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Oral health related quality of life differences in a young sample

Variații ale calității vieții corelate cu sănătatea orală, într-o populație tânără

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Abstract

Background. Oral health related quality of life (OHRQoL) represents a complex concept, which brings important insight into the patients' dental and oral self-perception. This field of research also targets young adult populations.

Aims. The aim of the current study was to assess the OHRQoL self-perception differences in three study programs student samples: two dental medicine student samples and an economics student sample.

Methods. After providing informed consent from the subjects, the OHIP-49 questionnaire was applied in three samples: a sample belonging to the Faculty of Dental Medicine, Romanian section, Cluj-Napoca (n = 63), a sample belonging to the English section of the same Faculty (n = 63) and a sample of students enrolled in the Faculty of Economics, Cluj-Napoca (n = 63). The dental Romanian and economics student samples completed the Romanian version of OHIP-49, while the dental English program students completed the English version of the same instrument. Mean subscale scores were calculated, followed by inferential statistical procedures: one-way and two-way analysis of variance and the t-test. The independent variables were gender and the study program.

Results. For the complete sample, the subscales presenting the highest scores were functional limitation (8.05), physical pain (10.03) and psychological discomfort (6.05). Statistically significant differences in OHRQoL self-perception, using one-way ANOVA, were obtained between: economics students and English section dental students ($p = 0.03$) for the functional limitation subscale; economics and Romanian section dental students ($p = 0.039$) for the same subscale; economics students and English section dental students ($p = 0.029$) for the handicap subscale. In respect to the complete sample, the t-test revealed statistically significant differences between male and female subjects for the scores of the following subscales: functional limitation $t(187) = -2.359$, $p = 0.019$, physical pain $t(187) = -2.172$, $p = 0.031$, and psychological disability $t(187) = -2.556$, $p = 0.11$.

Conclusions. The self-perception of OHRQoL statistically significantly varies in accordance with gender and the study program. The involved students tend to focus more on physical impacts of oral conditions.

Key words: oral health related quality of life, OHIP-49, analysis of variance, young population

Rezumat

Premize. Calitatea vieții corelată cu sănătatea orală (CVCcSO) reprezintă un concept complex, foarte util in identificarea tendințelor de autopercepție a pacienților în ceea ce privește propria lor sănătate orală.

Obiective. Scopul studiului de față constă în evaluarea autopercepției CVCcSO, la nivelul a trei eșantioane de studenți: două eșantioane de studenți de medicină dentară și un eșantion de studenți de studii economice.

Metode. Ulterior semnării consimțământului informat de către subiecți, chestionarul OHIP-49 a fost aplicat pe trei eșantioane: un eșantion de studenți ai Facultății de Medicină Dentară, Cluj-Napoca, secția română (n = 63), un eșantion de studenți ai aceleiași facultăți, secția engleză (n = 63) și un eșantion de studenți ai Facultății de Studii Economice, Cluj-Napoca

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(n = 63). Studenții secției române de medicină dentară, precum și cei ai facultății de studii economice au completat varianta română a OHIP-49. Studenții secției engleze de medicină dentară au completat varianta engleză a chestionarului. Au fost calculate scorurile medii, urmate de procedurile de statistică inferențială: analiza variației uni- și bivariate și testul t. Variabilele independente au fost genul și secția de studiu.

Rezultate. La nivelul întregului eșantion, cele mai înalte scoruri au fost înregistrate pentru subscalele limitare funcțională (scorul mediu 8,05), durere (scorul mediu 10,03) si disconfort psihologic (scorul mediu 6,05). Diferențe statistic semnificative în autpercepția CVCcSO, utilizând ANOVA univariată, au fost înregistrate între: studenții facultății de studii economice și studenții de medicină dentară, secția engleză (p = 0,03), pentru subscala limitare funcțională; studenții facultății de studii economice și studenții de medicină dentară, secția română, pentru aceeași subscală (p = 0,039); studenții facultății de studii economice și studenții de medicină dentară, secția engleză, pentru subscala handicap (p =0,029). La nivelul întregului eșantion, testul t a indicat diferențe statistic semnificative între subiecții de sex masculin și cei de sex feminin, pentru scorurile următoarelor subscale: limitare funcțională t (187) = -2,359, p = 0,019, durere t (187) = -2,172, p = 0,031 și dizabilitate psihologică t (187) = -2,556, p = 0,11.

Concluzii. Autopercepția CVCcSO variază în mod semnificativ statistic la nivelul ambelor variabile: gen și secție de studiu. Studenții implicați în studiu au prezentat tendința de a percepe proritar consecințele de ordin fizic ale statusului oro-dentar.

Cuvinte cheie: calitatea vieții corelată cu sănătatea orală, OHIP-49, analiza variației, populație tânără.

Introduction

Oral health related quality of life (OHRQoL) represents a complex theoretical construct, defined as a combination of the following factors: absence of disease and impairment, normal physical functionality of the dento-maxillary system, the absence of any type of pain, high satisfaction with the own oral health, normal emotional role in the society and the appropriate carrying out of the social role (Gift et al., 1997). The investigation of this construct and its composing dimensions (John et al., 2014a; John et al. 2014b) has increased in the last twenty years, enabling the focusing from objective dental al oral examination measures to more in-depth evaluations of the way the patients perceive their own oral health or the outcomes of dental treatments (Sierwald et al., 2016). The main instruments of OHRQoL assessmentn are represented by questionnaires, such as the Oral Health Impact Profile, the Geriatric Oral health Impact Profile (Kundapur et al., 2016) or the Oral Impacts on Daily Performance (Bulgareli et al., 2018). The Oral Health Impact Profile (OHIP) is one of the most complex and used questionnaires for oral health self-perceptions assessment, in both its long, OHIP-49 and short, OHIP-14 forms (Cho et al., 2016; Sánchez-Siles et al., 2015). Although presenting a very high usage in various clinical settings, the OHIP-49 instrument has rarely been applied in order to evaluate the self-perception in oral health of younger populations (Lopez & Baelum, 2006). Moreover, the results of studies assessing the dental and oral self perception in young adults, especially in respect to gender differences, generate a wide range of results (Al-Ansari & Honkala, 2007; Fukai et al., 1999).

Therefore, the purpose of the current study was to assess the differences in OHRQoL self-perception between three student study programs: a Romanian program dental medicine student sample, an English program dental medicine student sample and an economics student sample.

Hypothesis

The following null hypotheses have been formulated:

1) There are no statistically significant differences in OHRQoL self-perception, in respect to the variable gender, between the three study programs. 2) There are no statistically significant differences in OHRQoL self-perception, between the male subjects, belonging to each study program. There are no statistically significant differences in OHRQoL self-perception, between the female subjects, belonging to each study program. 3) There are no statistically significant differences in OHRQoL self-perception, between the students of the three study programs. 4) There are no statistically significant differences in OHRQoL self-perception, in respect to the variable gender, inside each study program. 5) There are no statistically significant differences in OHRQoL self-perception, in respect to the variable gender, for the complete sample.

Materials and methods

The current study has obtained the approval of the "Iuliu Hatieganu" Univeristy of Medicine and Pharmacy Ethics Committee. Each participant provided informed consent, before entering the study protocol.

Research protocol

a) Period and place of the research

The current study took place in the period of April-June 2017, within the "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca and the Faculty of Economics, "Babes Bolyai" University, Cluj-Napoca.

b) Subjects and groups

The following study was designed as a cross-sectional survey. The present study entailed a total sample of 189 students. The defined variables were gender and study program (study line). They represented the sampling criteria, together with age. The sample represented a convenience sample. The subjects voluntarily enrolled into the present study. Inclusion criteria comprised:

- subjects should be of both genders;
- the quality of 1st or 2nd year students of the Faculty of Dental Medicine, Romanian and English programs (further abbreviated as FDM Ro and FDM En), "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca and 1st or 2nd year students of the Faculty of Economics (further abbreviated as FE), "Babes Bolyai" University, Cluj-Napoca;
- an age interval of 18-35 years.

The sample was divided, as follows: 63 students from the Romanian section of the Faculty of Dental Medicine, 63 students from the English section of the same Faculty and 63 students from the Faculty of Economics. The characteristics of the three samples comprised: Complete

sample: N = 189, 57.15% F, 42.85% M; age: 18-35 years. FDM Ro, N = 63, 50.79% F, 49.21% M; age 19-35 years; FDM En, N=63, 49.21% F, 50.79% M; age: 18-30 years; FE, N=63, 71.42% F, 28.58% M; age: 19-23 years.

c) Tests applied

In the current study, the OHIP-49 questionnaire was used. In its structure, the instrument contains 49 questions, structured on seven subscales, derived from Locker conceptual dimensions of oral health (John et al., 2014c): functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap. Each question assesses the report of a specific encountered problem, within the last 12 months. Answers for each question are arranged on a five-point Likert scale and present a numerical encoding: very often - 4; fairly often - 3; occasionally - 2; hardly ever - 1; never - 0. A "don't know" answering option is as well available for respondents.

In the current study, the Romanian version of the instrument, OHIP-49Ro (Grecu, 2015), was applied to the Dental Medicine Romanian section sample (n = 63) and to the Economics student sample (n = 63). Moreover, the original English version, OHIP-49, was applied to the Dental Medicine English section student sample (n = 63). The questionnaire was applied in a self-completing, pencil and paper format, by three dentists, with experience in questionnaire studies. Completion was performed during a specific class, with an average completing time of 10 minutes. The supervising dentists also answered to the participants' questions, in respect to the instrument's content.

d) Statistical processing

Data were systematized in Microsoft Excel tables. OHIP-49 mean scores for each subscale were calculated; univariate descriptive statistical analysis has been performed, by calculating: means, standard deviation and frequency distributions.

For evaluating the subscale score differences, within and between the three groups, inferential statistical procedures have been employed: T-test, one-way and two-way analysis of variance (ANOVA). All the statistical procedures respected a significance cut-off of $p < 0.05$. For the current procedure the IBM SPSS version 22 software as used.

Results

Descriptive statistics

OHIP-49 subscale score means and standard deviations for the complete samples can be observed in Table I.

OHIP-49 subscale score means and standard deviations for female and male subjects, in respect to the complete samples and the study programs, can be observed in Table II.

Two-way ANOVA

For the functional limitation subscale, the two-way ANOVA analysis indicated a statistically significant subscale score difference, between the three study program samples, in respect to the study program, $F(2, 183)=3.292$, $p=.039$ (Fig. 1). The post hoc least significant difference test indicated a statistically significant subscale score difference between the FE students and the FDM En students $p = 0.02$.

For the social disability subscale, the two-way ANOVA analysis indicated a statistically significant subscale score difference, between the three study program samples, in respect to the study program, $F(2, 183)= 3.416$, $p=.035$ (Fig. 2). The post hoc least significant difference test indicated a statistically significant subscale score difference between the FE students and the FDM En students $p = 0.02$ and between the FE students and the FDM Ro ones $p = 0.025$.

One-way ANOVA

For the physical pain subscale, the one-way ANOVA analysis indicated a statistically significant subscale score difference, between the male subjects, belonging to each study program $F (2)= 4.757$, $p=.011$.

The post hoc least significant difference test indicated a statistically significant subscale score difference between the FE students and the FDM En students, $p = 0.03$ and between the FE students and the FDM Ro ones, $p = 0.039$.

Table I

Univariate descriptive statistics - overall subscale scores

Variable	Funct. Lim.	Phys. Pain	Psychol. Disc.	Phys. Disab.	Psychol. Disab.	Soc. Disab.	Hand.
Complete sample; n = 189; Mean (SD)	8.05 (4.05)	10.03 (4.64)	6.05 (4.23)	4.43 (3.99)	0.72 (0.69)	0.35 (0.49)	0.4 (0.5)
FDM Ro; n = 63 Mean (SD)	8.06 (3.57)	10.01 (4.48)	5.85 (4.33)	4.42 (3.92)	0.70 (0.55)	0.5 (0.61)	0.33 (0.44)
FDM En; n = 63 Mean (SD)	6.93 (3.55)	9.20 (4.61)	6.11 (4.15)	3.66 (3.78)	0.67 (0.76)	0.31 (0.4)	0.34 (0.51)
FE; n = 63 Mean (SD)	9.15 (4.76)	10.88 (4.57)	5.85 (4.33)	5.22 (4.17)	0.8 (0.74)	0.5 (0.61)	0.52 (0.52)

Table II

Univariate descriptive statistics - subscale scores in respect to gender

Variable	Funct. Lim.	Phys. Pain	Psychol. Disc.	Phys. Disab.	Psychol. Disab.	Soc. Disab.	Hand.
Complete sample; Mean (SD)							
M; n = 81	7.25 (3.94)	9.19 (4.23)	5.37 (3.66)	3.81 (3.9)	0.57 (0.59)	0.25 (0.43)	0.33 (0.47)
F; n = 108	8.64 (4.04)	10.66 (4.85)	6.57 (4.71)	4.9 3.(99)	0.84 (0.74)	0.42 (0.53)	0.44 (0.51)
FDM Ro; Mean (SD)							
M; n = 31	7.51 (4.02)	9.09 (3.97)	5.09 (3.73)	3.96 (3.83)	0.58 (0.55)	0.25 (0.41)	0.25 (0.45)
F; n = 32	8.59 (3.04)	10.9 (4.82)	7.28 (5.04)	4.87 (4.03	0.83 (0.53)	0.36 (0.38)	0.4 (0.43)
FDM En; Mean (SD)							
M; n =32	6.56 (3.85)	7.93 (4.06)	5.43 (3.79)	2.81 (3.53	0.44 (0.58)	0.17 (0.41)	0.27 (0.46)
F; n = 31	7.32 (3.23)	10.51 (4.84)	6.8 (4.46)	4.54 (3.88	0.9 (0.85)	0.3 (0.42)	0.42 (0.56)
FE; (SD)							
M; n = 18	8.05 (3.97)	11.61 (4.14)	5.72 (3.47)	5.33 (4.33)	0.77 (0.62)	0.4 (0.48)	0.58 (0.48)
F; n = 45	9.6 (4.9)	10.6 (4.99)	5.91 (4.67)	5.17 (4.16)	0.81 (0.79)	0.55 (0.66)	0.5 (0.53)

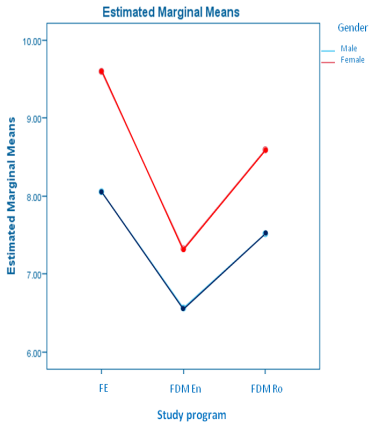

Fig. 1 – Relationship between the two independent variables for the functional limitation subscale

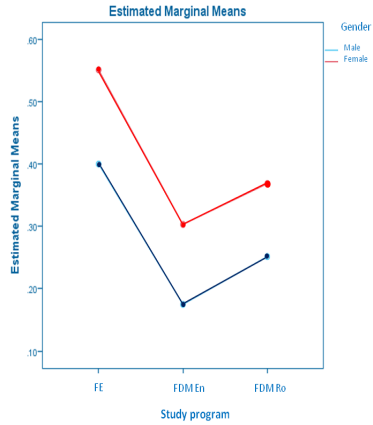

Fig. 2 – Relationship between the two independent variables for the social disability subscale

For the handicap subscale, the one-way ANOVA analysis indicated a statistically significant subscale score difference, between the male subjects, belonging to each study program F (2) = 3.212, p = .046.

The post hoc least significant difference test indicated a statistically significant subscale score difference between the FE students and the FDM En students p = 0.029 and between the FE students and the FDM Ro ones, p = 0.021. The subscale scores differences for the other subscales did not present any significance. No statistically significant subscale score differences were indicated for the female subjects, belonging to each study program.

For the functional limitation subscale, the one-way ANOVA analysis indicated a statistically significant subscale score difference, between the three overall study program samples F (2) = 4.931, p = .008. The post hoc least significant difference test indicated a statistically significant subscale score difference between the FE students and the FDM En students, p = 0.002.

For the social disability subscale, the one-way ANOVA analysis indicated a statistically significant subscale score difference, between the three overall study program samples F(2) = 5.128, p = .007. The post hoc least significant difference test indicated a statistically significant subscale score difference between the FE students and the FDM En students p = 0.002 and between the FE students and the FDM Ro ones, p = 0.025. No statistically significant subscale score differences were indicated for the female subjects, belonging to each study program

T-test

The T-test indicated statistically significant subscale score differences, between the male and female subjects, for the following situations:

- for the FDM En students, for the physical pain t (61) = -2.292, p=.025 and psychological disability t (61) = -2.464, p = 0.17 subscales;
- for the complete sample, for the functional limitation t (187)=-2.359, p=.019, physical pain t (187)= -2.172, p = .031, psychological disability t (187) =-2.556, p = 0.11 and social disability t (187) = -2.364, p = .019 subscales. No statistically significant subscale score differences were indicated for the other subscales and study program samples.

Discussion

The purpose of the current study was to assess the self-perception OHRQoL differences in three samples, containing students belonging to three study programs.

In respect to the complete sample (n = 189), the subscales presenting the highest scores were functional limitation, pain and psychological discomfort. For the other subscales, most of the respondents reported low scores (Table I). In respect to the male subjects (n = 81), the subscales presenting the highest scores were functional limitation, pain and psychological discomfort. The situation was the same for the female subjects (n = 108) (Table II).

At the level of the study program, the FE students reported high scores for the functional limitation and pain subscales (Table I). FDM Ro and FDM En students also reported the highest scores for these subscales, together with the psychological discomfort subscale (Table II). Although the first three subscales of the questionnaire registered the highest number of impacts for all the situations, statistically significant differences were still registered, in respect to the independent variables: gender and study program. These differences were extensively presented in the results section. The two-way ANOVA was used in order to assess the way, in which gender differences in OHRQoL self-perception, are distinct between the three study programs. The two-way ANOVA indicated statistically significant differences between the FE and the FDM En students' OHRQoL self-perception, for the functional limitation and psychological discomfort subscales; statistically significant differences were also registered between the FE and the FDM Ro students' OHRQoL self-perception. These findings led to the partial rejection of the first null hypothesis.

The one-way ANOVA was used in order to assess differences in the OHRQoL self-perception between the male subjects, belonging to the three study program samples. The one-way ANOVA indicated statistically significant differences between the students belonging to the FA and the ones belonging to the FDM En, respectively between the students belonging to the FA and the ones belonging to the FDM Ro. These findings were significant for the functional limitation and handicap subscale. These

findings led to the partial rejection of the second null hypothesis.

The one-way ANOVA was also used in order to assess differences in the OHRQoL self-perception between the students of each study program. The one-way ANOVA indicated statistically significant differences between the students belonging to the FA and the ones belonging to FDM En. These findings led to the partial rejection of the third null hypothesis.

The T-test was employed in order to assess differences in the OHRQoL self-perception between the male and female subjects, either within a specific study program sample, or belonging to the complete sample (n = 189). The T-test indicated statistically significant differences between the male and female subjects for the FDM En students, in respect to the pain and psychological disability subscales. Moreover, the T-test revealed statistically significant differences in the OHRQoL self-perception between the male and female subjects, in respect to the complete sample (n = 189), for the functional limitation, physical pain, psychological disability and social disability subscales. These findings led to the partial rejection of the fourth and fifth null hypotheses.

The registered differences suggest that female subjects tended to present a more precise and sensitive self-perception of their current oral health and OHRQoL. This is sustained by their registered higher scores, for almost all subscales. Other studies also reported higher sensitivity of the female subjects, in respect to oral health and OHRQoL self-perception (Séculi et al., 2001). Different studies suggest a more rigorous oral health behavior for the female subjects, in a student population (Mamai-Homata et al., 2016), or a lower level of knowledge, in respect to oral health, for male subjects, compared to the female subjects, also in a student population (Al-Ansari & Honkala, 2007). Similar studies, however, did not indicate any differences regarding the variable gender (Fukai et al., 1999; Tada & Hanada, 2004).

The null hypotheses were partially rejected, fact that might be due to some of the study's limitations: the sample size, the usage, in the present study, of a convenience sample or the applying modality of the questionnaire (pencil and paper), given the fact that opting for an interview format can enhance the results (Ozhayat et al., 2010; Kuo et al., 2011). The OHIP-49 short form, OHIP-14, which keeps the original subscale structure, has been used in the literature on young patients, rendering comparable results with the present study: higher scores for the functional limitation, physical pain and psychological discomfort subscales, using similar statistical procedures, to the ones employed for the current study (Masood et al., 2014; Siluvai et al., 2015). Moreover, similar to the present study's results, the subscale scores, in young or student populations, are usually at low values, in both the usage of the OHIP-14 (Lu et al., 2015; Colussi et al., 2017) and the usage of OHIP-49 (Lopez & Baelum, 2006).

The higher subscale scores of the economics student sample, compared to the dental students (both Romanian and English section), can only partially explain the influence of the dental medical education, upon one's OHRQoL self-perception. The small difference in scores, between dental medical and non-dental medical students can be explained by the fact that only first and second year dental students were involved in the current study. Expanding the study on fifth or sixth year students, while keeping the comparison format with a non-medical sample, could bring further insight.

Finally, it is interesting to notice, that this young sample presented the tendency to focus more on the physical aspects on oral health and its perception, rather than on psychological or social aspects.

Conclusions

1. OHRoL self-perception statistically significant differences, in respect to gender, were registered only between economics and dental students. No such differences were recorded between the Romanian and the English programs dental students.

2. The complex interaction between the gender and study lines variables had a statistically significant character only for the functional limitation and social disability subscales.

3. The evaluated young population tends to focus more on the physical impacts of oral health. Female subjects reported higher self-perception sensitivity.

4. The impact of the dental medical education upon the OHRQoL self-perception is debatable. The results of the current study only partially supported this hypothesis.

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