

CLINICAL RESEARCH

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Satisfaction of the Dental Service Users at Some Clinical Externships, Faculty of Dentistry, University of Costa Rica

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Satisfacción de los usuarios del servicio odontológico en algunas Clínicas de Externados, Facultad de Odontología, Universidad de Costa Rica

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ABSTRACT: The objective of this research was to determine the degree of satisfaction of dental service users in some clinical externships at the Faculty of Dentistry from the University of Costa Rica during the year 2022, through the application of a modification of the Dental Satisfaction Questionnaire. The sample population consisted of 396 patients and/or legal guardians who attended during May and June of this year at the “Rotación Clínica Comunitaria Palmares,” “Rotación Sede del Atlántico (Turrialba-Guápiles),” “Rotación en Externado Clínico Recinto Paraíso”, “Rotación Clínica del Externado de San Ramón” and “Rotación Comunitaria del curso externado clínico en la Clínica Dental del Recinto de Grecia.” An instrument was applied, physically or digitally, which included DSQ questions and sociodemographic data. Descriptive analysis of all variables was performed. To establish whether there was an association between sociodemographic variables and DSQ, the Kolmogorov-Smirnov tests, Mann-Whitney U test, Kruskal-Wallis test and the post-hoc Bonferroni test were implemented. The response rate was 49.32%; participants indicated satisfaction with the dental service. There was a statistically significant difference not only between the variable of sex and availability, but also between the domains (satisfaction, access, pain management, availability and quality) and the different externships. The study population is satisfied with the dental service received; however, there are significant differences in the DSQ domains and each externship.

KEYWORDS: Patient satisfaction; Questionnaire; Dentistry; Student; Health care quality; Dental care.

RESUMEN: El objetivo de esta investigación fue determinar el grado de satisfacción de los usuarios en el servicio de odontología en algunos externados clínicos de la Facultad de Odontología de la Universidad de Costa Rica durante el año 2022, a través de la aplicación de una modificación del Cuestionario de Satisfacción Dental (Dental Satisfaction Questionnaire). La población de estudio fueron 396 pacientes y/o encargados atendidos durante mayo y junio del 2022 en la Rotación del Externado Clínico del Recinto de Paraíso, Rotación Sede del Atlántico Turrialba-Guápiles, Rotación Clínica del Externado de San Ramón, Rotación Comunitaria del curso Externado Clínico en la Clínica Dental del Recinto de Grecia y Rotación Clínica Comunitaria de Palmares. Se aplicó un instrumento, de forma física o digital, que incluyó preguntas del DSQ y datos sociodemográficos. Se efectuó análisis descriptivo de todas las variables. Para establecer si existía asociación entre las variables sociodemográficas y el DSQ se utilizaron las pruebas de Kolmogorov-Smirnov, Prueba U de Mann-Whitney, Prueba de Kruskal-Wallis y la prueba post-hoc de test de Bonferroni. La tasa de respuesta fue de 49,32%. Los participantes indicaron estar satisfechos con el servicio de odontología. Hubo diferencia estadísticamente significativa tanto entre la variable de sexo y la disponibilidad, como entre los dominios de satisfacción, acceso, manejo de dolor, disponibilidad y calidad con los externados. La población de estudio está satisfecha con el servicio odontológico recibido, no obstante, existen diferencias significativas en los dominios del DSQ entre los distintos externados.

PALABRAS CLAVE: Satisfacción de los pacientes; Odontología; Estudiante; Calidad; Acceso; Tratamiento dental.

INTRODUCTION

User satisfaction is a broad and multidimensional concept (1); it is defined as the experience of a person based on the result obtained in the use of a service or the consumption of a product due to their expectations and previous experiences including emotional, intellectual and psychological factors (2). In the context of health services, user satisfaction is defined as the result of the difference between the patient's perception of the service provided and his/her previous expectations (3). These expectations are obtained from the patient's experiences before accessing the health service, from experiences reported by other

people and from the commitments that the same system acquires with the patient (4).

In dentistry, as in other branches of health, user satisfaction is closely related to the link between the professional and the patient (5). Other aspects valued to evaluate patient satisfaction regarding the dental treatments received are the technical and professional competence of the dentist, the personality of the professional, the organization of the dental clinic, accessibility, schedules, treatment cost, proximity to the dental clinic, pain treatment, cleaning of instruments, technical quality of the equipment and a comfortable environment (6).

User satisfaction in health services is closely related to quality. The service quality, in the health sector, is defined as the effectiveness improving the health level and satisfaction degree of the population, with resources that society and citizens have chosen to allocate to it (4). The concept of service quality should be expressed uniformly and objectively to allow comparisons made by different communities, institutions and groups, over time in order to assess possible changes (7).

The Faculty of Dentistry from the University of Costa Rica (UCR) provides dental services both at its main building and at the level of clinical externships. The objective of these clinical externships is to prepare the students who are in the last year of the major to face Costa Rican national reality and generate autonomous learning. These externships are projected to the community with no economic cost focusing on children, university scholarship students, people with disabilities, homeless and/or elderly people; they include schools, hospitals, senior center or dental clinics inside the UCR campuses. Some treatments that are performed on each patient are prophylaxis, operative, scrapings and curettages, endodontics in uniradicular or biradicular pieces, simple extractions, also digital panoramic radiographs to each patient and tomography if necessary.

The clinical externships were created in the decade of the seventies; since that moment, the quality have not been evaluated using international validated questionnaires. Therefore, the objective of this research was to determine the degree of satisfaction of dental service users in some clinical externships at the Faculty of Dentistry from the UCR, during the year 2022, through the application of a modification of the Dental Satisfaction Questionnaire (DSQ).

METHODOLOGY

PARTICIPANTS

The research was carried out with patients who received dental service in some clinical externships at the Faculty of Dentistry from the UCR during the first cycle of 2022. The sample calculation was based on a hypothesis of patient satisfaction prevalence of 50%, an accuracy of 5%, a confidence interval of 95%, a test power of 80%, and expecting a response rate of 30%. The inclusion criteria were adults and/or legal guardians of children who received dental services at the clinical externships from "Rotación Clínica Comunitaria Palmares," "Rotación Sede del Atlántico (Turrialba-Guápiles)," "Rotación en Externado Clínico Recinto Paraíso," "Rotación Clínica del Externado de San Ramón" and "Rotación Comunitaria del curso externado clínico en la Clínica Dental del Recinto de Grecia." The exclusion criteria were people with cognitive difficulties who had problems responding to the survey on their own.

ETHICAL CONSIDERATIONS

The research was approved by the Scientific Ethics Committee of the University of Costa Rica (CEC-UCR-658-2019).

DATA COLLECTION

For data collection, a survey through the SurveyMonkey® platform was sent by email or by text message through WhatsApp® app excluding the "Rotación Clínica Comunitaria Palmares," in which it was applied physically due to connectivity problem in the area. It was sent at three different times to get the most responses. At all times, the anonymity of the participants was respected.

Regarding the DSQ, the version translated into Spanish by López-Garví *et al.* (8) was used with modifications to adapt it to a clinical teaching language and to eliminate the questions related to cost. The DSQ was already validated in a previous investigation at the UCR Faculty of Dentistry (9).

The survey consisted of two parts. The first section included 17 items referring to the DSQ domains of quality (questions 2,5,9,12,14,15 and 16; maximum value 35 points), pain management (questions 3,15 and 17; maximum value 15 points), access (questions 4,11,5; 15 points), availability (questions 6 and 8; maximum value 10 points) and general satisfaction (question 1). The second part involved questions related to the sociodemographic variables studied. The instrument used a Likert-type scale to assess responses in 5 categories (1 strongly agree, 2 agree, 3 unsure, 4 disagree, and 5 strongly disagree). For questions 2,5,8,10,12,13,14, and 16 (2), a recording of their score was performed (5 strongly agree and 1 strongly disagree) for the interpretation of the results. The minimum possible score was 17 and the maximum 85 points. To analyze the satisfaction levels of the sample, the Dental Satisfaction Index was used which is obtained by adding the scores of each of the items of the DSQ questionnaire (10). The scores were adjusted according to the modifications made: very dissatisfied (scores 17 to 34), not very satisfied (scores 35 to 51); satisfied (scores 52 to 68) and very satisfied (scores over 69) (10).

The sociodemographic variables evaluated were sex (male and female), age range (between 18 and 29 years, between 30 and 39 years, between 40 and 49 years), place of origin (San José, Cartago, Heredia, Alajuela, Guanacaste, Limón and Puntarenas), educational level (none,

school, high school, university), frequency of visits to the dentist (none, once a year, more than once a year), and the clinical externship.

The variable place of origin was categorized as coming from the Greater Metropolitan Area (GMA) (San José, Cartago, Heredia, and Alajuela) or outside the GMA (Limón, Puntarenas, and Guanacaste) to perform the bivariate analysis.

STATISTICAL ANALYSIS

Data was recorded in an Excel spreadsheet (Microsoft, Inc., Redmond, WA, USA), and inconsistencies were corrected. This information was analyzed using the SPSS version 25.0 program (IBM, New York, USA). Descriptive statistics were performed to establish absolute and relative frequency, also measures of central tendency and variability, based on the nature of the variables. The Kolmogorov-Smirnov test was used in the assessment of data conformity for the normal distribution. The relationships between the scores obtained from the Dental Satisfaction Index and sociodemographic variables were analyzed using the Mann-Whitney U-Test and the Kruskal-Wallis Test. A p value <0.05, and the RI of 95% were considered significant. If positive, the post-hoc Bonferroni test was applied.

RESULTS

The survey was sent to 396 patients; moreover, the response rate was 49.3% (182 patients). 87.4% of the participants were in an age range between 18 and 29 years; 63.7% were female; 46.7% were from the province of Alajuela; 58.2% reported having completed secondary school, and 73.1% responded to attend the dentist more than once a year. The highest number of responses was obtained from people who received dental servi-

ces at “Rotación Comunitaria del curso externado clínico en la Clínica Dental del Recinto de Grecia” (42.9 %). In addition, the lowest number of responses was from people who received dental services at the externship of “Rotación Clínica Comunitaria Palmares”(6.6 %) (Table 1).

89% of the participants were satisfied or very satisfied with the dental service received in the clinical externship at the Faculty of Dentistry from de UCR. The average of Dental Satisfaction Index was 61.2. The average of each DSQ domains was 31.6 for quality, 10.7 for pain management, 9.7 for access, and 6.9 for availability.

The best-rated questions were 5 (mean 4.6; SD 1.0), 9 (mean 4.0; SD 1.0), and 14 (mean 4.0; SD 1,3), all referring to quality aspects. Those with the lowest scores were 1 (mean 2.7; SD 1.2)

and 10 (mean 2.9; SD 1.2) referring to general satisfaction, also 11 (mean 2.9; SD 1,2) concerning access. Table 2 presents the questions used in the survey and the original English version in italics (11).

To facilitate the interpretation of the results to carry out the bivariate analysis between the DSQ, its domains and each of the sociodemographic variables; both the DSQ questionnaire and its domains were converted into a weighting scale from 1 to 100%. A statistically significant difference was found between satisfaction and clinical externships ($p=0.001$). This same difference remained, with the same value, in the rest of the domains. In addition, the sex variable had a significant difference regarding the availability variable ($p=0.035$), also the age variable regarding pain management ($p=0.047$) (Table 3).

Table 1. Distribution of sociodemographic variables (N=182).

Variable	N	%
Age		
18-29 years	159	87.4
30-39 years	17	9.3
4-49 years	6	3.3
Sex		
Male	66	36.3
Female	116	63.7
Province		
San Jose	5	2.7
Cartago	78	42.9
Heredia	0.0	0.0
Alajuela	85	46.7
Guanacaste	2	1.1
Limón	2	1.1
Puntarenas	10	5.5
Educational level		
None	3	1.6
School	12	6.6
Highschool	106	58.2
University	61	33.5
Frequency of visits to the dentist		
No	2	1.1
Once	47	25.8
More than once	133	73.1
Clinical Externship		
Recinto de Paraíso	18	9.9
Sede del Atlántico	26	14.3
Recinto de San Ramón	48	26.4
Comunidad de Palmares	12	6.6
Recinto de Grecia	78	42.9

Table 2. Mean and standard deviation of the DSQ, aspects and questions of the questionnaire.

DSQ, questions and aspects	Mean	SD
1. ¿Hay aspectos del tratamiento dental que recibo que podrían mejorarse? <i>There are things about the dental care I receive that could be better.</i>	2.7	1.2
2. Los estudiantes de odontología muestran un cuidado especial cuando examinan a sus pacientes. <i>Dentists are very careful to check everything when examining their patients.</i>	4.5	1.0
3. Algunas veces evito ir al dentista porque es muy doloroso. <i>Sometimes I avoid going to the dentist because it is very painful.</i>	3.7	1.3
4. Normalmente los pacientes tienen que esperar mucho tiempo en la sala de espera. <i>People are usually kept waiting a long time when they are at dentist's office.</i>	3.6	1.2
5. Los estudiantes de odontología siempre tratan a sus pacientes con respeto. <i>Dentist always treat their patients with respect.</i>	4.6	1.0
6. Hay suficientes dentistas en mi zona. <i>There are enough dentists around here.</i>	3.4	1.3
7. Los estudiantes de odontología deben hacer más para disminuir el dolor. <i>Dentist should do more to reduce pain.</i>	3.3	1.1
8. La Facultad de Odontología está en un lugar fácil para llegar. <i>Places where you can get dental care are very conveniently located.</i>	3.5	1.3
9. Los estudiantes de odontología no son tan exhaustivos a la hora de examinar a sus pacientes como deberían. <i>Dentists aren't as thorough as they should be.</i>	4.0	1.0
10. Me atiende el mismo estudiante de odontología casi siempre que necesito tratamiento dental. <i>I see the same dentist just about every time I go for dental care.</i>	2.9	1.2
11. Es difícil conseguir una consulta con el estudiante de odontología de forma inmediata. <i>It's hard to get a dental appointment for dental care right away.</i>	2.9	1.2
12. Los estudiantes de odontología son capaces de aliviar o curar la mayoría de los problemas dentales que los pacientes puedan presentar. <i>Dentists are able to relieve or cure most dental problems that people have.</i>	3.9	1.1
13. El horario de atención de los estudiantes de odontología es conveniente para la mayoría de las personas. <i>Office hours when you can get dental care are good for most people.</i>	3.7	1.2
14. Los estudiantes de odontología suelen explicar en qué consistirá el tratamiento y su costo antes de iniciarlo. <i>Dentists usually explain what they are going to do and how much it will cost before they begin treatment.</i>	4.0	1.3
15. Los estudiantes de odontología deberían hacer más para evitar que las personas tengan problemas dentales. <i>Dentist should do more to keep people from having problems with their teeth.</i>	3.2	1.1
16. Los consultorios de la Facultad de Odontología son modernos y disponen de las últimas tecnologías. <i>Dentists' offices are very modern and up to date.</i>	3.7	1.1
17. No tengo miedo a sentir dolor cuando voy al dentista. <i>I am not concerned about feeling pain when I go for dental care.</i>	3.7	1.3

Table 3. Mean values on a scale from 1 to 100% and standard deviation for DSQ and domains, based on the sociodemographic conditions studied.

Variables	Satisfaction			Access			Pain Management			Quality			Availability		
	Average	SD	p	Average	SD	p	Average	SD	p	Average	SD	p	Average	SD	p
Age			0.259			0.069			0.047			0.937			0.808
18-29	72.8	11.2		65.7	16.1		73.0	18.1		91.1	15.4		69.1	19.6	
30-39	67.5	15.2		62.0	14.5		65.9	18.7		86.1	23.7		67.6	23.3	
40-49	63.3	17.0		50.0	15.1		53.3	23.5		80.0	32.7		65.0	12.2	
Externships			0.001			0.001			0.001			0.001			0.001
Recinto de Paraiso	72.0 ^a	9.0		60.7 ^b	13.5		76.3 ^b	15.7		93.5 ^{a,b}	9.1		60.0 ^{a,b}	19.7	
Sede del Atlántico	75.7 ^b	9.2		67.9 ^b	16.0		78.2 ^b	18.3		94.9 ^b	12.3		73.1 ^b	19.3	
Recinto de San Ramón	74.5 ^b	8.7		66.9 ^b	15.0		72.6 ^b	18.5		94.1 ^b	11.2		70.4 ^b	17.6	
Comunidad de Palmares	40.4 ^a	6.7		41.7 ^a	12.7		47.8 ^a	16.3		39.8 ^a	8.4		38.3 ^a	19.5	
Recinto de Grecia	74.2 ^b	8.3		66.9 ^b	15.2		71.5 ^b	17.2		93.4 ^b	93.4		73.1 ^b	16.5	
Origin			0.472			0.461			0.746			0.916			0.462
GMA	72.1	12.3		65.0	16.4		71.4	19.0		90.2	17.5		68.9	20.0	
Outside the GMA	71.3	6.9		61.9	11.8		74.3	12.2		90.8	12.2		67.1	16.4	
Sex			0.250			0.591			0.291			0.628			0.035
Male	74.4	9.6		66.0	15.7		77.8	16.5		92.9	12.0		73.2	19.2	
Female	70.7	12.9		64.1	16.4		70.4	19.7		88.8	19.3		66.3	19.6	
Educational level			0.260			0.073			0.303			0.269			0.584
None	56.8	20.6		51.1	16.8		62.2	7.7		67.6	33.1		53.3	30.5	
School	64.1	17.5		54.4	16.0		65.6	16.3		78.6	28.7		62.5	22.6	
Highschool	72.4	12.3		66.2	15.8		72.9	18.3		89.9	17.5		70.0	19.7	
University	73.7	8.2		65.0	16.0		71.1	19.9		74.4	9.4		68.7	18.7	
Frequency of visits to the dentist			0.071			0.163			0.092			0.086			0.185
No	74.1	20.0		56.7	23.6		66.7	28.3		92.8	22.2		90.0	14.1	
Once a year	69.6	10.9		61.7	14.5		67.5	16.7		87.0	16.0		66.8	17.5	
More than once a year	72.9	12.2		66.0	16.5		73.2	19.1		91.4	17.4		69.2	20.4	

Mann-Whitney U Test and Kruskal-Wallis Test, significant at p<0.05 level. Bonferroni correction, superscript letters indicate statistical difference significance at the p<0.001 level. SD: standard deviation.

DISCUSSION

A large majority of users of the dental service at the clinical externships were satisfied with the care received which may indicate that previous expectations were met and experiences in the areas of quality, access, availability, and pain management were positive. Moreover, this demonstrates that a positive interaction between the professional and the patient generates a greater range of satisfaction. Therefore, it can lead to a better commitment and interest of the patient generating greater adherence and results in the final dental treatment (5).

These positive results regarding the satisfaction of patients treated in Dental Schools have also occurred at the University of Jordan, in the Ohio State University, and at the University of the West Indies (12-14).

Among the questions that received a higher score, two stand out: "Dentist always treat their patients with respect" and "Dentists usually explain what they are going to do and how much it will cost before they begin treatment" which shows that students strive to provide a quality service to their patients; this respect and treatment of the operators was also highlighted positively at the University of Jordan and at the Dental Clinic of the University of Valencia (8,12). On the other hand, the questions that obtained the lowest score or satisfaction were: "I see the same dentist just about every time I go for dental care." This may be due to the fact that the externships work with an appointment system, where individuals are scheduled several days in advance. Additionally, students only stay ten weeks in the same place, so it is very likely that if a patient requires several appointments to complete their dental treatment, the dental service is offered by various operators.

The sociodemographic variables did not produce any statistically significant difference in

terms of satisfaction in general, which coincides with the results obtained in other studies (12,15); however, there were differences regarding sex and availability domain: men were more satisfied in this domain. Other studies have also identified differences in some domains: older patients evaluated access better (16) or where users with higher educational level had lower satisfaction with the service received (17).

Furthermore, there were significant differences among the different places where the dental service is offered. This situation has also been reported at the University of the West Indies where patients assisted in the emergency department were less satisfied than those whose treatment was given in regular clinics. In our research, the difference was presented in one of the five evaluated externships. The externship from the "Rotación Clínica Comunitaria Palmares" showed differences in satisfaction in general and in all domains. This situation may be due to the fact that this externship is the only one that provides services in a mobile unit located in an area of difficult access; the rest of the externships have their operations within the university campuses. Additionally, in the "Rotación Clínica Comunitaria Palmares" the domain of pain management was one of those that obtained less satisfaction, which may be because many children are assisted in this externship and the subjectivity of the pain perception (18-20). In fact, parents of children who completed the survey may have perceived that their children had some degree of pain while they were receiving dental treatment. However, in the research carried out at the UCR, specifically in the pediatric dentistry clinic (16), this situation did not arise.

One of the strengths of this research is that it is the first study where user satisfaction is measured in some clinical externships at the Faculty of Dentistry. Data obtained will serve as a basis to Academic Unit can establish short and medium-term strategies to continue guaranteeing

quality care to all users. In the future, it is planned to apply the DSQ questionnaire again in different periods to assess the levels of satisfaction of the population served, and also to investigate the reasons why there were differences between the clinical externships.

A limitation of this study was that some of the participants had difficulties manipulating and accessing the questionnaire to answer the survey; however, part of the work team gave support and guidance through the WhatsApp platform. Another limitation was that there were some physical surveys that were discarded because they were delivered incompletely reducing the number of participants in the "Rotación Clínica Comunitaria Palmares."

CONCLUSIONS

The users of the dentistry service of the clinical externships at the Faculty of Dentistry from the University of Costa Rica are satisfied with the services provided. There were no statistically significant differences in the degree of satisfaction of users receiving dental service regarding socio-demographic variables, except for the availability domain related to sex. Finally, there were statistically significant differences in the degree of satisfaction of users who receive dental services in the different clinical externships studied.

AUTHOR CONTRIBUTION STATEMENT

Conceptualization and design: N.G.M.
Literature review: N.G.M., F.A.M., M.C.Q., W.M.C.A., E.P.C.A., A.L.Z.CH.
Methodology and validation: N.G.M.
Formal analysis: N.G.M.
Investigation and data collection: N.G.M., F.A.M., M.C.Q., W.M.C.A., E.P.C.A., A.L.Z.CH.
Resources: N.G.M.
Data analysis and interpretation: N.G.M.
Writing-review and editing: N.G.M., F.A.M., M.C.Q., W.M.C.A., E.P.C.A., A.L.Z.CH.

Supervision: N.G.M.

Project administration: N.G.M.

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