

## Reasons to study Dentistry in first year students

### Razones para estudiar Odontología en alumnos de primer año

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#### Resumen

**Objetivo:** Identificar las razones por las cuales los alumnos de primer año de la Universidad San Sebastián decidieron estudiar Odontología.

**Material y Método:** Estudio exploratorio no-experimental, descriptivo, transversal. Un cuestionario de 20 preguntas enfocadas a las razones por las que los estudiantes eligieron esta carrera, se aplicó a la población estudiantil en primer año de la Universidad San Sebastián (USS) 2016 en cuatro localidades (Santiago, Concepción, Valdivia, Patagonia). La muestra ( $n = 308$ ) estuvo compuesta por los sujetos que estaban disponibles para la evaluación el día correspondiente. Se realizaron estudios de asociación utilizando la prueba  $\chi^2$  y la regresión logística binaria y la ecuación de regresión se estimó utilizando el método de Wald hacia adelante. Se aplicó la prueba de distancia euclidiana entre todas las respuestas correlacionadas con las variables significativas, utilizando el concepto de similitud. El nivel de significación fue  $\alpha \leq 0,05$ .

**Resultados:** Se observó una asociación entre las variables opción de elección y género. La prueba de la  $\chi^2$  fue significativa ( $p = 0.012$ ), lo que implica que ambas variables están asociadas, aunque el grado de asociación es bajo y significativo ( $C = 0.141$ ;  $p = 0.014$ ). El modelo de regresión utilizado clasificó correctamente el 77,3% de los datos de la variable dependiente y las distancias estimadas permitieron observar diferencias entre los géneros.

**Conclusión:** La mayoría de los estudiantes eligió Odontología como primera opción por razones intrínsecas. Sin embargo, la educación dental debe reforzar el altruismo en sus estudiantes que eligieron odontología como segunda opción y por razones extrínsecas.

**Palabras clave:** Odontología, selección de profesión, estudiantes, cuestionario

Fecha de recepción: 25 de junio de 2017  
Fecha de aceptación: 12 de julio de 2017

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### Abstract

**Aim:** To identify the reasons why first year student of Universidad San Sebastián decided to study Dentistry.

**Material and method:** It is a non-experimental and transversal exploratory, descriptive study. A questionnaire composed of 20 questions focused on the reasons why students choose this career, was applied to student population in first year from Universidad San Sebastián (USS) 2016 in four locations (Santiago, Concepción, Valdivia, Patagonia). The sample (n= 308) was made up of all subjects who were available for assessment on the corresponding day. Association studies using the  $\chi^2$  test and binary logistic regression were made and the regression equation was estimated using the forward Wald method. Finally, the Euclidean distance test was applied between all the answers correlated with the variables that were significant, using the concept of similarity. The level of significance was  $\alpha \leq 0.05$ .

**Results:** An association between the option choice and gender variables was observed. The  $\chi^2$  test was significant ( $p = 0.012$ ), which implies that both variables are associated, although the degree of association is low and significant ( $C = 0.141$ ;  $p = 0.014$ ). The regression model used classified 77.3% of the dependent variable data correctly and the estimated distances allowed to observe differences between the genders.

**Conclusion:** The majority of students chose Dentistry as first choice and for intrinsic reasons. However, dental education should reinforce altruism in its students that chose Dentistry as a second choice and for extrinsic reasons.

**Keyword:** Dentistry, career choice, students, questionnaire.

## INTRODUCTION

The vocational choice is an ongoing process that allows us to know and develop in the student interests, attitudes and skills related to a profession (1). Vocation is defined as “psychological processes that mobilizes a particular person in relation to the adult professional world in which actively seeks to link, or that is already installed” (2).

It is stated that the motivation is multisensory (3-6) and therefore, the choice of career is influenced by the integration of three basic motivational dimensions: expressive, instrumental and professional attitude (7). The “expressive” motivational dimension is represented by the interest and skills related to the discipline studied; it is an intrinsic motivation, which arises from the very need for self-realization through a set of rewarding activities themselves and that collaborate in building a positive and satisfactory self-image. “Instrumental” motivational dimension includes

what is extrinsically rewarding, as attractive economic prospects, job security and social advancement; it is an extrinsic motivation.

The motivational “professional” dimension is a combination of the expressive and instrumental dimensions as it is aimed at the “professional self” through a life project focused on the acquisition and exercise of a socially recognized profession. (7)

In the process that makes a student to choose a career, influenced multiple factors (8), such as vocational maturity (9). People who own vocation are able to withstand most adverse circumstances only by their love for what they do (11). It is an impulse, an urge, an unmet need that leads the person to perform a series of tasks by conviction (12, 13).

The choice of a profession in the health area determines a lifestyle that requires ongoing training, understanding that it can always be

done better and that the work ethic, respect and dignity of the patient, are above any economic benefit (11,12, 14,15). In this way, the activity performed with vocation becomes the ideal situation and the craving for profit can never be more important than the moral and ethical convictions that everyone has (12).

Researching the reasons for students to select a particular career can avoid academic desertions and this, is a measure variable of quality assurance in education (16, 17). In Chile, there are no studies that identify the types of motivation that determine the choice of the career of dentistry. Because of this, the objective of this study is to identify the reasons why first year dentistry student of San Sebastian University decided to study this career.

## MATERIALS AND METHODS

This was a non-experimental and transversal exploratory, descriptive study. It was approved by the ethics committee of the faculty of dentistry of the USS in accordance with the bioethics standards of the Declaration of Helsinki, and focused on student populations of first year from Universidad San Sebastián (USS) 2016 in four locations (Santiago, Concepción, Valdivia, Patagonia) N= 364. The sample (n= 308) was made up of all subjects who were available for assessment on the corresponding day.

The original version of the questionnaire applied, "Reasons to study Dentistry" was developed in Ireland (18) and pre-tested in a similar group of students. The version used in this study was translated using the technique "forward-backward translation technique". Later, the questions were reviewed by a panel of experts; a Doctor of Psychology, a Doctor of Education, a Doctor of Dentistry and three other masters in Higher Education, who reviewed relevance, understanding and cultural adaptation.

Then, minor adjustments were made and the instrument was applied to a group of students on a pilot basis (20 first-year dental students from USS). After this, no further changes were made. The final instrument was composed of 20 questions focused on the reasons why dental students choose this career.

The questions corresponded to two variables; extrinsic motivation and intrinsic motivation. Students, after signing the informed consent has to evaluate the factors that influenced their choice with a number from 0 to 10 in each question, where 0 corresponded to no effect and 10 to the maximum of influence (See appendage).

## Statistical analysis

The gender and priority in choosing students underwent variables association studies by  $\chi^2$  test in the form of contingency tables. It was estimated in this analysis, the frequency of subjects intersected in each box: observed frequency, expected frequency and percent (%) of each frequency observed within each gender.

Contingency Coefficient (C) was used, with statistical significance, to measure the degree of association between the variables aforementioned and figures of double bars to graph the results.

Subsequently, a binary logistic regression was made. Additionally, the following statistics were applied: maximum likelihood (-2LL), R2Cox and Snell, R2 Nagelkerke and testing goodness of fit Hosmer and Lemeshow. The regression equation was estimated by the method of Wald forward, including the standard error of the coefficients (ET), the statistician Wald and the percentage of correct classification observed in each step in each

significant variable was included by testing  $\chi^2$ . Finally, Euclidean distance test was applied between all responses correlated with the variables that were significant, using the concept of similarity. The significance level was  $\alpha \leq 0,05$ .

## RESULTS

The total sample was 308 students with an average age of 19.38 years DS 2,558.

In table 1 (and Figure 1) results are observed from association between the variables option of choice and gender. X2 test was significant ( $p = 0.012$ ), which implies that both variables are associated, although the degree of association is low and significant ( $C = 0.141$ ;  $p = 0.014$ )

The omnibus test to evaluate the coefficients of the regression model, was highly significant for steps ( $\chi^2 = 7.81$ ;  $p = 0.005$ ), indicating that this type of exploration of the variables allow to differentiate the explanatory power of each of these in an independent way.

The test  $(-2LL) = 316.67$  showed that it is relatively low and indicates that the results observed in this study, in terms that the independent variables observed are explanatory of the dependent variable, are plausible.

The values of  $R^2$  Cox and Snell and Nagelkerke's  $R^2$ , were 0.134 and 0.194 respectively; meaning that the independent variables explained the 13.4% and 19.4% respectively of all the variability that the dependent has.

The Hosmer and Lemeshow test was not significant ( $\chi^2 = 5.55$ ;  $p = 0.698$ ), demonstrating that probabilities observed and predicted by the model, are not statistically different and the data fit the model.

Given these results, it was observed that the model classified 77.3% of the dependent variable

data correctly. The process by steps improved the explanation of the dependent variable.

The variable "I like to teach people about their oral care (ILTPOC) explains 75.6% of the variance of the dependent. With the subsequent addition of the variable "Dentistry is well paid (OWP)" increases to 77.3%; then, the difference in growth between the first and second variable was only 1.7%. The model did not allow more variables in the equation.

Table 2 shows the results of estimating equation regression observed from the implementation of the logistic regression. The negative coefficient of the variable OWP showed that it is associated with the condition of not having chosen the first option dentistry, while the positive value of the variable ILTPOC is associated with the opposite condition.

The ET are very low, demonstrating the accuracy of the estimation of the coefficients of the equation. The Wald statistic was highly significant for the coefficients of both variables, which indicated that these coefficients differ from the value 0 and therefore these results could be extrapolated to the population.

Table 3, 4, 5 and 6 shows the results of the distances between the two variables that explain the causes that determined the picking order of the option to choose dentistry in general and in men and women.

The observation of the distances (correlations between vectors) allowed to appreciate different and opposing levels of correlation analysis "In general" for all variables, except for: "One or more of my friends are dentists", "Dentistry is a career that has great projection in Chile", "I have manual skills" and "You have to use technology", in which there are no differences between student groups differentiated by the hierarchical choice order. In men, happened

something similar to the analysis “in general”, but the variables, in which there are no differences were: “One or more of my friends are dentists”, “Dentistry has better schedule than other health professions” “I can start working independently just graduates from the career”, “Dentistry is a career that has great projection in Chile”, “it’s a career that will allow me to have a

better social status”, “I have manual skills” and “I’m interested in health careers area”. Finally, in women, also levels of different and opposing correlation analysis were observed, except for the variables: “One or more of my friends are dentists”, “Dentistry is a career that has great projection in Chile” “I have manual skills” and “you have to use technology”.

Table 1. Results of the estimation of frequencies observed and expected on two variables: Election of career and gender

			Career election		
			Another option	Dentistry First Option	Total
Gender	Female	recount	40	142	182
		Expected frequency	49,6	132,4	182,0
		% inside gender	22,0	78,0	100,0
	Male	recount	44	82	126
		Expected frequency	34,4	91,6	126,0
		% inside gender	34,9	65,1	100,0
Total	recount	84	224	308	
	Expected frequency	84,0	224,0	308,0	
	% inside gender	27,3	72,7%	100,0	

$X^2 = 6,29; p=0,012$  Coefficient of Contingency(C) = 0,141;  $p = 0,014$ .

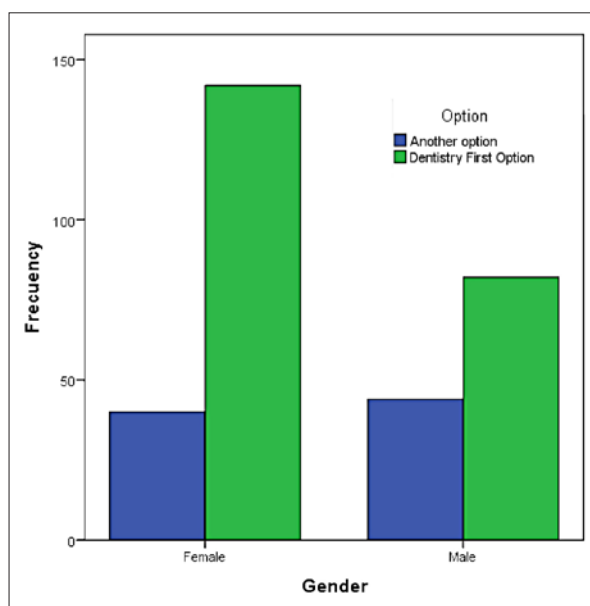


Figure 1. Frequencies observed of gender in relation to the hierarchical option to study dentistry as first career

Table 2. Summary of significant steps to include variables in the regression equation

	B	E.T.	Wald	gl	Sig.
OWP	-,129	,047	7,449	1	,006
ILTPOC	,411	,072	32,513	1	,000
Constant	-1,895	,632	8,984	1	,003

**Table 3.** Correlation between significant questions regarding the remaining questions of intrinsic and extrinsic motivation

In general	Correlation between values vectors	
	I like to teach people about their oral care	Within my options to choose, dentistry is well paid
1- One or more of my friends are dentists	.039	.114
2- It's easy for dentists find work	.059	.562
3- I want to be my own boss	.086	.492
4- I want to help improve the aesthetic appearance of people	.393	.029
5- Dentistry has better schedule than other health professions	.103	.406
6- I can start working independently barely graduates from the career	.093	.316
7- I want to develop rare areas in dentistry	.250	-.012
8- Dentistry is a career that allows me to help poor people.	.388	-.153

**Table 4.** Correlation between significant questions regarding the remaining questions of intrinsic and extrinsic motivation

In general	Correlation between values vectors	
	I like to teach people about their oral care	Within my options to choose, dentistry is well paid
9- I am interested in working in public health institutions	.307	-.135
10- Dentistry is a career that has great projection in Chile.	.302	.340
11- I'm interested in doing research in the area.	.403	.017
12- It is a career that will allow me to have better social status.	.076	.445
13- I have manual skills.	.169	.111
14- I'm interested in health careers area.	.212	.025
15- I have to use technology.	.193	.264
16- It's a dynamic career, procedures are changing.	.302	.066
17- I am pleased intellectually to learn the contents of the career.	.593	-.003
18- I experiment positive emotions when thinking about helping people in their oral health.	.653	-.025

**Table 5.** Correlation between significant questions regarding the remaining questions of intrinsic and extrinsic motivation by gender

Questions	Men		Women	
	Within my options to choose, dentistry is well paid	I like to teach people about their oral care	Within my options to choose, dentistry is well paid	I like to teach people about their oral care
1- One or more of my friends are dentists	.073	.084	.114	.092
2- It's easy for dentists find work	.484	.191	.606	-.017
3- I want to be my own boss	.443	.214	.547	-.061
4- I want to help improve the aesthetic appearance of people	.019	.287	.090	.492
5- Dentistry has better schedule than other health professions	.383	.269	.415	-.016
6- I can start working independently barely graduates from the career	.208	.196	.421	-.049
7- I want to develop rare areas in dentistry	-.070	.146	.055	.350
8- Dentistry is a career that allows me to help poor people.	-.079	.355	-.150	.351

**Table 6.** Correlation between significant questions regarding the remaining questions of intrinsic and extrinsic motivation by gender

Questions	Men		Women	
	Within my options to choose, dentistry is well paid	I like to teach people about their oral care	Within my options to choose, dentistry is well paid	I like to teach people about their oral care
9- I am interested in working in public health institutions	-.119	.414	-.115	.164
10- Dentistry is a career that has great projection in Chile	.360	.339	.369	.225
11- I'm interested in doing research in the area	.068	.493	-.010	.352
12- It is a career that will allow me to have better social status.	.332	.222	.488	.049
13- I have manual skills	.136	.073	.129	.260
14- I'm interested in health careers area	.207	.310	-.067	.117
15- I have to use technology	.415	.189	.156	.277
16- It's a dynamic career, procedures are changing	.077	.343	.063	.300
17- I am pleased intellectually to learn the contents of the career	.102	.544	-.023	.628
18- I experiment positive emotions when thinking about helping people in their oral health.	.091	.639	-.062	.625



## Appendage

	0.Not influ- ential	1	2	3	4	5	6	7	8	9	10.Highly influ- ential
1- One or more of my friends are dentists											
2- It's easy for dentists find work											
3- Within my options to choose, dentistry is well paid											
4- I want to be my own boss											
5- I want to help improve the aesthetic appearance of people											
6- Dentistry has better schedule than other health professions											
7- I can start working independently barely graduates from the career											
8- I want to develop rare areas in dentistry											
9- Dentistry is a career that allows me to help poor people.											
10- I am interested in working in public health institutions											
11- Dentistry is a career that has great projection in Chile											
12- I'm interested in doing research in the field											
13- It is a career that will allow me to have better social status.											
14- I have manual skills											
15- I'm interested in health careers area											
16- I have to use technology											
17- It's a dynamic career, procedures are changing											
18- I am pleased intellectually to learn the contents of the career											
19- I like to teach people about their oral care											
20- I experiment positive emotions when thinking about helping people in their oral health.											

## DISCUSSION

The motivation that college students have when entering college focuses not only in learning, but also in the vocation, admiration for professionals in the area that interests them, delivering values of the respective discipline or social factors which highlights especially the family group (19,20,21).

The results of this study indicate that the total sample, 72.7% of students selected Dentistry as first choice (Table 1), a highest percentage compared to a study made in Ireland (18) where the result was 65,7%. Regarding gender differences, women in the total sample, chose the career as first choice by 78% and men 65.1% (figure 1).

From the foregoing, it follows that the highest percentage of first year Dentistry student from USS, enter through a genuine interest in educating people in the habits necessary to maintain proper oral health. This group of students (72.7%) reported statistically significantly that their reason to enter college is "I like to teach people about their oral care" (table 2). This would indicate that those who really want to study dentistry do because they feel an intellectual and emotional satisfaction with their profession, which is also associated with their need for self-realization.

The group of students who choose the second option career (27.3%) reported statistically significantly that their reason is "within my options to choose from, dentistry is well paid" (Table 2). Therefore, these students visualize this career as a business or company that achieves a stable or outstanding socioeconomic status through the profession. All this shows that the reasons to study Dentistry in the study population, vary depending on whether Dentistry was selected as a first or

second option, where the first is characterized by vocation, which is consistent with studies in Iran (22) and Venezuela (23).

However, a significant percentage makes his choice for primarily economic reasons, which is also evident in other studies reporting that dental students show great interest in professional status and compensation awarded by the profession (24,25).

When analyzed by gender, the results show the same trend as the overall analysis (Table 3, 4, 5 and 6). Men and women belonging to the group "I like to teach people about their oral care", have a high correlation with questions related to intrinsic motivation, as well as men and women belonging to the group "within my options to choose dentistry is well paid" have high correlation with extrinsic motivation questions.

On the other hand, the study conducted in Ireland (18), concluded that there are no significant differences in the reasons for selecting the career between both genders, where students chose this career primarily by the positive perception of working conditions, followed by altruistic motivations as helping people and enhance them their appearance.

The intrinsically motivated students are more successful in education area as well as having significant advantages in mental health (26). Students who chose the career for the second option, have a high correlation with those questions related to extrinsic motivation. Humlum et al (27), determine that financial incentives are necessary but not sufficient to attract talented young people to careers with high demand in the labor market, in particular, the vocational orientation and social orientation of careers play a significant role.

If there is a false motivation, there is no real identification with the career, and this can lead to dropping out of it (28). This abandonment of the studies may be due to many factors, both intrinsic and extrinsic (29, 30). The vocation factor in a research in Colombia was the main reason for dropout students in Dentistry (30). The same reported a study in health area in Peru where 50% defected by vocational problems (31).

A study (32) surveyed French students five months after their first course to assess their motivation after being in the university environment with peers and teachers. From the perspective of social psychology, the environment has an important influence on the thoughts, emotions and individual behavior, so it can be infer that the individual motivation of income, either intrinsic or extrinsic, can be modified or reaffirm depending on the prevailing motivation in the university environment (33). Considering the influence that the environment can have on student's motivation, it is important to generate a classroom climate in which intrinsic motivation is emphasized and valued so as to contribute to the progressive modification from an extrinsic motivation to a more centered in the satisfaction with the sense of the professional practice of the dentist. This can be approached with students through various methods: reflection and dialogue about the vocation of service and support to others, the presentation of personal and professional projects, highlighting those with high levels of genuine interest in helping people, the analysis of cases from the biopsychosocial view and how their intervention significantly improves the quality of life of people, among other strategies.

It is worth mentioning, that the present research has certain limitations such as the sample, because it only covered dental students from first year, excluding students from second to

sixth year coursing internship. Moreover, it is important to mention that this research only investigated the reasons that students have to enter the career of Dentistry, however it would be interesting to analyze the reasons that make them stay in the race as they progress, so the University can work, support and increase the student's motivation to avoid desertion.

## CONCLUSION

The results of this study reveal that the majority of students chose Dentistry because of intrinsic reasons. However, dental education should do more to reinforce altruism in its students that chose Dentistry as a second choice and for extrinsic reason such as money. It is important to motivate students to choose this career by its essence, which implies the condition of service and desire to help others, which should take precedence over personal interest.

From an educational point of view, more studies are needed to explore the reasons that push a student to study Dentistry, to reorient the information provided about the career and its social relevance.

As a measure of educational quality it is necessary to reduce dropout rates. For this, it is considered relevant to conduct pre-university entrance strategies, with the aim of choosing a career for reasons related to the vocation and not by economic aspects, even more if we consider that in health area work, the patient care should include a biopsychosocial model and not only biomedical, stated in the relevant aspect graduation profile of Latin American dentistry students (34).

Along with it, it is suggested conducting lectures and motivational workshops from the first year of university in order to increase

the levels of intrinsic motivation in students who chose the career for reasons related to the extrinsic motivations.

**Conflicts of interest:** The authors state that there are no conflicts of interest in connection with this article.

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