Factors of Dental Hygienists' Experiences Related to the Elderly that Affect the Perception of Human Rights Violations Against the Elderly: A Cross Sectional Study

Kyeung-Ae Jang

Silla University

Yu-Rin Kim (✉ dbfls1712@hanmail.net)

Silla University

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Abstract

Background: Korean society has become an elderly society at an unprecedented rate, and the social and economic problems emerging in such a society are very serious. Good oral health is important for older people's wellbeing and quality of life, and is essential for healthy ageing. Therefore, the purpose of this study is to examine the effect of the elderly-related experiences of dental hygienists in charge of oral health on human rights violations against the elderly.

Methods: This study was conducted through an IRB review at Silla University in Korea (No. 1041449-202012-HR-001). For about a month from February 1, 2021, the survey questionnaire was distributed to dental hygienists living in South Korea, and 153 people who accomplished and sent back the questionnaires were selected as the final subjects. Polyserial correlation analysis was performed to confirm the relevance of each factor, and multiple regression analysis was performed to identify the factors of elderly-related experiences that affect the perception of human rights violations against the elderly.

Results: All three experiences related to the elderly were highly related to the perception of violations of financial human rights of the elderly ($p < 0.01$). In addition, the experience of education related to the elderly showed a high perception of psychological violation of the human rights of the elderly ($R = 0.405$, $p < 0.01$), and the experience of volunteer activities related to the elderly showed a high perception of neglectful violations of human rights of the elderly ($R = 0.277$, $p < 0.01$).

Conclusion: At this point in time when the number of the elderly is increasing, dental hygienists have to focus on specialized oral health management for the elderly that respects their human rights.

Background

The United Nations (UN) defined a post-aged society or a super-aged society as that when the proportion of the population aged 65 and above accounts for more than 20% of the total population [1]. The elderly population is expected to be bigger than the population of children under five years within a decade, and to double by 2040 to eventually reach as much as two billion individuals by 2050, by which time it will represent more than 20% of the world's population [2]. The population belonging to WHO's South-East Asia region is also ageing rapidly; for instance, the proportion of people aged 60 or above was 9.8% in 2017, and is expected to increase to 13.7% by 2030 and to 20.3% by 2050 [3]. Between 2019 and 2050, 9 out of the 10 countries with the largest percentage-point increase in the share of older persons in the world will be in East and South-East Asia. The largest increase is foreseen in the Republic of Korea (23%), followed by Singapore (20.9%) and Taiwan Province of China (19.9%) [1]. In the case of South Korea, among the elderly, the very old (above 80 years) are also the fastest-growing population, a fact that is creating new challenges. A combination of increased life expectancy and reduced fertility is increasing the absolute number of old persons, even as it is boosting their relative share of the population. South Korea has already entered an aged society, as the proportion of its population aged 65 and older exceeded 14% in 2018, and is projected to reach 20.3% by 2025, at which time it is expected to enter a super-aged society worldwide [4]. However, unlike countries that have long prepared for an elderly society, including Japan (with a 27.3% elderly population) and Switzerland (with a 23.4% elderly population), Korea has entered an elderly society at an unprecedented rate. Thus, the related social and economic problems that it is experiencing are very serious [5, 6]. This trend is not unique to Korea, however; the increase in the aged population in every corner of the world has led to social and health problems that include various forms of violence perpetrated against older adults.

The human rights of older persons is a topic that has been neglected for a long time. In at least some countries, it is a dimension that is being increasingly considered, but often haphazardly. The human rights of the elderly were first mentioned in the UN's "Declaration of the Rights of the Elderly" in 1948. The said Declaration focused on 10 social rights of the elderly: the right to receive assistance, to work, to food, to clothing, to shelter, to care for their physical and mental health, to leisure, to safety, to security, and to respect [7]. Also, in 1991, the UN enacted the "United Nations Principles for Older Persons" and presented 18 specific principles that governments should consider in each of the five areas of independence, participation, care, self-fulfillment, and dignity [8]. Internationally, however, the debate on the predicament of senior citizens in terms of rights is only beginning. For example, it was only in 2009 that the Human Rights Council Advisory Committee recommended a study on the "need to protect the human rights of the older person in the context of a human rights framework" [9]. Rim and Yun [10] emphasized the importance of not only the perception of the elderly of human rights violations against them but also the perception of their caregivers of such violations. Kim and Yoon further pointed out that the perception of human rights violations against the elderly is lacking and that human rights violations against the elderly have diverse and complex causes such as individual, family, and social situations. In Korea in 2016, there were 6,811 reports of elder abuse, the most serious form of human rights violation, of which 40.1% was psychological abuse, 31.3% was physical abuse, 11.4% was neglect by others, 7.7% was negligence of self, 7.2% was financial abuse, 1.3% was sexual abuse, and 1.0% was abandonment [11]. These figures suggest that there is an urgent need for institutional arrangements at the national and social levels to guarantee the protection of the human rights of the elderly. The research of Kim et al. [12] found that lack of awareness of human rights and abuse of the elderly are highly related. In another research, Kim et al. [13] found that the higher the awareness of human rights is, the lower the abuse is. As such, awareness of the human rights of the elderly is a very important part of the life of a healthy elderly person.

The oldest old people are often described as a frail and multimorbid group [14]. For the individual, frailty increases vulnerability due to diminished strength, endurance, and physiological function [15]. Frail individuals have a higher risk of developing poor oral health due to limitations in their ability to perform self-care and difficulties in visiting dental health care clinics [16]. Their reduced capacity for self-care may be due to mental and physical disability and various chronic diseases [17].

Good oral health is important for older people's wellbeing and quality of life, and is essential for healthy ageing [18]. However, there is insufficient knowledge about how older people view their oral health and oral care [19]. Oral health in Europe has improved, which has led to an increased number of older people retaining their natural teeth throughout their life [21]. In Sweden, approximately 60% of people aged 80–89 years have 20 or more teeth [22]. Koistinen et al. found that 85% of the older people from 36 Swedish STC units were satisfied with their oral health, even though clinical assessments by registered dental hygienists showed that 77% of these individuals had oral problems such as coating and food debris [20].

In order to become a suitable dental hygienist in this aging era, it is necessary to understand the characteristics of the elderly through various experiences with them and to know the importance of human rights of the elderly. Also, based on these experiences, dental hygienists should strive to promote oral health that can improve the human rights and quality of life of the elderly. Accordingly, the dental hygienist intends to provide basic data to enhance the importance of oral health of the elderly by verifying their relevance to human rights violations of the elderly according to their experiences related to the elderly.

Methods

1. Study Subjects and Method

This study was conducted with the approval of the Bioethics Review Committee of Silla University (1041449-202012-HR-001). The subjects of this study were recruited using the convenience screening method for dental hygienists in Korea, and the survey period was conducted from February 1 to May 29, 2021. For ethical consideration of the subject of the study, a structured self-contained survey was conducted on each subject who signed the consent form. Based on Cohen's power analysis, G*power 3.1.3 [23] was used, and the minimum sample required under the condition of a 5% significance level (two-tailed), a power of 80%, and an effect size of 0.5 was used. A total of 151 questionnaires was planned to be retrieved, but 175 questionnaires were distributed in consideration of the dropout rate. As 22 questionnaires were not answered or were insincerely answered, 153 duly accomplished questionnaires were finally used.

2. Study Tools

2.1. Questionnaire on the perception of human rights violations against the elderly

The measurement tool for the perception of human rights violations against the elderly that was used in this study was based on the "United Nations Principles for Older Persons" [8]. It was a modified version of the questionnaire that Kang and Lim [24] used in their study. The questionnaire had a total of 22 questions that were grouped according to six dimensions of human rights violations against the elderly: psychological, financial, physical, sexual, neglect of others, and neglect of self. Each answer was scored on a Likert 4-point scale, and the higher the score was, the higher the respondent's perception of human rights violations against the elderly was.

2.2. Questionnaire of experiences related to the elderly

As for the measurement tool for elderly-related experiences, a modified version of the questionnaire that Jang and Heo [25] used in their study was used. The questions were grouped into three categories: "experience of receiving education related to the elderly", "experience of volunteer work related to the elderly", and 'experience of being interested in issues related to the elderly'. Each question was answered with "experienced" and "inexperienced", and the higher the score was, the higher the experience with the elderly was. Exploratory factor analysis was used to verify the validity of the questionnaire, and Bartlett's identity matrix check and KMO values were analyzed by selecting items with a sample fit of 0.5 or higher. For each factor, the Cronbach's α was 0.804 for the perception of human rights violations against the elderly, and 0.653 for the elderly-related experience. The reliability coefficients were all higher than 0.6, which indicates the high internal consistency of the questionnaire tool.

3. Statistical Analysis

For the data analysis, the SPSS (ver. 26.0 for Windows, IMB SPSS Statistics) statistical program was used. The general characteristics of the study subjects were tabulated according to frequency and percentage, and the perception of human rights violations against the elderly according to experiences related to the elderly was analyzed through an independent t-test. Polyserial correlation analysis [26] was performed to confirm the relevance of each factor, and multiple regression analysis was conducted to identify the factors of elderly-related experiences that affect the perception of human rights violations against the elderly.

Results

General characteristics of the subjects

Table 1 shows that among the study subjects, there were more women than men and the biggest age group was the 25–29 years group. Most of the respondents had more than 7 years of work experience, followed by those with 3–4 years of work experience.

Table 1
General characteristics Unit: N (%)

Variable		N	%
Sex	Male	5	3.3
	Female	148	96.7
Age	< 25	33	21.6
	25–29	71	46.4
	30–34	32	20.9
	35–39	13	8.5
	> 39	4	2.6
Work experience	< 1 year	29	19.0
	1–2 years	27	17.6
	3–4 years	31	20.3
	5–7 years	17	11.1
	> 7 years	49	32.0
Total		153	100.0

Perceived degrees of violation of human rights of the elderly according to the experience of receiving education related to the elderly

Table 2 shows that the degree of human rights violations against the elderly was significantly higher if the respondent had experienced receiving education related to the elderly ($p < 0.001$). In terms of the subfactors of human rights violations against the elderly, the respondents who had received education related to the elderly scored 3.22 points for their perception of psychological human rights violations against the elderly, and those who did not receive such education scored 2.60 ($p < 0.001$). The respondents who received education related to the elderly scored 3.93 points for their perception of physical human rights violations against the elderly, and those who did not receive such education scored 3.58 points ($p < 0.01$). The respondents who received education related to the elderly scored 3.50 points for their perception of financial human rights violations against the elderly, and those who did not receive such education scored 2.94 points ($p < 0.001$). The respondents who received education related to the elderly scored 3.56 points for their perception of sexual human rights violations against the elderly, and those who did not receive such education scored 3.13 points ($p < 0.01$). The respondents who received education related to the elderly scored 3.03 points for their perception of “neglect of others” human rights violations against the elderly, and those who did not receive such education scored 2.58 points ($p < 0.001$). The respondents who received education related to the elderly scored 3.28 points for their perception of “neglect of self” human rights violations against the elderly, and those who did not receive such education scored 2.73 points ($p < 0.01$).

Table 2
Perceived degrees of violation of human rights of the elderly according to the experience of receiving education related to the elderly M $\pm$ SD

Subfactors	Experience in education related to the elderly		t	p
	Experienced (N = 39)	Inexperienced (N = 114)		
Psychological	3.22 $\pm$ 0.62	2.60 $\pm$ 0.61	5.436	< 0.001***
Physical	3.93 $\pm$ 0.21	3.58 $\pm$ 0.66	5.034	0.001**
Financial	3.50 $\pm$ 0.34	2.94 $\pm$ 0.57	7.381	< 0.001***
Sexual	3.56 $\pm$ 0.51	3.13 $\pm$ 1.43	1.845	0.005**
Neglect of others	3.03 $\pm$ 0.50	2.58 $\pm$ 0.79	4.120	< 0.001***
Neglect of self	3.28 $\pm$ 0.81	2.73 $\pm$ 0.76	3.894	0.001**
Total	3.44 $\pm$ 0.35	2.96 $\pm$ 0.56	6.444	< 0.001***
By independent t-test, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$				

Perceived degrees of violation of human rights of the elderly according to the experience of volunteer activities related to the elderly

Table 3 shows that the degree of awareness of human rights violations against the elderly was significantly higher if the respondent had experienced volunteer activities related to the elderly ($p < 0.01$). In terms of the subfactors of the perception of human rights violations against the elderly, the respondents who had experienced volunteer activities related to the elderly scored 2.84 for their perception of psychological human rights violations against the elderly, and those who had not had such experience scored 2.61 points ($p < 0.05$). The respondents who had experienced volunteer activities related to the elderly scored 3.76 points for their perception of physical human rights violations against the elderly, and those who had not had such experience scored 3.50 points ($p <$

0.05). The respondents who had experienced volunteer activities related to the elderly scored 3.20 points for their perception of financial human rights violations against the elderly, and those who had not had such experience scored 2.88 points ($p < 0.01$). The respondents who had experienced volunteer activities related to the elderly scored 3.45 points for their perception of sexual human rights violations against the elderly, and those who had not had such experience scored 2.88 points ($p < 0.01$). The respondents who had experienced volunteer activities related to the elderly scored 2.78 points for their perception of “neglect of others” human rights violations against the elderly, and those who had not had such experience scored 2.55 points. The respondents who had experienced volunteer activities related to the elderly scored 3.03 points for their perception of “neglect of self” human rights violations against the elderly, and those who had not had such experience scored 2.57 points ($p < 0.01$).

Table 3
Perceived degrees of violation of human rights of the elderly according to the experience of volunteer activities related to the elderly M $\pm$ SD

Subfactors	Experience of volunteer work related to the elderly		t	p
	Experienced (N = 98)	Inexperienced (N = 55)		
Psychological	2.84 $\pm$ 0.61	2.61 $\pm$ 0.74	2.015	0.047*
Physical	3.76 $\pm$ 0.48	3.50 $\pm$ 0.75	2.334	0.022*
Financial	3.20 $\pm$ 0.50	2.88 $\pm$ 0.64	3.211	0.002**
Sexual	3.45 $\pm$ 1.45	2.88 $\pm$ 0.74	2.696	0.008**
Neglect of others	2.78 $\pm$ 0.66	2.55 $\pm$ 0.88	1.748	0.084
Neglect of self	3.03 $\pm$ 0.79	2.57 $\pm$ 0.74	3.547	0.001**
Total	3.20 $\pm$ 0.50	2.87 $\pm$ 0.59	3.521	0.001**
By independent t-test, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$				

Perceived degrees of violation of human rights of the elderly according to the experience of taking interest in issues related to the elderly

Table 4 shows that the degree of perception of human rights violations against the elderly was significantly higher if the respondent had experience of taking interest in issues related to the elderly ($p < 0.001$). In terms of the subfactors of human rights violations against the elderly, the respondents who had experienced taking interest in issues related to the elderly scored 3.02 points for their perception of psychological human rights violations against the elderly, and those who had not had such experience scored 2.50 points ($p < 0.001$). The respondents who had experienced taking interest in issues related to the elderly scored 3.83 points for their perception of physical human rights violations against the elderly, and those who had not had such scored 3.51 points ($p < 0.01$). The respondents who had experienced taking interest in issues related to the elderly scored 3.29 points for their perception of financial human rights violations against the elderly, and those who had not had such experience scored 2.88 points ($p < 0.001$). The respondents who had experienced taking interest in issues related to the elderly scored 3.52 points for their perception of sexual human rights violations against the elderly, and those who had not had such experience scored 2.96 points ($p < 0.05$). The respondents who had experienced taking interest in issues related to the elderly scored 2.95 points for their perception of “neglect of others” human rights violations against the elderly, and those who had not had such experience scored 2.44 points ($p < 0.001$). The respondents who had experienced taking interest in issues related to the elderly scored 3.08 points for their perception of “neglect of self” human rights violations against the elderly, and those who had not had such experience scored 2.65 points ($p < 0.01$).

Table 4
Perceived degrees of violation of human rights of the elderly according to the experience of taking interest in issues related to the elderly M $\pm$ SD

Subfactors	Experience in taking interest in issues related to the elderly		t	p
	Experienced (N = 77)	Inexperienced (N = 76)		
Psychological	3.02 $\pm$ 0.64	2.50 $\pm$ 0.60	5.177	< 0.001***
Physical	3.83 $\pm$ 0.42	3.51 $\pm$ 0.71	3.440	0.001**
Financial	3.29 $\pm$ 0.49	2.88 $\pm$ 0.58	4.632	< 0.001***
Sexual	3.52 $\pm$ 1.60	2.96 $\pm$ 0.72	2.819	0.005**
Neglect of others	2.95 $\pm$ 0.58	2.44 $\pm$ 0.82	4.366	< 0.001***
Neglect of self	3.08 $\pm$ 0.78	2.65 $\pm$ 0.77	3.440	0.001**
Total	3.30 $\pm$ 0.48	2.85 $\pm$ 0.53	5.470	< 0.001***
By independent t-test, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$				

Correlation between experience related to the elderly and subfactors of the perception of human rights violations against the elderly

Table 5 shows the correlation between experiences related to the elderly and the subfactors of the perception of human rights violations against the elderly. The greater the experience of education related to the elderly is, the higher the perception of human rights violations against the elderly was, except for the perception of sexual human rights violations ($p < 0.05$). The greater the experience of volunteering with the elderly is, the higher the perception of human rights violations against the elderly was, except for the perception of “neglect of others” human rights violations ($p < 0.05$). The greater the experience of interest in issues related to the elderly is, the higher the perception of human rights violations against the elderly was ($p < 0.01$). Also, there was a relationship among the subfactors of the perception of human rights violations against the elderly ($p < 0.05$).

Table 5
Correlation between experience related to the elderly and subfactors of the perception of human rights violations against the elderly

Variables	1	2	3	4	5	6	7	8	9
1	1.000								
2	0.126	1.000							
3	0.311**	0.264**	1.000						
4	0.405**	0.171*	0.388**	1.000					
5	0.258**	0.209**	0.267**	0.526**	1.000				
6	0.429**	0.270**	0.353**	0.723**	0.716**	1.000			
7	0.149	0.214**	0.224**	0.256**	0.322**	0.319**	1.000		
8	0.260**	0.152	0.335**	0.718**	0.432**	0.594**	0.240**	1.000	
9	0.302**	0.277**	0.270**	0.557**	0.453**	0.509**	0.161*	0.610**	1.000

By polyserial correlation coefficient, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

1: Experience of education related to the elderly, 2: Experience of volunteer work related to the elderly, 3: Experience of taking an interest in issues related to the elderly, 4: Perception of psychological human rights violations against the elderly, 5: Perception of physical human rights violations against the elderly, 6: Perception of financial human rights violations against the elderly, 7: Perception of sexual human rights violations against the elderly, 8: Perception of “neglect of others” human rights violations against the elderly, 9: Perception of “neglect of self” human rights violations against the elderly

Factors in which experiences related to the elderly affect the perception of human rights violations against the elderly

Table 6 shows the effects of elderly-related experiences on perception of human rights violations against them. The multicollinearity analysis to confirm the suitability of the independent variables showed that the Variance Inflation Factor (VIF) coefficients of all the variables were 10 or less. The explanatory power of the regression model was 25.4%, and it was found to have a statistically significant model fit ($p < 0.001$). The experience of receiving education related to the elderly ($p < 0.001$), the experience of taking an interest in issues related to the elderly ($p < 0.001$), and the experience of volunteering with the elderly ($p < 0.05$) all affected the perception of human rights violations against the elderly. The standardization coefficients were compared to confirm the influence of experiences related to the elderly on the perception of human rights violations against the elderly. The results showed that the experience of education related to the elderly ($\beta = 0.275$), the experience of taking an interest in issues related to the elderly ($\beta = 0.274$), and the experience of volunteer work related to the elderly ($\beta = 0.180$) experienced the perception of human rights violations against the elderly in that order.

Table 6
Factors that influence the effect of experiences related to the elderly on the perception of human rights violations against the elderly

Independent variables	B	S.E.	β	t	p	VIF
Constant	4.426	0.191		23.153	<0.001***	
Experience of education related to the elderly	0.350	0.094	0.275	3.731	<0.001***	1.110
Experience of volunteer work related to the elderly	0.207	0.084	0.180	2.469	0.015*	1.077
Experience of taking an interest in issues related to the elderly	0.303	0.084	0.274	3.608	<0.001***	1.174
By the multiple regression analysis, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$						
Durbin-Watson's = 1.740, F = 18.220, Adjusted R^2 = 0.254, Dependence variables: experiences related to the elderly						

Discussion

Because of the oral condition of the elderly, they have a weak ability to chew food. This condition leads to difficulty in swallowing, which reduces the quantity and quality of elderly meals. This can lead to poor overall health due to nutritional deficiencies and weight loss [27, 28]. In fact, in a research panel survey of 6,935 aging people, it was found that in the case of the 65-year-old and older group, when their Geriatric Oral Health Assessment Index (GOHAI) [29] increased by 1 unit, their health satisfaction and quality of life significantly improved [30]. As such, oral and systemic health are closely related [31]. However, with increasing age, declining health, and dependence on care, older people are more likely to develop poor oral health [16]. Also, the number of older people in need

of care is expected to increase as the population continues to age [32]. Therefore, as the role of oral health care for the elderly is more emphasized, it is important for dental hygienists to properly perceive the elderly [33]. Unlike nurses, dental hygienists rarely have access to knowledge about the elderly through university education courses. In Korea, as implants and dentures are covered by insurance for the elderly over 65, the number of elderly patients in dentistry has increased. Accordingly, the need for basic knowledge and experience about the elderly is increasing [34]. Therefore, it is necessary to understand the characteristics of the elderly and extend oral care services to them by confirming the effect of dental hygienists' various experiences related to the elderly on their perception of human rights violations against the elderly.

Among the three categories of elderly-related experiences in this study, the highest perception of human rights violations against the elderly was seen among those who had received education about the elderly, followed by those who had experienced taking an interest in elderly issues, and those who had experienced volunteering for the elderly. These results are similar to those of Lee [35]. In addition, Lee et al. [36] reported that those who had received oral health guidance education for the elderly had better attitudes toward the elderly, as well as better psychological characteristics, family relationship characteristics, and judgmental thinking skills compared to those without such experience, similar to the results of this study.

Violation of the human rights of the elderly means that the elderly do not take care of themselves or their caregivers neglect their duty to care for them, such as by inflicting physical, psychological, sexual, financial, and neglectful harm on the elderly [6]. The biggest difference between those who had received education on the elderly among dental hygienists and those who had not received such education was in their perception of financial human rights violations. As a result of this, dental hygienists will know that they have the right to protect the assets of the elderly through education related to the elderly. Also, the biggest difference between those who had experience in taking an interest in issues related to the elderly among dental hygienists and those who had not had such experience was in their perception of psychological human rights violations. The biggest difference between those who had experienced volunteer work related to the elderly among dental hygienists and those who had not had such experience was in their perception of "neglect" human rights violations. These results are consistent with the results of Kang and Im [24], in which the elderly volunteer experience had a high average score in the perception of psychological human rights violations. Such psychological and neglect-oriented human rights violations are difficult to recognize as abuse and to assess for damages, so dental hygienists should pay attention to elderly-related volunteer activities and problems related to the elderly. All three experiences related to the elderly were highly related to the perception of violations of financial human rights violations against the elderly. In addition, the respondents who had experience of education related to the elderly showed a high perception of psychological human rights violations against the elderly, and those who had experienced volunteer activities related to the elderly showed a high perception of neglect-oriented human rights violations against the elderly. The UK study identified neglect (1.1%) as the most common type of abuse, followed by financial (0.7%) and psychological abuse (0.4%) [37]. To properly recognize financial, psychological, and neglect-oriented abuses, which account for a high proportion of human rights violations against the elderly, dental hygienists should make efforts to have the three mentioned categories of experiences related to the elderly.

In Korea, oral health services are provided as long-term care insurance for the elderly, but there is no system for oral hygiene services paid at home. In fact, there are only five dental hygienists in the country who provide visiting nursing oral hygiene services [38]. Therefore, due to the increasing number of the elderly, an experts' course on oral care for the elderly is required for dental hygienists working in dental clinics. If the three studied elderly-related experiences are experienced in this experts' course on oral health care for the elderly, the perception of human rights violations against the elderly will improve, and the characteristics of the elderly with regard to oral health care will be better understood. Furthermore, if a curriculum related to geriatric dentistry is opened and ran in the university curriculum, it will be possible for dental hygienists to better understand the human rights of the elderly and the oral health status of the elderly from the time when they are still students. The limitation of this study is that since the experiences related to the elderly were confirmed only through questionnaires for dental hygienists, care should be taken in generalizing them. It is thought that an experimental study on the perception of human rights violations against the elderly by applying the experiences of dental hygienists related to the elderly is necessary in the future. In addition, further studies are needed to identify various factors that affect the elderly-related experiences of dental hygienists and their perception of human rights violations against the elderly. It is expected that the results of this study can be used as basic data for the development of programs that will provide dental hygienists elderly-related experiences as a means of enhancing their perception of human rights violations against the elderly.

Conclusion

The results of this study showed that the elderly-related educational experience of dental hygienists, their interest in problems related to the elderly, and their volunteer activities related to the elderly affected their perception of human rights violations against the elderly. At this point in time when the number of the elderly is increasing, dental hygienists will have to focus on specialized oral health management for the elderly by considering the human rights of the elderly through many experiences related to the elderly. Therefore, the government will need to offer dental hygienists experiences related to the elderly in oral health programs as a long-term care insurance for the elderly. Furthermore, to train dental hygienists specializing in the elderly at universities, it is necessary to open a subject related to the elderly so that experiences related to the elderly can be advanced through practice.

Abbreviations

Not applicable.

Declarations

i. Ethics approval and consent to participate

This study was approved by the Institutional Review Board of Silla University (No. 1041449-202012-HR-001). Informed consent was obtained from all the individual participants of this study. All the methods used in this study were carried out in accordance with the relevant guidelines and regulations.

ii. Consent for publication

Not applicable.

iii. Availability of data and material

The data sets generated and/or analyzed in this study are not publicly available for reasons of personal and organizational integrity but are available from the corresponding author upon reasonable request.

iv. Competing interests

The authors declare that they have no competing interests.

v. Funding

No financial support was received for this study.

vi. Authors' contributions

Y. R Kim wrote the main manuscript text and K. A. Jang prepared Tables 1–6. All the authors reviewed the manuscript.

vii. Acknowledgment

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