

Measuring patients' beliefs and satisfaction with the private oral healthcare in Romania

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Abstract. Abstract: Objective: The aim of this study was to assess patients' beliefs about dentists, patient expectation and satisfaction about the oral health services in Cluj-Napoca, Romania. Material and methods: Two cross section surveys on 189 patients with various dental diseases were conducted. The first survey evaluated patient's beliefs about interactions with dentists. The second survey assessed satisfaction regarding the appointment system, facilities, dental staff and oral treatment. The data were analyzed using SPSS statistical software (Student T test, Mann-Whitney U test, Kruskal-Wallis test) and statistical significance was set at $p < 0.05$. Results: The results obtained from the dental belief survey (DBS) have indicated a strong correlation between communication factor and lack of control, followed by communication factor and professionalism factor. Also, the results proved strong correlation between total treatment satisfaction recorded with the satisfaction survey and the communication and lack of control dimension from the DBS. Conclusions: It is important to assess dental beliefs and satisfaction by surveys in order to promote patient oriented dental care services. Knowing the perception of patients about dental fields gives us the opportunity to improve and establish a strong and adequate doctor-patient relationship and by that assuring the sustainability of the private oral healthcare provider.

Key Words: Patient belief; Patient satisfaction; Oral health; Dental treatment; Sustainability of private oral healthcare system

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Introduction

On the international level, patient satisfaction studies are used for improving health quality and help undergraduate dental students to be aware of the broad spectrum of care (Ohrn et al 2008). Patient satisfaction is the degree of patient contentment regarding the services provided by a hospital or a doctor (Ohrn et al 2008). Dental experience represents an important element in people's adherence to dental medical care units. It acts as a core variable in patient satisfaction and a reason for future contact with the dental care. According to dental statistics studies on dental visits rates, an average person spends almost three weeks of his life sitting on a dental chair (ter Horst & de Wit 1993). This relationship is not only important because of its high frequency, but also because of the doctor's influence on the psychosocial aspects of the treatment provided. Moreover, patients tend to evaluate the dentist's technical competence and quality of care based on the provider's affective behavior (Jones & Huggins 2014). Professional training, dentists' empathy and information sharing capacity are expected worldwide by the patients (Yamalik 2005). Trust in practitioners, communication features, and respects are considered key elements for a successful doctor-patient relationship (Ungureanu et al. 2015). Patient satisfaction with oral health services is one of the main

factors that can improve the oral health status of a community. People that are not satisfied by the oral health services tend to miss the appointments and to neglect their oral health (Ayala-Luis et al. 2014). If we want to improve the oral health status of a community, we have to support the sustainability of the oral health services. Satisfaction with oral health services is linked to oral health education, and services provider.

Measuring patient's satisfaction and beliefs represents a support in achieving a high patient retention rate in dental offices. High retention rate in dental offices supports the sustainability of the main oral health care provider in Romania- the private dental office. The EU Member States acknowledged that the sustainability of a health system is linked to patient's satisfaction (Ministry of Health of the Republic of Lithuania 2020). Nowadays oral health care is marketable, and the quality of oral treatments has the patient satisfaction as a key marker. Previous research carried out by Cosma et al. (2020) indicated a strong link between patients' perception and satisfaction and health-care system sustainability, but without addressing the private dental healthcare.

In light of that, the aim of this study was to assess patients' beliefs about dentists, patient expectation, and the degree of patient satisfaction within oral health services in Cluj-Napoca,

Table 1. Study I (Romanian Medical University College Student's Scores on Measures on Revised Dental Belief Survey 28-item version); Study II (Romanian Patients Scores on Measures on Revised Dental Belief Survey 28-item version); Descriptive statistics for patients' satisfaction survey.

Study I					
Scale Revised Dental Belief Survey 28-item version	Possible scores	Range	n	Mean	SD
Total	28-114	28-86	91	62.24	20.64
Professionalism	11-49	11-38	91	27.18	8.38
Communication	8-36	8-28	91	16.51	6.65
Lack of Control	8-42	8-34	91	18.42	7.74
Study II					
Scale Revised Dental Belief Survey 28-item version	Possible scores	Range	n	Mean	SD
Total	28-146	28-118	189	59.8	21.39
Professionalism	11-50	11-39	189	27.18	8.38
Communication	8-48	8-40	189	16.51	6.65
Lack of Control	8-53	8-45	189	18.42	7.74
Patients' satisfactory survey					
Item Satisfaction	Possible scores	Range	n	Mean	SD
Total visits	1-5	1-4	189	3.23	1.47
Total facilities	6-13	6-7	189	7.19	1.61
Total professionalism	4-17	4-13	189	7.84	1.94
Total treatment	9-27	9-18	189	11.18	3.4
Total appointments	8-22	8-14	189	12.03	2.45

Romania. To the best of our knowledge this is the only study, which uses questionnaires validated previously in other studies, so our data can be compared with surveys run in other countries (Coolidge 2005).

Materials and Methods

Sample

The latest census of the Cluj-Napoca population reported by The Romanian National Institute of Statistics revealed a number of 324000 inhabitants. Based on that, the sample size of this study was calculated using the Survey System and the indications from "The Guide to Determining Sample Size" (Determining sample size 2020, Sample Size Calculator 2018) with a confidence interval of 7.00. The result indicated that the sample size is 196, to generalize the results of this study to the Cluj-Napoca city population.

Study design

We used Dental Beliefs Scale (DBS) and Patients Satisfaction Survey (PSS) to assess Cluj-Napoca patient's satisfaction and beliefs regarding dental treatments. Approval for the use of DBS was obtained, and the PSS questionnaire was developed by the authors based on a proposed model by National Maternal and Child Oral Health Resource Center (2018). DBS questionnaire was translated into Romanian language. Both questionnaires were validated on a group of 91 students as in the initial study that used the DBS questionnaire. The obtained results were similar to those published by Coolidge (2005).

Questionnaire 1

The first questionnaire evaluated patient's beliefs about interactions with dental practitioners and was designed by Peter Milgrom, from whom we received the endorsement for academic use. This questionnaire was validated on the US population and the results were published by Coolidge (2005). The questionnaire was translated into Romanian language and validated on the student group, 91 students. After validation, the questionnaire was distributed to the study group, 189 patients. The items included were divided into 3 factors, based on specific statistical analysis: the doctor's professionalism (Factor Professionalism - FP), communication (Factor Communication - FC) and the lack of control (Factor Lack of Control - FLC).

Questionnaire 2

The second questionnaire, Patients Satisfaction Survey (PSS), evaluated patient satisfaction and was developed on the basis of the proposed model by National Maternal and Child Oral Health Resource Center (2018). The rating scale has been translated into Romanian language and adapted based on the models proposed by Ohrn et al (2008) and Abrahamsson et al (2012). The questionnaire was validated on a student population of 91. The PSS assessed four factors: satisfaction concerning appointment system, facilities, staff and treatment - see appendix A1- table. 1. (<http://www.hvm.bioflux.com.ro/docs/Appendix%20A.pdf>)

Table 2. Correlation between patients' satisfaction survey dimension and number of visits

Dimension		Number of visits	AS	FS	PS	TS
Appointments satisfaction (AS)	Pearson Correlation	.523**	1	.154*	.307*	.391**
	Sig	0		0.34	0	0
Facilities satisfaction (FS)	Pearson Correlation	-0.073	.154*	1	.226**	.321**
	Sig	0.315	0.34		0.002	0
Professional satisfaction (PS)	Pearson Correlation	0.031	.307**	.226**	1	.447**
	Sig	0.67	0	0.002		0
Treatment satisfaction (TS)	Pearson Correlation	-0.051	.391**	.321**	.447**	1
	Sig	0.49	0	0	0	0.49

*Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed)

Table 3 A) The mediator relation between age and PSS and DBS (a. Dependent Variable: Age; b. Predictors: (Constant), TS, Number of visits, F1_P, TF, PS, F2_C, F3_LC); B) Mediator relation between the number of visits and DBS (c. Dependent Variable: Numbers of visits; d. Predictors: (Constant), F3_LC, F1_P, F2_C)

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
A	Regression	2683.906	7	383.415	2.949	.006
	Residual					
ANOVA ^c						
B	Regression	9.032	3	3.011	1.392	.247
	Residual	400.185	185	2.163		
	Total	409.217	188			

Study protocol

The survey protocol has been approved by the Ethics Committee of the University of Medicine and Pharmacy Iuliu Hatieganu Cluj Napoca, Romania (Register number-527/23.12.2015). Each participant agreed with the inclusion in the study and an informed consent was obtained before completion of two questionnaires. The cross section study was conducted on 189 patients with various types of dental disease, which were under evaluation or treatment during January 2018 - January 2019. Participants were interviewed within the Department of Oral Health, University of Medicine and Pharmacy "Iuliu Hatieganu", Cluj-Napoca, Romania.

Statistical analysis

All data were analyzed using SPSS statistical software. The Student T test, Mann-Whitney U test and Kruskal-Wallis test for differences in the defined parameters were used. Cronbach alpha and equal-length Spearman-Brown coefficients were used for assessing the internal reliability. Statistical significance was set at $p < 0.05$.

Results

Demographic data indicate that our group comprises 118 male patients (62.4 %) and 71 female patients (37.6%). Mean education level is 5.81 on EQF scale. The value obtained for the educational level indicates, belonging to our mean study participants in the "comprehensive, specialist, factual" group. The validated data obtained from the students are similar with the data obtained from the study group. The total number of visits done by a patient in a year was five – with a 30.7%, 4 – 12.2%, 3 – 24.3%, 2 – 14.8%, 1 – 18.0% (Table 1).

Relations between DBS (Dental Belief Survey) and patients' satisfaction

There is a high correlation between Communication Factor and Lack of Control Factor ($p=0.0$). Other correlation are between Factor Professionalism – Factor communication $p=0.01$, Factor Professionalism – Factor Lack of Control $p=0.01$.

There was no significant correlation between DBS Factors and number of visits patients underwent in the last year, but a relation was observed. The number of visits is lower when the communication factor has a higher score ($p > 0.05$). Also, the number of visits is higher when the professionalism level is higher and the number of visits is lower when patients have the feeling that they cannot control the exterior factor ($p > 0.05$), and the Lack of Control Factor have higher scores ($p > 0.05$).

The number of visits at the dentist correlates with the appointment's satisfaction. There is no significant correlation between the number of visits and the facilities, the satisfaction concerning the staff and the dentist and the treatment satisfaction. The overall satisfaction is influenced by the relation between each dimension of the patients' satisfaction survey, as long as there is a significant correlation between each dimension. There are also significant correlations between different items of patients' satisfaction surveys. There is a strong correlation between total treatments satisfactions recorded with the satisfaction survey and the Communication and Lack of Control dimension (Table 2).

Mediator relation

The level of education, coded using EQF level- is not a predictor or a mediator factor for Patients Satisfaction Survey (PSS) - ANOVA- F. 0.863, at sig .483. Neither the gender dimension- ANOVA- F. 0.493, $p=0.839$, nor numbers of visits - ANOVA- F. 0.661, $p=0.577$ are predictors for PSS. But there was a significant

effect of patients' age on PSS and DBS Scale $p < .05$ level for the dimension conditions ($p = 0.006$) (Table 3).

There is no mediator effect between DBS and numbers of visits (Table 3), but there is a predictor relation between - lack of control dimension and the number of visits. When the lack of control has high level- which signifies that the person feels to have no control over the situation, the number of visits decreases – $t = -1.667$ at sig. .009. There is an indirect relation between the treatment ending and the belief in the professionalism of the dentist from DBS. When the dimension of the Factor Professionalism has higher scores, which means that the level of professionalism is perceived as low, the completion of the treatments has low level, the person does not finish the treatment – $t = -.992$ at sig. 0.032.

Discussion

The subject of our research is of great interest, because it evaluates patients beliefs correlated with patient satisfaction regarding the private oral healthcare in Romania. We must underline the fact that it was difficult to incorporate a patient subjective perspective regarding patients' beliefs and satisfaction with dental treatments, but specific steps were applied. It is important to determine factors, which are influencing the patient's preference for one dental office or the other, because contented patients are more likely to remain patients of a dental office and the identification of patient satisfaction sources can help improving the dental office management strategy. To better understand the factors, dental belief survey was an important tool and brought a wider perspective. The tool was previously tested on Romanian student population. The data obtained on students' population are similar with the data from literature (Determining sample size 2018). The mean total score obtained by Coolidge et al (2005) was $M = 51.5$ ($SD = 17.6$), whereas ours was $M = 62.24$ ($SD = 20.64$), mean of FP = 20.1 ($SD = 6.3$) compared with $M = 27.18$ ($SD = 8.38$), mean of FC = 16.7 ($SD = 6.3$) compared with $M = 16.51$ ($SD = 6.65$), mean of FLC = 15.0 ($SD = 6.0$), compared with $M = 18.42$ ($SD = 7.74$).

A second objective of our study was to assess the degree of satisfaction concerning dental health services in the population of Cluj County in relation with patients' beliefs. The strongest correlation was between the Communication Factor and Lack of Control Factor, which are interdependent, followed by Communication Factor and Professionalism Factor. It is a positive correlation coefficient; therefore, a direct correlation was established and the two variables vary in the same direction. Doctors that are prone to limited communication are evaluated by patients as less professional competent. This is in accordance with the study of Jones & Huggins (2014), who demonstrated that patients tend to evaluate the dentist's competence based on the provider' affective behavior and empathy. Ungureanu et al. (2015) stated, that patients based their assessment of the dentist's professional attitude, on the way in which he/she communicates. Communication is a fundamental element in doctor-patient relation, but the dentists need to pay attention to all other aspects (respect, professional training, empathy and information sharing capacity) in order to increase oral health care. Moreover, dentists must be prepared to face a generation of patients with an increased requirement for information (Timofe & Albu 2016). In our study we observed a strong relation between the treatment

satisfaction and the level of Communication. The relation was also set between treatment satisfaction and Lack of Control. Patients were more satisfied when the dentist communicated more efficient with them, and the perceived lack of control was lower. This data are in concordance with the results obtained by Luzzi and Spencer (2008). Their study showed that dental patients presented favourable attitudes and beliefs but perceived a lack of control towards dental visiting.

We need to underline that patient-dentist relationship is a source of overall patient satisfaction as observed by Ohrn et al (2008) and could determine the further adherence to oral hygiene services. The results of our study indicate an association between the number of visits in the dental office and Communication Factors, Lack of Control Factor and Professionalism Factor. Hofer et al (2017) have shown that consideration and communication are the most important factors when it comes to loyalty to a dentist. Our results show that patient's judgment regarding the dentist's skills and the quality of oral health services is based on his/her personal interaction with the dentist. The number of the visits and the adherence to the dental treatments is linked with all the factors from the satisfaction questionnaire. Patients' adherence to treatment is associated with a higher degree of satisfaction and confidence in medical care, as previous studies indicate (Hofer et al 2017, Ayala-Luis et al 2014). Patients' lack of control induced the decreasing of visits in the office. The decreased visits correlate with a higher number of dental emergencies. This model correlates with oral health problems sometimes associated with general health status. Avoidance of dental treatments negatively impacts quality of life. The dental treatment completion is influenced by the belief in the doctor professionalism. Professionalism is a competency needed by dentists to act effectively and ethically and is seen as a central part of both undergraduate and postgraduate curricula (Brown et al 2002, Cowpe et al 2010). Age is a determinant factor for the satisfaction and it is correlated with the professionalism as demonstrated by Charlotte Nath et al (2006). The lack of control increases the feeling of anxiety and influence the satisfaction. Patients could be anxious for different reason when it comes to dental treatments in the dental office (Gardner et al 2005).

The degree of education, gender and the number of visits in the dental office are not a determinant factor for overall patient satisfaction. Although, our results proved no influence of gender on the overall satisfaction, Settineri et al (2005) have discovered that stimuli, which often give a feeling of anxiety to women, are the noise and sight of dental hand pieces or needles. Patient satisfaction is multifaceted and constitutes a complex set of objective and subjective elements (Riley et al 2012, Anderson et al 2005). As Riley et al (2012) reported, quality of dentist-patient communication is related closely to patient satisfaction. Kotler (2003) defined satisfaction as a person's feeling of pleasure or disappointment resulting from comparing a product's perceived outcome, in relation to his expectations. Zhang et al. (2018) stated that patient satisfaction provides potentially a direct indicator of dental health care system performance. Patient satisfaction is important for two reasons; firstly, satisfied patients are more likely to maintain a consistent relationship with a specific provider and secondly, by identifying sources of patient satisfaction, an organization can address system weakness, thus improving its risk management

(Gadallah et al 2003). Studies in the literature indicated that oral health is an indicator of patient satisfaction and quality of life (Bettie et al 2015, Ungureanu et al 2015).

The results of our study underline the fact that no matter national belonging, patients' beliefs and satisfaction toward dentists are alike (Abrahamsson et al 2012). The main tool used by dental patients in assessing dentist professionalism lies in their communication and in the modulation of feelings of the patient. The importance of this study lies in the fact that it offers a tool to measure patients' satisfaction and believes, as these two vectors are of paramount importance in addressability in the dental office. Data obtained can improve patients' approach, in order to increase addressability in dental settings other than for emergencies.

Although the study brings relevant and important information regarding the reason behind patients' visits in the dental office, several limitations have to be mentioned, such as: the study does not evaluate patient's oral pathology, the gravity of pathology, discomfort associated with the pathology and the treatment cost. In conclusion our data provide strong evidence for the reliability and the construct validity of the DBS and PSS. Measuring perception about dentistry is important as it can improve doctor-patient relation and by that addressability of patients for dental treatments. It is important to assess beliefs and satisfaction surveys in order to promote patient oriented dental care services. The final aim could improve the quality of life of our patients through improved oral health and by that assuring the sustainability of the oral healthcare.

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DOI: 10.2147/PPA.S186722

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Citation Sava A, Campian RS, Trifu RN, Mirica IC, Bud M, Aghiorghiesei O, Dinu C, Lucaciu O. Measuring patients' beliefs and satisfaction with the private oral healthcare in Romania. *HVM Bioflux* 2020;12(4):187-192.

Editor Antonia Macarie

Received 23 September 2020

Accepted 27 October 2020

Published Online 4 December 2020

Funding None reported

**Conflicts/
Competing
Interests** None reported