

## ORIGINAL ARTICLE

# Relationship between career education experience among final-year dental hygiene students and their perspective towards work and profession: A nationwide survey in dental hygiene schools of Japan

Rumi Tano<sup>1</sup>  | Hiroko Miura<sup>2</sup> | Katsuo Oshima<sup>3</sup> | Kanako Noritake<sup>4</sup>  | Hideki Fukuda<sup>1</sup>

<sup>1</sup>National Institute of Public Health, Wako, Japan

<sup>2</sup>School of Dentistry, Health Sciences University of Hokkaido, Ishikari-gun, Japan

<sup>3</sup>The Nippon Dental University College at Tokyo, Chiyoda-ku, Japan

<sup>4</sup>Oral Diagnosis and General Dentistry, University Hospital of Dentistry, Tokyo Medical and Dental University (TMDU), Bunkyo-ku, Japan

## Correspondence

Rumi Tano, Department of Health Promotion, National Institute of Public Health, 2-3-6 Minami, Wako, Saitama 351-0197, Japan.

Email: [tano.r.aa@niph.go.jp](mailto:tano.r.aa@niph.go.jp)

## Funding information

This study received a Health and Labour Sciences Research Grant (191A1010).

## Abstract

**Objectives:** This study aimed to clarify the relationship between the experience of receiving career education among final-year dental hygiene students and their views regarding their work and profession, as part of research on the working style of dental hygienists.

**Methods:** An anonymous, self-administered survey was sent by post to all the 162 dental hygienist schools in Japan with dental hygiene students in their final year in November 2019. The main questions were regarding student attributes, career aspirations, their perspective on work and profession and whether or not they received career education at a dental hygienist training school. Analysis was conducted by cross-tabulation and logistic regression.

**Results:** Completed questionnaires were sent to us by 150 schools (response rate 92.6%), with a response from 6,270 students. The students who had received career education had significantly higher awareness and plans for the profession and a positive attitude towards the work ( $p < 0.01$ ). Following adjustment for age, sex, educational attainment, length of the course of study and timing of class the results shows that there was a significant relation between the experience of the career education with having future plans (odds ratio = 2.11, 95% confidence interval = 1.88–2.38,  $p < 0.01$ ).

**Conclusions:** It was observed that the experience of receiving career education just before graduating from dental hygienist school was related to an increased positive attitude of the students towards their work and profession. Further long-term investigations are necessary to evaluate the effects of career education among dental hygiene students and their attitude towards their profession.

## KEYWORDS

career counselling, continuing dental education, dental hygiene, dental hygiene education, dental school, student dental hygienist

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## 1 | INTRODUCTION

Career education has been reported to be associated with career maturity, career awareness, career choice, career exploration and beliefs regarding careers.<sup>1-5</sup> Above all, it was reported that 'achieving professional status within a social context' is the most important factor in career decision-making and that encouragement and guidance for career-related choices should be offered as part of dental education.<sup>6</sup> Therefore, career aspirations are one of the important elements of career education at dental school.

Regarding career education in Japan, Ministry of Education, Culture, Sports, Science and Technology define career education as 'education that promotes career development by fostering the necessary basic abilities and attitudes toward social and vocational independence of each individual'. It emphasizes on the development of a positive view and attitude among professionals towards work.<sup>7</sup> The 2016 edition of the Model core curriculum for dental student education in Japan explicitly states that 'the ability for lifelong learning to enable the individual to continue a career as a dentist' is a basic attribute and level of competence expected of dentists.<sup>8</sup> In addition, the curriculum also emphasized the importance of establishing a positive image of dentists and providing lifelong career support to dental professionals as part of the education at dental schools.<sup>9</sup> Furthermore, a survey among dental residents in Japan showed that career education in dental schools is useful in the formulation of future plans among dental residents.<sup>10</sup> As a result, the need for career education in the pre-graduate dentist training programmes has increased in recent years.

There is a similar need for career education in the allied health-care professional education. It was observed that career orientation of nursing students is largely determined by the time they graduate from nursing school.<sup>11</sup> Furthermore, it has been demonstrated that there is a relationship between the level of professional maturity of rookie nurses and their study of career advancement during their student years.<sup>12</sup> Therefore, it is desirable to actively impart career education so that student nurses can have a clear understanding of their career by the time they complete their basic nursing training.<sup>13</sup> Similarly, it is important for students in dental hygiene schools who are in the process of developing their careers, to develop a vision for their own future and transform it into reality.

In Japan, although there are many unemployed dental hygienists, there is also a shortage of dental hygienists working in dental clinics.<sup>14</sup> In previous studies, 'almost half the individuals who pass the national examination to qualify as dental hygienists do not find employment.'<sup>15</sup> In subgroup analysis stratified by age, the number of new graduates who leave their job in dental hygiene within three to four years of starting, or who do not start work, is increasing.<sup>15</sup> According to a survey of Japanese dental hygienists conducted in 2019, the most common cause of turnover was 'childbirth and child-rearing', but it was applicable to only 16.9% of the study population.<sup>16</sup> In addition, the number of dental hygienists over 30 years of age who are employed is increasing, and this is particularly true for those over 50 years of age in recent years.<sup>14</sup> Based on these findings,

we believe that it is important to promote retention of employment after graduating from dental hygienist school.

It has been pointed out that a decline in the turnover and increase in reemployment are being promoted to improve the employment status of Japanese dental hygienists.<sup>14</sup> Surveys on reemployment of dental hygienists have been reported,<sup>17-19</sup> but few studies have focused on the employment intention of dental hygienist students.

This study aimed to elucidate the relationship between the experience of receiving career education among final-year dental hygiene students and their views on work and profession, as part of the research on the working style of dental hygienists.

### 1.1 | Study population

An anonymous, self-administered survey was conducted for all final-year dental hygiene students of Japan in 2019. The surveys were posted to the dental hygiene schools over a 3-week period from 1 November to 22 November 2019. The final-year dental hygiene students from a total of 162 schools had enrolled in either 3-year or 4-year programmes.

### 1.2 | Ethical considerations

This study was conducted with the cooperation of the Japan Association for Dental Hygienist Education and was approved by the Research Ethics Review Board of the National Institute of Public Health (approval no. NIPH-IBRA12254).

A statement on voluntary participation was included in the letter of request sent with the questionnaire forms to schools and students. To protect the privacy of the respondents, reply envelopes were sent with the questionnaire forms, and the schools were requested to distribute them to individual students. The schools collected the completed questionnaires sealed by the students in the reply envelopes and returned them to us.

## 2 | METHODS

The survey items of the student questionnaire included the following: (1) personal attributes (age, sex, educational attainment, daytime or evening classes), (2) the respondent is satisfied with their decision to become a dental hygienist, (3) the respondent wished to be a dental hygienist for their entire working life, (4) the respondent considered being a dental hygienist to be a worthwhile profession, (5) career aspirations, (6) intentions for work-life balance, (7) the desire to participate in training courses related to dentistry continuously, (8) the intention to obtain board certification after becoming a dental hygienist and (9) the experience of receiving career education at the dental hygiene school. We were able to determine the number of years taken by students to graduate based on their responses that were sent to us by their respective schools.

In accordance with the terminology used in prior studies, in the present study, career education was defined as 'education with regard to future plans',<sup>10</sup> and career aspirations were defined as 'future plans with regard to employment'.<sup>10</sup> These definitions were clearly marked in the questionnaire forms.

## 2.1 | Statistical analyses

At first, a chi-square test was performed by cross-tabulation of views regarding work and profession based on the experience of career education. Next, to get the relationship between career aspirations and career education, logistic regression using multivariate analysis (simultaneous), the dependent variable was career aspirations (0: hardly mapped out/not mapped out and 1: mapped out/somewhat mapped out), and the independent variables (experience of receiving career education, age, sex, educational attainment, length of the course of study and timing of the class) were the personal attributes.

Analysis was conducted by chi-square test and logistic regression using SPSS Statistics Ver. 25.0 (IBM Japan). The significance level was set at 5%.

## 3 | RESULTS

### 3.1 | Summary of the respondents

We received 6,270 student questionnaires from 150 schools (reply rate of the school: 92.6%). Of these, six student questionnaires were excluded as they did not contain responses to any of the questions, providing a total of 6,264 questionnaires for analysis.

Table 1 represents the characteristics of the respondents, 6,177 were women (98.6%), and the mean age was 21.7 years (standard deviation 3.5). The most common educational programme completed immediately before enrolment in the dental hygiene school was high school (5,417 respondents, 86.5%), and 5,912 respondents (94.4%) were enrolled in daytime classes.

### 3.2 | Views on work and profession among the dental hygiene students

Table 2 represents the perception among the final-year dental hygiene students towards the profession and their attitude towards work, which were further analysed based on their experience of having received career education. Regarding the experience of having received career education at their respective dental hygiene schools, the most common response was 'do not remember' (3,714 respondents, 59.3%), followed by those who responded that they had received career education (1,640, 26.2%), and they had not received career education (877, 14.0%). On comparing the views of the students based on their experience of having received career education, students who responded that they had received career

TABLE 1 Summary of the respondents

		N = 6264	
Age(mean age: 21.7)	20s	5,956	95.1
	30s	214	3.4
	40s	46	0.7
	50s	5	0.1
	60s	1	0.0
	Not mentioned	42	0.7
Sex	Women	6,177	98.6
	Men	8	0.1
	Not mentioned	79	1.3
Educational attainment	High school	5,417	86.5
	Vocational school	422	6.7
	University	198	3.2
	Junior college	152	2.4
	Other	40	0.6
	Not mentioned	35	0.6
Length of the course of study	3 years	6,062	96.8
	4 years	202	3.2
Timing of the class	Daytime	5,912	94.4
	Evening class	294	4.7
	Not mentioned	58	0.9

Note: Number value: number of respondents (%).

education had significantly more positive perception towards the profession and attitude towards work than those who responded that they did not receive career education or that they did not remember ( $p < 0.01$ ).

### 3.3 | Factors related to the career aspirations among the dental hygiene students

Table 3 shows the results of the relationship between career aspirations and career education. After adjustment for age, sex, educational attainment, length of the course of study and the timing of class, the results show that for the students who had received career education, there was a significant relation between the experience of the career education with having future plans (odds ratio = 2.11, 95% confidence interval = 1.88-2.38,  $p < 0.01$ ).

## 4 | DISCUSSION

This study was an exhaustive, cross-sectional study, with response from more than 90% of dental hygienist schools. Therefore, the sample size was large enough to give a good understanding of nationwide trends in Japan. It was observed that the experience of receiving career education among students just before graduating

**TABLE 2** Relationship between the experience of receiving career education among final-year dental hygiene students and their views regarding their work and profession

		Total	Experience of receiving career education		n (%)
			Yes n = 1640	No/Do not remember n = 4591	p value ( $\chi^2$ test)
Career aspirations	Mapped out	497 (8.0)	202(12.3)	295 (6.4)	<0.01
	Somewhat mapped out	2,162(34.8)	720(44.0)	1,442(31.5)	
	Hardly mapped out	2,750(44.2)	597(36.5)	2,153(47.0)	
	Not mapped out	808(13.0)	118 (7.2)	690(15.1)	
I am satisfied with my decision to become a dental hygienist	Yes	3,742(60.6)	1,125(69.1)	2,617(57.5)	<0.01
	No	317 (5.1)	58 (3.6)	259 (5.7)	
	Cannot say	2,121(34.3)	446(27.4)	1,675(36.8)	
I want to work as a dental hygienist for all my working life	Yes	3,126(50.3)	929(56.8)	2,197(48.0)	<0.01
	No	624(10.0)	122 (7.5)	502(11.0)	
	Cannot say	2,464(39.7)	585(35.8)	1,879(41.0)	
I think a dental hygienist's job is worthwhile	Yes	5,234(84.3)	1,452(88.8)	3,782(82.7)	<0.01
	No	66 (1.1)	8 (0.5)	58 (1.3)	
	Cannot say	910(14.7)	176(10.8)	734(16.0)	
Work-life balance	There should be a work-life balance	4,748(76.5)	1,296(79.3)	3,452(75.5)	<0.01
	Work is a higher priority	386 (6.2)	100 (6.1)	286 (6.3)	
	Lifestyle is a higher priority	1,076(17.3)	239(14.6)	837(18.3)	
I want to continue participating in training courses	Strongly agree	1,029(16.6)	323(19.7)	706(15.4)	<0.01
	Slightly agree	3,133(50.4)	881(53.8)	2,252(49.2)	
	Slightly disagree	1,623(26.1)	352(21.5)	1,271(27.8)	
	Strongly disagree	432 (6.9)	81 (4.9)	351 (7.7)	
I want to obtain certification as a dental hygienist	Strongly agree	820(13.2)	265(16.2)	555(12.1)	<0.01
	Slightly agree	2,262(36.4)	647(39.5)	1,615(35.3)	
	Slightly disagree	1,957(31.5)	502(30.7)	1,455(31.8)	
	Strongly disagree	453 (7.3)	110 (6.7)	343 (7.5)	
	Do not know about certification as a dental hygienist	723(11.6)	113 (6.9)	610(13.3)	

Note: Questionnaires with no responses were excluded.

from dental hygienist school was related to their positive attitude towards work and profession.

The results of this study suggest that career education at dental hygienist schools in Japan would be an opportunity for students to learn about working as a dental hygienist. With reference to previous research, the factors affecting the students' perspective towards work and the profession were examined affirmation of vocational choice, hope of lifelong service, the value of work of dental hygienists, career aspiration, work-life balance and motivation for self-improvement.<sup>20-24</sup> For all factors, students with career education were more willing to work and profession as a dental hygienist than those without. The association between school-based career education and student prospects obtained in this study was consistent with the results of adolescent career education intervention

studies. Compared to the control group, the intervention group reported increase in several outcomes related to purpose-centred career development and a greater sense of preparedness for the future.<sup>25</sup> The acquisition of dental hygienist certification is regarded as an aid to career advancement; it was shown that the provision of career education motivates self-improvement, which is represented by continuous participation of dental hygienists in trainings and acquisition of certifications.<sup>26</sup> It is inferred that the experience of receiving career education positively regarded dental hygienists as a profession and that their career path became clear after graduation. In addition, by receiving career education, students will be able to choose their career paths to achieve their goals.

The results of this study show that providing career education to dental hygiene students has an impact on the students to

**TABLE 3** Relationship between the career aspirations of dental hygiene students and experience of receiving career education

	Odds ratio	95% Confidence interval		p value
		Lower	Upper	
Experience of receiving career education (ref: Did not receive/Do not remember)	2.11	1.88	2.38	<0.01
Age	1.08	1.06	1.10	<0.01
Sex (ref: Men)	1.01	0.24	4.24	0.985
Educational attainment (ref: Other than high school graduates)	1.00	0.84	1.19	0.976
Length of the course of study (ref: 3 years)	1.09	0.82	1.46	0.555
Timing of the class (ref: Evening class)	0.88	0.66	1.15	0.330

Note: Age is analysed as a continuous quantity.

be able to formulate future plans regarding their profession. This supported the results of the national investigation for Japanese dental residents.<sup>10</sup> Namely, it was suggested that career education may be effective for dental hygiene students to map their own future. However, in this study, it was observed that approximately 60% of the students in the dental hygienist training course did not remember whether they had received career education. Also, a study comparing occupational perceptions of dental hygiene students in Japan and Canada reported that the Canadian students had significantly higher positive perception than that of the Japanese students.<sup>27</sup> This study confirmed that students who received career education had a more positive perception of their profession and attitude towards work than those who did not.

In this study, about 60% of respondents did not remember whether they had received career education. Those who do not remember may include those who have taken career education. This time, based on the previous research,<sup>10,28</sup> we divided it into 'taken' and 'not taken/do not remember taking'. As a future research subject, it is necessary to consider the implementation status of career education in schools. This study revealed that the process of education for dental hygiene students should inculcate a sense of purpose and intention. However, this study only looked at the perspectives and future prospects of work and profession that the dental hygiene students had before graduation based on their experience in career education. There are limitations to assess how effective it is to educate the students regarding their career pathway; therefore, intervention studies and longitudinal studies are needed in the future.

## 5 | CONCLUSION

It was observed that the experience of receiving career education among students just before graduating from dental hygienist school was related to an increased positive attitude towards their work and profession. Further long-term investigations are necessary to evaluate the effects of career education among dental hygiene students and their attitude towards their profession.

## 6 | CLINICAL RELEVANCE

### 6.1 | Scientific rationale for study

Dental hygienists and other healthcare professionals require career education during training to help them plan their career.

### 6.2 | Principal findings

Dental hygiene students who receive career education have higher career aspirations and a positive attitude towards employment and work.

### 6.3 | Practical implications

Dental hygienists need continuous career education to increase their commitment towards work.

## ACKNOWLEDGEMENTS

We would like to express our gratitude to the teaching staff and students of the dental hygiene schools who participated in the study for their cooperation. We are also deeply grateful to the Japan Association for Dental Hygienist Education for the enormous support in conducting the survey.

## CONFLICT OF INTEREST

The authors declare no conflict of interests.

## AUTHOR CONTRIBUTIONS

Author contributions: K.N. and H.F. conceived the ideas; R.T. and H.M. collected the data; R.T. and K.O. analysed the data; R.T. and H.M. led the writing; H.M. acquired funding; H.M. and H.F. were responsible for project administration; and all authors have read and agreed to the published version of the manuscript.

## ORCID

Rumi Tano  <https://orcid.org/0000-0003-2376-7901>

Kanako Noritake  <https://orcid.org/0000-0001-9351-1317>

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**How to cite this article:** Tano R, Miura H, Oshima K, Noritake K, Fukuda H. Relationship between career education experience among final-year dental hygiene students and their perspective towards work and profession: A nationwide survey in dental hygiene schools of Japan. *Int J Dent Hygiene*. 2022;20:203-208. <https://doi.org/10.1111/idh.12535>