-14 scores. Participants' demographic information and the responses from the second questionnaire were reported descriptively. All statistical analyses were performed using SPSS statistical software (version 25.0, IBM Incorporated, NY, USA).

Results

A total of 305 out of 385 (response rate: 79.2%) dental students (mean age: 25.8 ± 4.0 y) from the four Swiss university dental schools participated in this survey. The participants' demographic characteristics are shown in Table II. The participants

from Bern did not respond to the demographics section of the questionnaire. However, no demographic differences were observed between the participating centers in terms of participant number (p = 0.498), age (p = 0.394), sex (p = 0.320), nationality (p = 0.954), origin (p = 0.828), religion (p = 0.053), marital status (p = 0.666), and their living situation (p = 0.219). The borderline significance in the religion status could have been influenced by the non-responders from Bern.

The mean GAS-14 scores of the students categorized by the year of training for each participating center is reported in Table III. The overall mean GAS-14 scores of the participants

Tab. III Geriatric Attitudes Scale (GAS-14) scores (mean ± SD) of the participating centers with 95% confidence intervals [95%CI] and significance set at α = 0.05

| Year of training | Basel | Bern | Geneva | Zurich | All centers |
|--|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| 3rd year | 3.4 ± 0.4 [3.2503, 3.5881] | 3.5 ± 0.4 [3.3670, 3.6971] | 3.4 ± 0.5 [3.1516, 3.5584] | 3.6 ± 0.4 [3.4472, 3.7495] | 3.5 ± 0.4 [3.3914, 3.5606] |
| 4th year | 3.5 ± 0.3 [3.4084, 3.6908] | 3.6 ± 0.3 [3.4567, 3.6998] | 3.3 ± 0.3 [3.1449, 3.5033] | 3.4 ± 0.4 [3.2719, 3.6266] | 3.5 ± 0.4 [3.4196, 3.5693] |
| 5th year | 3.7 ± 0.4 [3.4869, 3.8522] | 3.5 ± 0.4 [3.3808, 3.7054] | 3.5 ± 0.3 [3.3662, 3.6882] | 3.6 ± 0.3 [3.4494, 3.7040] | 3.6 ± 0.4 [3.5029, 3.6541] |
| Total | 3.5 ± 0.4 [3.4470, 3.6344] | 3.6 ± 0.4 [3.4702, 3.6350] | 3.4 ± 0.4 [3.2900, 3.5044] | 3.5 ± 0.4 [3.4554, 3.6259] | 3.5 ± 0.4 [3.4703, 3.5607] |
| p-value* | p = 0.081 | | | | |
| P-values of intra-group comparisons between the three years for each center | | | | | |
| | Basel | Bern | Geneva | Zurich | All centers |
| 3rd vs 4th** | 0.245 | 0.651 | 0.813 | 0.171 | 0.740 |
| 4th vs 5th** | 0.300 | 0.730 | 0.155 | 0.216 | 0.138 |
| 3rd vs 5th** | 0.029*** | 0.917 | 0.183 | 0.838 | 0.068 |
| Overall* | 0.091 | 0.891 | 0.288 | 0.318 | 0.154 |
| * ANOVA; ** LSD (least significant difference) test; *** significant | | | | | |

Tab. IV Influence of demographic parameters on the overall Geriatric Attitudes Scale (GAS-14) scores of the participating centers

| Demographic parameters | p-value |
|--|---------|
| Age*GAS | 0.442 |
| Sex*GAS | 0.225 |
| Nationality*GAS | 0.985 |
| Origin*GAS | 0.703 |
| Religion*GAS | 0.923 |
| Marital status*GAS | 0.051 |
| Living situation*GAS | 0.241 |
| p-value: ANOVA; significance: $p < 0.05$ | |

were 3.5 ± 0.4 , 3.6 ± 0.4 , 3.4 ± 0.4 , and 3.5 ± 0.4 for Basel, Bern, Geneva and Zurich, respectively, with no significant difference between the participating centers ($p = 0.081$). There was no significant overall difference between the three training years ($p = 0.154$) with all centers combined. For individual centers, there were no significant overall difference between the three years (Tab. III), except for Basel where the GAS-14 scores of the participants of the 3rd-year students revealed a significantly lower score than for the 5th-year students ($p = 0.029$; p-value:

post-hoc LSD test; Tab. III). Demographic parameters did not significantly influence the GAS-14 scores of the participants (Tab. IV).

Responses to the specific questions related to the geriatric dentistry curriculum, confidence, and preference in treating elderly patients is reported in Table V (Fig. 1). 78.7% of the students agreed that geriatric dentistry was an important aspect of dental education. 47.2% agreed that the current geriatrics program in their dental education was adequate while 40.7% were of neutral opinion. With respect to their confidence in hypothetically independently treating elderly patients, 43.6% agreed and 32.8% were of neutral opinion. The majority of the respondents (83.9%) agreed that they would like hands-on experience in treating elderly patients during their dental education. For the preference of treatment setting, 38.1%, 16.4%, and 15.4% of the respondents preferred to treat the elders in a clinic, hospital, and nursing home setting, respectively. The majority of the respondents (81.7%) agreed that mobile dental clinics are a good solution for elders with no access to dental care.

Discussion

This study was conducted to evaluate the attitudes of undergraduate dental students towards elderly patients. Ageism is a widespread phenomenon in our society where youth and beauty are stereotypes often associated with success, social status, intelligence, and popularity with others (DONIZETTI 2019; WEBER ET AL. 2019). The process of ageing is progressive, general, and irreversible. Apart from functional limitations, it leads to visible changes in a person's physiognomy and physical appearance,

Tab. V Overall participants' responses (all centers) to the specific questions related to the geriatric dentistry curriculum, confidence, and preference in treating elderly patients

| Specific questions | Responses expressed in numbers (percentages) | | | | |
|--|--|-------------------|-------------|----------------|----------------|
| | Strongly disagree | Somewhat disagree | Neutral | Somewhat agree | Strongly agree |
| SQ#1: Geriatric dentistry is an important aspect of the dental curriculum. | 1 (0.3%) | 16 (5.2%) | 43 (14.1%) | 106 (34.8%) | 134 (43.9%) |
| SQ#2: The geriatrics program in the teaching curriculum is adequate. | 3 (1.0%) | 26 (8.5%) | 124 (40.7%) | 78 (25.6%) | 66 (21.6%) |
| SQ#3: I am confident in treating the elderly on my own independently. | 16 (5.2%) | 48 (15.7%) | 100 (32.8%) | 102 (33.4%) | 31 (10.2%) |
| SQ#4: I am not confident in treating the elderly patient unsupervised. | 58 (19.0%) | 101 (33.1%) | 81 (26.6%) | 40 (13.1%) | 16 (5.2%) |
| SQ#5: I would like to have hands-on experience in treating the elderly patient during my undergraduate curriculum. | 0 (0.0%) | 9 (3.0%) | 36 (11.8%) | 113 (37.0%) | 143 (46.9%) |
| SQ#6: I would prefer to treat elderly patients in a clinic setting. | 4 (1.3%) | 34 (11.1%) | 142 (46.6%) | 63 (20.7%) | 53 (17.4%) |
| SQ#7: I would prefer to treat elderly patients in a hospital setting. | 29 (9.5%) | 79 (25.9%) | 141 (46.2%) | 33 (10.8%) | 17 (5.6%) |
| SQ#8: I would prefer to treat elderly patients in a nursing home setting. | 37 (12.1%) | 68 (22.3%) | 147 (48.2%) | 37 (12.1%) | 10 (3.3%) |
| SQ#9: Mobile dental clinics are a good solution for elders without access to care. | 3 (1.0%) | 8 (2.6%) | 44 (14.4%) | 114 (37.4%) | 132 (43.3%) |

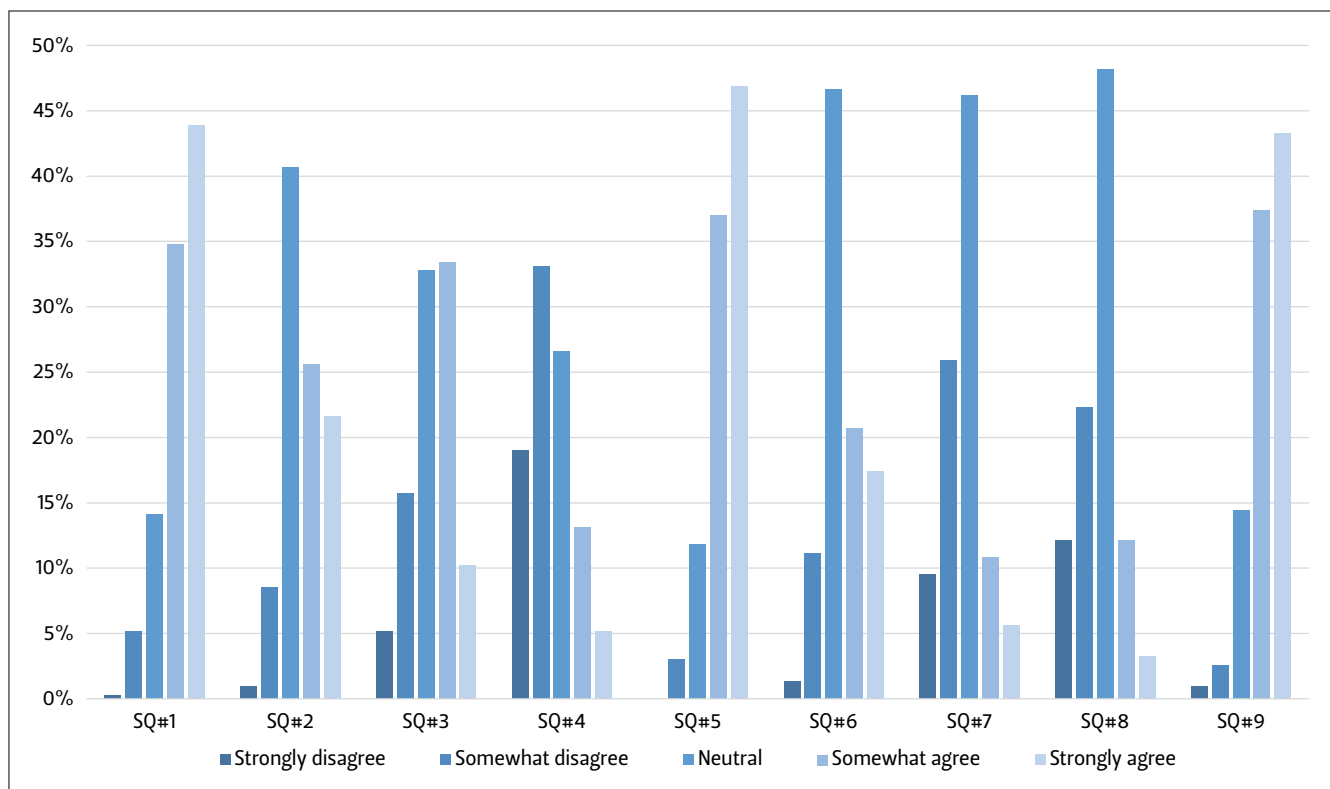


Fig.1 Overall responses (all centers) to the 9-item questionnaire (SQ#1-SQ#9: represents questions)

but it also has psychosocial and behavioral aspects (DZIECHCIAZ & FILIP 2014). The World Health Organization (WHO) defined the phenomenon of ageism as, “the stereotyping and discrimination against individuals or groups on the basis of their age” (WHO 2015). It seems particularly prevalent in western societies (ABRAMS ET AL. 2011), whereas other cultures appreciate and even worship their seniors for their wisdom and experience.

The results of the present study confirm that the attitudes of the Swiss dental students towards elderly patients are on an acceptable level, but improvements in attitude are still possible and desirable. Interestingly, there are no differences between the participants irrespective of progressive training. Demographic factors do not influence their attitudes confirming previous reports (WILSON & HAFFERTY 1980; STEVENS & PEARLMAN 1987; FIELDS ET AL. 1992). Hence, based on the findings of this survey the null hypothesis cannot be rejected. Previous studies have suggested that with advanced training, the attitude towards elders progressively improves (REUBEN ET AL. 1998). A study from Chile reported on neutral perceptions of ageing in students, whereas the attitude of faculty members was significantly more positive (LEON ET AL. 2013). The exposure to elderly persons seems to foster a positive attitude. The introduction of an “aging panel” where undergraduate students were exposed to elderly persons, and were able to ask questions, seemed also to diminish ageism (WESTMORELAND ET AL. 2009). One participant stated: “The Council of Elders provided a new and refreshing insight on the geriatric patient. Not only did they alert us to their concerns, but they helped us visualize some of our own. I feel this session will help me in future interactions with patients.” An evaluation of the appreciation of a brief rotation in a long-term care (LTC) facility of undergraduate students and again, the exposure to the elderly was rated very positively (MACENTEE ET AL. 2005). In a German study, 463 dental students were exposed to institutionalized elders

within the context of their undergraduate training, and the results confirmed changes towards a more positive attitude, although the effect was small (NITSCHKE ET AL. 2015). Therefore, it could have been expected that the GAS-14 scores from this study will increase along with the training years. Interestingly, the present results are not confirmative of this phenomenon, except for a non-significant trend in the pooled results, with Basel presenting the most obvious trend.

A possible explanation for this non-significant tendency is a lack of sufficient number of participants. Post hoc power analysis (effect size = 0.246, α err prob = 0.05) revealed a power of $1-\beta$ err prob = 0.417 for the current survey. In order to achieve a power of 95%, a sample size of 429 students per study group was required, a sample size difficult to obtain in Switzerland at a given point in time, as the number of dental students/academic year/university is small. Nevertheless, the survey was nationally representative as all the university dental schools in Switzerland participated, and therefore the results may be considered representative for the country. Another possible explanation would be to speculate if the geriatric curricula in the four universities were dissimilar. However, the current curriculum of gerodontology followed in the Swiss universities is based on the catalogue of learning objectives from the Federal Office of Public Health. All four Swiss universities prepare their students to recognize and treat dental problems of patients with disabilities, of aging patients and of patients with systemic illnesses according to their individual needs and oral hygiene abilities. In particular, conditions as dementia, xerostomia, polypharmacy, malnutrition, anticoagulation, walking disability as well as hearing and visual impairments are being discussed in detail throughout numerous lectures during master courses, case reviews, and work shadowing. Practical training is provided either over the course of the prosthetic clinical curriculum or

during visits and examinations of acute or long-term geriatric patients in hospitals and residential care homes. Hence, this speculation can be overruled. Previous studies evaluating the attitudes towards geriatric patients have published mixed findings; some report positive outcomes (HOLTZMAN ET AL. 1981; PERROTTA ET AL. 1981; FIELDS ET AL. 1992; CHUA ET AL. 2008; NOCHAJSKI ET AL. 2011), while others indicate no effects (FIELDS ET AL. 1992; WOOD & MULLIGAN 2000). The overall mean GAS-14 score of the students was 3.5 ± 0.4 (range: min = 1.79, max = 4.36) which is in a position above neutral opinion and towards a positive attitude. Furthermore, the mean scores of the individual centers for any of the academic years did not fall below 3. This indicated that the attitudes of the students towards the elderly were already quite good, albeit improvement would still be possible.

Another aspect that might have influenced the evaluation of the attitudes could have been the questionnaire itself. The GAS-14 questionnaire was originally developed for medical residents in the United States and not a purpose-built ageism questionnaire for dental students. Therefore, this may not have been sensitive enough for a true detection of attitudes. However, the GAS is considered a robust ageism questionnaire with sound psychometric characteristics (REUBEN ET AL. 1998). The instrument does not harbor a floor or a ceiling effect, and can demonstrate an adequate internal consistency reliability (NUNNALLY 1978). Moreover, the translation of this questionnaire was performed in accordance to the principles outlined by the Medical Outcomes Trust criteria (1997), and hence the process could be considered robust. Perhaps the use of a specifically validated ageism questionnaire for dental students in Switzerland may have detected the attitudes more precisely, however, such a questionnaire does not currently exist for Switzerland and this speculation needs to be validated by future research. Conversely, the results could have been influenced by the fact that the questionnaires came from a university setting, however, this could not be evaluated in the current study and may warrant future investigation.

The results from this Swiss survey can be summarized as follows:

- Geriatric dentistry was considered an important aspect of dental education by the undergraduate students.
- Students perceived the current geriatric curriculum on an adequate level.
- Hands-on experience in treating geriatric patients in the undergraduate curriculum was positively opinionated.
- Mobile dental clinic services for elders with limited access to care were considered a good solution.

From the results of this survey, it can be concluded, that the attitudes of Swiss undergraduate dental students towards elderly patients are on an acceptable level, but may still be improved.

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Zusammenfassung

Einleitung

Das Ziel der vorliegenden fragebogenbasierten Umfrage war es, die Einstellung der Zahnmedizinierenden gegenüber betagten Menschen zu evaluieren.

Material und Methoden

Es wurden der 14-teilige Fragebogen zur Erfassung der geriatrischen Einstellungsskala (geriatric attitude scale, GAS) sowie neun weitere Fragen zur Bewertung des aktuellen gerodontologischen Curriculums, der Einstellung und des Selbstvertrauens der Zahnmedizinierenden beim Behandeln betagter Patienten an die Zahnmedizinierenden (3. Bachelorstudienjahr, 1. und 2. Masterstudienjahr) aller vier universitären zahnmedizinischen Zentren der Schweiz ausgehändigt. Zur Auswertung wurden die mittleren GAS-Werte innerhalb und zwischen den verschiedenen Gruppen miteinander mittels ANOVA und Post-hoc-Analysen verglichen. Das Signifikanzniveau wurde auf $\alpha = 0,05$ festgelegt. Die Antworten zu den neun zusätzlichen Fragen wurden deskriptiv erfasst. Weitere Analysen wurden durchgeführt, um den demografischen Effekt auf den GAS-Wert einzuschätzen.

Resultate

305 Studierende (mittleres Alter: $25,8 \pm 4,0$ J) haben insgesamt an der Studie teilgenommen. Der mittlere GAS-Wert aller Studierenden lag bei $3,5 \pm 0,4$. Es lagen keine signifikanten Unterschiede bezüglich des GAS-Wertes zwischen den Zentren ($p = 0,081$) oder zwischen den Jahrgängen ($p = 0,154$) vor. Der GAS-Wert wurde nicht durch demografische Faktoren beeinflusst.

Diskussion

Die Studierenden bewerteten die Alterszahnmedizin als einen wichtigen Bestandteil ihrer zahnärztlichen Grundausbildung. Der aktuelle gerodontologische Lehrplan wurde als adäquat wahrgenommen. Praktische Erfahrung im Behandeln geriatrischer Patienten während der Grundausbildung wurde positiv gewertet und mobile zahnärztliche Dienste für ältere Menschen mit eingeschränktem Zugang zur medizinischen Versorgung als eine gute Lösung angesehen.

Zusammenfassend scheint die Einstellung der Schweizer Zahnmedizinierenden gegenüber älteren Patienten akzeptabel und könnte dennoch verbessert werden.

Résumé

Introduction

L'objectif de cette enquête à la base de questionnaires était d'évaluer les attitudes des étudiants prégradués en médecine dentaire envers les personnes âgées.

Matériel et méthodes

Le questionnaire de l'échelle des attitudes gériatriques (geriatric attitude scale, GAS) en quatorze éléments, ainsi qu'un questionnaire spécifique en neuf éléments sur le programme actuel en gérontologie, la confiance et la préférence de traiter des patients âgés ont été distribués à tous les étudiants en médecine dentaire (3^e bachelor, 1^{er} master et 2^e master) des quatre écoles universitaires de médecine dentaire en Suisse. Les valeurs GAS moyennes ont été calculées et les différences inter- et intra-groupes ont été analysées à l'aide de tests ANOVA et post hoc (avec un seuil de signification fixé à $\alpha = 0,05$). Les réponses au

questionnaire en neuf éléments ont été présentées d'une manière descriptive. Des analyses supplémentaires ont été effectuées pour évaluer l'effet de facteurs démographiques sur les scores du GAS.

Résultats

305 étudiants (âge moyen : 25,8 ± 4,0 ans) ont participé à cette étude. La valeur GAS moyenne de tous les étudiants était de 3,5 ± 0,4. Pas de différences significatives des scores GAS entre les centres ($p = 0,081$) ou entre l'année de formation ($p = 0,154$) ont été mises en évidence. Les facteurs démographiques n'ont pas influencé les scores GAS.

Discussion

Les étudiants considéraient la gérontologie comme une partie importante de leur enseignement prégradué en médecine dentaire. Le programme actuel en gérontologie était perçu comme étant d'un niveau adéquat. L'expérience pratique dans le traitement des patients âgés pendant les études prégraduées a été jugée favorablement, et les services dentaires mobiles pour les personnes âgées ayant un accès limité aux soins ont été considérés comme une bonne solution.

En conclusion, l'attitude des étudiants prégradués suisses en médecine dentaire envers les patients âgés semble adéquate, mais pourrait tout de même être améliorée.

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