Research Square

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Impact of Oral Health-Related Quality of Life among Addicts' People in Ahvaz City; Iran

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Research

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Abstract

Backgrounds: Quality of life related to oral health impact profile-14 (OHIP-14) is one of the important dimensions of quality of life. Since using narcotics or stimulants increases the incidence of periodontal diseases, we aimed to determine impact of Oral health-related quality of life in narcotic or stimulant addicts who referred to maintenance methadone therapy (MMT) centers in Ahvaz City, Iran.

Methods: It was descriptive-analytical cross-sectional study which has conducted on 187 narcotic and stimulant addicts who referred to MMT centers in Ahvaz city; 2020. The data collection tools included the demographic variables and the standard OHIP-14 questionnaires. Descriptive statistics, independent t-test, one-way analysis of variance, and LMS test were run at the significance level of less than 0.05.

Results: The mean and standard deviation of the participants' age was 36.03 ± 8.98 years. The quality-of-life scores related to oral health were 34.89 ± 6.50 totally as well as 37.37 and 33.96 in narcotic and stimulant addicts, respectively. The total quality of life related to OHIP-14 did not have a significant relationship with variables of age, life companions, level of education, number of children, economic status, employment status, insurance status, underlying disease, toothbrush use status, last dentist visit, and number of missing teeth (P> 0.05). However, a significant difference was found between the quality of life related to oral health based on the type of substance used (narcotic or stimulant), so that the mean quality of life related to oral health was higher in narcotic addicts than stimulant users (P <0.05).

Conclusion: The quality of life related to OHIP-14 was more unfavorable in stimulant users than narcotic users. So, policy makers and authorities are required to focus their interventions and research programs to improve health-related quality of life in addicts, especially stimulant users.

Introduction

Use of addictive substances is among the most challenging and complex health problems leading to a wide range of cardiovascular, mental and psychological, metabolic, endocrine, and infectious disorders (1). Addiction to new drugs and industrial substances not only gives rise to many social and economic problems, but also causes damage to oral health (2). Opioids, as the most commonly used drug in Iran, include opium, syrup, heroin, and codeine used orally, by inhalation, or by injection. Other substances used in Iran include cannabis (from the cannabis group), stimulants such as methylphenidate (under the brand name of Ritalin from the amphetamine group), ecstasy (from the amphetamine group), as well as cocaine and LSD (from the hallucinogenic group) (2). The use of narcotics or stimulants causes dry mouth or xerostomia, which in turn reduces the saliva pH and increases the formation of plaque and dental plaque. All these factors increase the incidence of tooth decay and periodontal disease (1). Moreover, narcotic and stimulant addiction can increase the tendency to intake simple sugars, which is an effective factor in causing caries and bruxism and increasing tooth sensitivity and necrotic gingivitis (3). Given that narcotic or stimulant addiction reduces motivation and self-confidence, addicts and those treated with methadone have lower rates of oral hygiene than non-addicts (4). Mental problems such as

depression caused by drug addiction can eventually lead to neglect oral care and follow-up of dental treatment except in emergencies (5, 6).

Health-related quality of life is specifically associated with quality of life in relation to health and disease, which is a multidimensional concept. Oral health quality of life is one of these dimensions since oral diseases have been proven to affect the quality of life (1). Oral health-related quality of life is defined as an individual's personal assessment of the effects of functional, physical, and social factors as well as experience of oral pain and discomfort on different aspects of their life (7). Given the role that oral conditions play in people's social relations, appearance, self-confidence, as well as speaking, chewing, tasting, and swallowing processes, they affect one's pleasure experienced from life. Therefore, the status of oral health-related quality of life affects people's lives in both physical and mental dimensions (8).

The seriousness and importance of dental problems in treating substance abusers necessitate establishment of an accessible dental care program. For example, the toothache interfering with the process of addiction treatment may cause relapse in addicts. In addition, poor appearance and improper functioning of the dental problems can cause isolation and non-compliance with the treatment and care process (9).

So far, few studies were conducted on oral health and its related quality of life among the addicts worldwide (10–12) and in Iranian cities of Yazd, Mashhad, Isfahan, and Tehran (19 – 13). Some of these studies concluded that drug abuse increased DMFT and Plaque Control Record indices (14). As they noted, stimulants and morphine were the most commonly used drug among women and men, respectively (16). Furthermore, the oral and dental treatment needs of the addicted population are wide and should be followed up (14, 15). Akbari et al. also reported an urgent need to plan dental treatments in the population of addicts at the time of withdrawal (13). In this regard and since no research has ever investigated oral health status related to narcotic and stimulant abuse in Ahvaz City, the present study was conducted. The aim was to determine the quality of life related to oral health of narcotic and stimulant addicts who referred to maintenance methadone therapy (MMT) centers in Ahvaz City in 2020.

Methods

Participants and methodology

The present descriptive-analytical cross-sectional study was carried out among 187 narcotic and stimulants addicts who referred to MMT in Ahvaz City; 2020. According to Vintamari et al. (9) and by considering P = 0.61, d = 0.05, and confidence interval = 95% (Z1-⍺ / 2 = 96.1), the sample size was estimated as 187 $(n = \frac{z^2_{(1-\frac{\alpha}{2})} P(1-P)}{d^2})$. The cluster sampling method was conducted from the MMT centers in the east and west of Ahvaz. From each cluster, nine centers were randomly selected. In each center, available sampling method was applied and eligible patients who referred to the MMT centers entered the study. Initially, the participants were explained about the research goal and process. Followed

by obtaining informed consent forms, the researcher completed the questionnaires for each participant. Inclusion criteria were having satisfaction to participate in the study, 18 years of age and older, as well as ability to communicate and answer the questions. Exclusion criteria included unwillingness to continue cooperation at any stage of the study and incomplete questionnaires. The participants provided answers to the questionnaire items, which were facilitated or completed by the researcher or the patient's companions if necessary.

Study tools

The study tools included a questionnaire of demographic and contextual variables containing information such as age, gender, education, marriage, number of children, employment, life partners, economic status, insurance status, underlying disease, toothbrush and toothpaste use status, last dentist visit, and number of missing teeth. Furthermore, the standard questionnaire of quality of life related to OHIP-14 was administrated, which was designed to measure the effects of oral disorders on people's health based on the respondents' self-judgment. This questionnaire was translated into Persian by Motalebne et al. (18). The respondents are required to answer the items on a five-point Likert scale (Never = 1, Rarely = 2, Sometimes = 3, Almost always = 4, and Always = 5). This questionnaire investigates seven dimensions of functional limitation, physical pain, mental distress, physical disability, mental disability, social disability, and physical disability. The minimum and maximum attainable scores of the questionnaire are 14 and 70, respectively, so that greater scores indicate higher quality of life related to oral health (20). In the study by Navabi et al. (2010), Cronbach's alpha coefficient of the questionnaire was good and equal to 0.809 (21). In the present study, Cronbach's alpha coefficient was calculated and showed a good result (0.910).

Ethical considerations

In order to observe ethical considerations, participants were ensured about confidentiality of information. To this end, all questionnaires were coded. Moreover, the participants were clearly explained about the study objectives and finally, those who were willing to participate in the study were surveyed. The study protocol, approved by the Ethics Committee of Ahvaz Jundishapur University of Medical Sciences, was registered with the ethics code of IR.AJUMS.REC.1399.808.

Data analysis

Data has analyzed by using Statistical Package for Social Sciences (SPSS) version24. A Kolmogorov-Smirnov test was performed prior to statistical analysis in order to examine the normality of the variables. In descriptive statistics for qualitative variables frequency and relative frequency and for continuous variables mean and standard deviations were calculated.

The analytical data were used by, one-way analysis tests for determining the difference between the average scores in the multistate qualitative variables, independent T test for comparing the average scores and Chi-square test for determining the relationship between qualitative variables. Also, we used

of LMS software to degree of relationship between sub group of quality of life and oral health. The level of statistically significance was considered less than 0.05.

Results

The mean age of subjects who referred to addiction treatment centers in Ahvaz was 36.03 ± 8.98 years and 97 addicts (52%) were under 36 years old. In terms of using toothbrush, 128 addicts (68%) rarely brushed their teeth, 127 (67.9%) did not have any dental visits for more than three years, and 86 addicts (46.1%) had more than five teeth lost. Table 1 represents other demographic characteristics of the participants along with the relationship of these characteristics with the mean quality of life related to oral health.

Table 1
Relationship between quality of life related to oral health and demographic characteristics

Demographic characteristics		Percent	Quality of life mean scores related to oral health	P-value (Name of the Test)	P-Value Narcotics with stimulants
Age	≤ 36 years old	51.8	34.86	.953 Independent –T	0.211
	> 36 years old	48.2	34.92		
Educational level	Less than a diploma	34.2	38	0.721 One-Way-ANOVA	0.424
	Diploma or Bachelore's degree	54.4	34.67		
	Higher than Bachelore's degree	11.3	35.10		
Life companions	Only with spouse	17.1	36.84	0.340 One-Way - ANOVA	0.208
	Only with children	9.6	34.83		
	With spouse and children	36.4	33.88		
	Alone	9.6	35.05		
	Others	27.3	34.98		
Economic status	Poor	44.3	34.87	0.736 One-Way-ANOVA	0.137
	Moderate	44.3	34.36		
	Good	9.6	36.33		
	Excellent	1.8	33.33		
Background diseases	Yes	28.3	33.90	0.203 Independent –T	0.181
	No	71.7	35.26		
Occupational status	Employed	29.5	34.27	0.535 One-Way-ANOVA	0.194
	Retired	16	34.83		
	Unemployed	54.5	35.37		
Using tooth brush	Every other day	16	36.36	0.148	0.249

Demographic characteristics		Percent	Quality of life mean scores related to oral health	P-value (Name of the Test)	P-Value Narcotics with stimulants
	Once in a week	37.9	37		
	Rarely	46.1	35.86		
Dentist visit	In the last year	16	35.14	0.203 One-Way-ANOVA	0.183
	In the last 1–3 years	37.9	34.75		
	> 3 years	46.1	34.87		
Lost teeth	Less than 3 teeth	16	32.60	0.077 One-Way-ANOVA	0.292
	1–3 teeth	37.9	34.85		
	More than 3 teeth	46.1	35.72		

Table 1 shows that the mean scores of quality of life related to oral health were not significantly different between levels of study factors such as age, educational level, employment status, background disease, economic status, dental visit, use of toothbrush or number of lost teeth ($P < 0.05$).

The mean scores of quality of life related to oral health and its dimensions were also determined based on the type of substance used; i.e., narcotics or stimulants (Table 2).

Table 2
Mean scores of qualities of life related to oral health of addicts wize

Quality of life related to oral health	Stimulants		Narcotics		Total		Significance level
	Mean	Std. deviation	Mean	Std. deviation	Mean	Std. deviation	
Functional limitation	4.86	1.80	4.88	1.90	4.86	1.74	0.942
Physical pain	4.91	1.85	5.43	1.99	5.05	1.82	0.100
Mental distress	5.65	1.81	6.63	1.84	5.91	1.89	< 0.0001
Physical disability	4.75	1.99	5.27	2.08	4.84	1.87	0.116
Mental disability	4.48	1.86	5.49	1.66	4.75	2.02	< 0.0001
Social disability	4.51	1.84	4.21	1.43	4.43	1.86	0.299
Physical disability	4.77	1.60	5.45	2.00	4.96	1.74	0.019
Total	33.96	6.20	37.37	6.70	34.89	6.50	< 0.0001
Number (%)	136	72.7	51	27.3	187	100	

The results obtained from Table 2 show a statistically significant difference between the quality of life related to oral health based on the type of substance used (narcotic or stimulant drugs) ($P < 0.05$). In other words, the mean quality of life related to oral health was higher in narcotic addicts than stimulant users. Moreover, a significant difference was found between narcotic and stimulant users with regard to the scores of mental distress ($P = 0.001$), mental disability ($P = 0.001$), and physical disability ($P = 0.019$) dimensions.

Later, intensity of the relationship was examined between the dimensions of oral health-related quality of life and the overall score of OHIP-14 in terms of the substance type. Figures 1–3 illustrate the theoretical model obtained.

Discussion

The present study aimed at evaluating the quality of life related to oral health in patients who referred to MMT centers. The findings showed that the quality of life associated with oral health was significantly lower in people who use stimulants than narcotics. Although this rate of discrepancy was not severe, a significant difference was observed between scores of the two groups of drug abusers in the areas of mental disability, mental distress, and physical disability. More specifically, the effect of oral problems caused by using stimulants was higher on dimensions of quality of life, such as distraction, stress, peace disturbance, confusion in group, life dissatisfaction, and inability to perform activities. In other words, stimulants affect mental health and quality of life related to oral health negatively. Consistent with these

findings, Nazemi et al. (2019) reported that different dimensions of mental health (anxiety and social dysfunction) were significantly associated with the OHIP-14 index (22). Our findings on Fig. 1 also corroborate this point. According to Fig. 2, in addicts who use narcotics, physical disability was most associated with quality of life related to health. These results confirm the findings reported in the literature indicating that the type of substances applied affect the status of oral health indicators (23). This finding can be justified by mentioning that the most common oral lesions caused by using stimulants include dry mouth (16, 24, 25), spongy gingiva, and erythematosus with margin (16) that plays the most important role in the decline of their oral health (16). Islami et al. showed that the means of ruxism, rampant carries, xerostomia, attrition, and DMFT were higher in people with a history of using amphetamines stimulants (25). In contrast, missing teeth and caries had a significant relationship with drug abuse (26).

Generalized pigmentation was observed only in methamphetamine users. According to the literature, the duration of drug withdrawal was significantly associated with the incidence of oral lesions, so that less pigmented lesions were observed in addicts who have quit their addiction even for one month. In other words, increased duration of withdrawal improved the pink color, firmness, and stippled knife edge margin of the gum (16). Eslami et al. conducted a study in Tabriz noting that abuse of stimulants (amphetamines and methamphetamines) was higher than narcotics (opium syrup) in women (25). This pattern change can explain higher incidence of oral health-related psychological problems followed by using stimulants. In this regard, many other factors may be influential, including the effect of addiction treatment methods, such as methadone therapy and withdrawal duration (16). Lowa investigated amphetamine-dependent people and found that they intook more sugary foods, crumbs (instead of main meals), and drank cranberry drinks compared with the healthy individuals. Drug addicts believed that substance use reduced their appetite and increased their cravings for sugar (27). In the present study, only one fourth of those who referred to the substance abuse centers had been visited by dental professionals during the past year and a significant percentage of participants reported lack of a history of visits to dentists over the last three years. In Boston, about half of men and women who were addicted to drugs had more than a year since their last dental visit or were unable to recall the time of their last visit (28). According to the results of other studies, it seems that referring to dentists to receive educational and medical services is low among drug addicts around the world.

By comparing the results of this study with those reported in the literature, it can be claimed that the type of substance used by addicts is probably a more decisive factor than other personal variables in terms of the quality of life related to oral health. This finding can be justified by mentioning that quality of life related to oral health showed no significant difference not only among different levels of age, education, employment, economic status, marriage, and chronic illness, but also in other underlying factors such as a history of dental visits or the use of toothbrushes. Such discrepancy in the findings may be attributed to the sample size or the participants' characteristics since they were selected among patients who referred to MMT centers through available sampling method. Therefore, findings of the study are not generalizable to the population. In the studies by Shekarchizadeh (2013), Heidari (2019), Ahmadi (2019), Isfahani Zadeh, (2013), and Darvishpour Kakhki (2014) a significant relationship was found between the

quality of health-related life and factors such as education, age, gender, and teeth condition (29, 30, 31, and 8). This finding is in contrary to the findings of the present study. Given that the participants of the above-mentioned studies included women, retired, or elderlies of different cities, differences in the results can be attributed to diversity in their nutritional, environmental, cultural, or genetic factors. However, results of the studies by Akbari (2015), Khabazian (2020), Gholami (2020), and Khatami Nasab (2020) are consistent with our findings in reporting that age and education had no relationship with quality of life related to oral health (32, 33, 34, 35). In this study, the total score of the oral health-related quality of life was 34.89 ± 6.50. Considering that these mean scores were received from the addicts who referred to addiction treatment centers, our findings cannot be representative of all addicts in Ahvaz. Moreover, substance use rates are naturally higher among the large population of addicts who are homeless and sleep on the street. As a result, future researchers are recommended to investigate addicts who are not in medical centers to provide a more comprehensive viewpoint in this area.

Limitations Of The Study

Due to the cross-sectional nature of this study, some limitations existed in reporting the definitive causal relationship between the studied variables. Furthermore, this study did not investigate addicts under treatment due to specific problems in accessing them.

Conclusion

Based on the findings, the quality of life index related to oral health is more unfavorable in stimulant users than narcotic users. Therefore, authorities are recommended to focus their interventions and research programs to improve health-related quality of life in addicts, especially stimulant users.

Abbreviations

OHRQoL
Oral Health-related Quality of Life
WHO
World health organization
OHIP-14
Oral health impact profile-14

Declarations

Ethics approval and consent to participate

This study was part of a research project with code of Ethics committee: IR.AJUMS.REC.1399.808 and was implemented with the support of Social Determinant of Health Research Center (Reference No. SDH-9941, Deputy of Ahwaz Jundishapur University of Medical Sciences.

All subjects had signed the consent the form for this research.

Consent for publication

All authors of the manuscript have read and agreed to its content and are accountable for all aspects of the accuracy and integrity of the manuscript in accordance with ICMJE criteria. That the article is original, has not already been published in a journal, and is not currently under consideration by another journal.

Availability of data and materials

The datasets used during the current study are available from the correspondence author on reasonable request.

Competing interests

The authors state that there are no conflicts of interest in this article.

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Authors' contributions

MC and HM were principal investigators of the study. FG and MC were advisors of the study. FS was collected the data, and MC, HM and FS performed the statistical analysis. FS was drafted the manuscript. All authors contributed to the design and data analysis and assisted in the preparation of the final version of the manuscript. All authors read and approved the final version of the manuscript.

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Figures

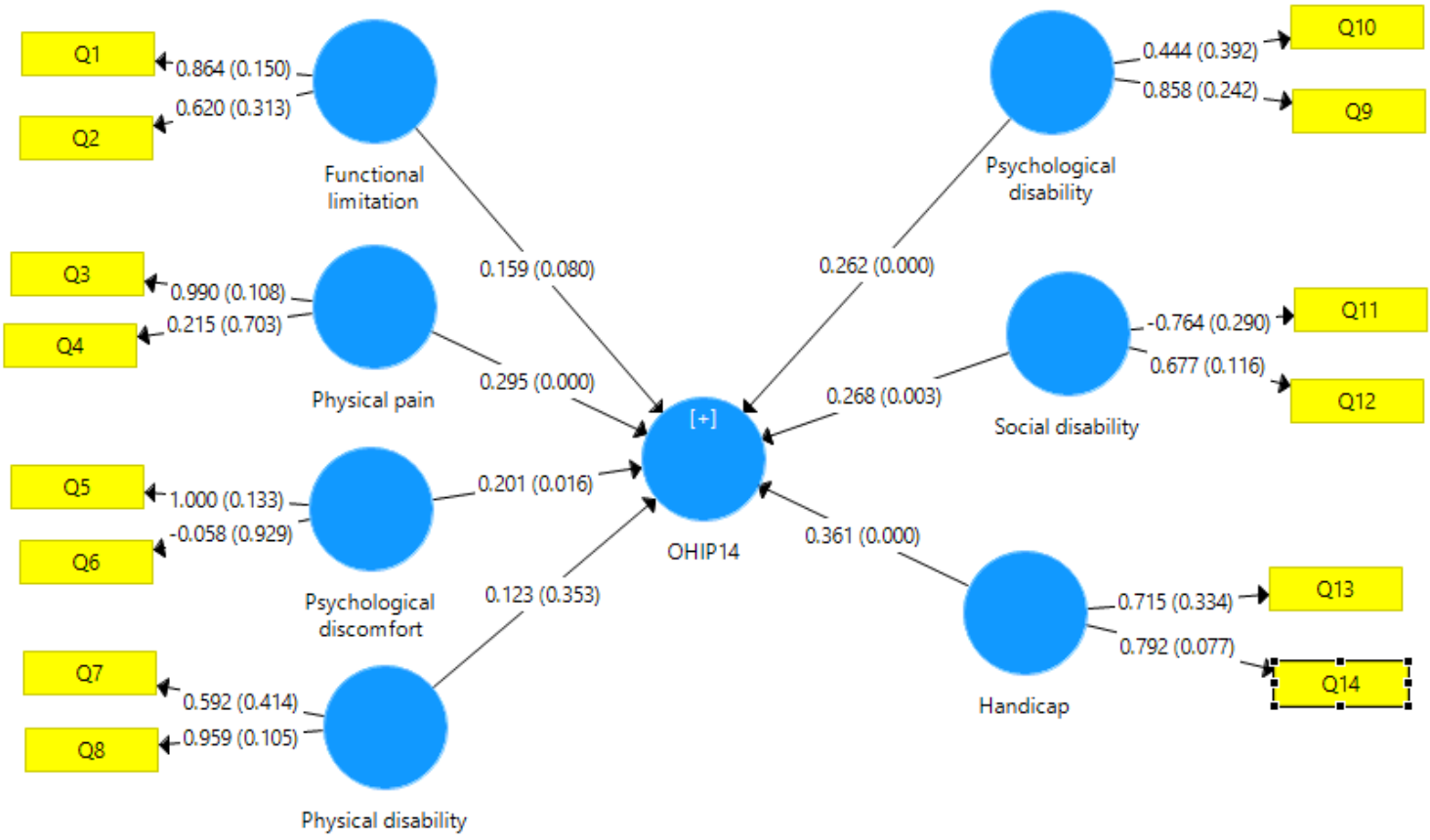

Figure 1

Relationship between the scores in the dimensions of OHIP-14 scale and the total score of quality of life related to oral health in stimulant addicts

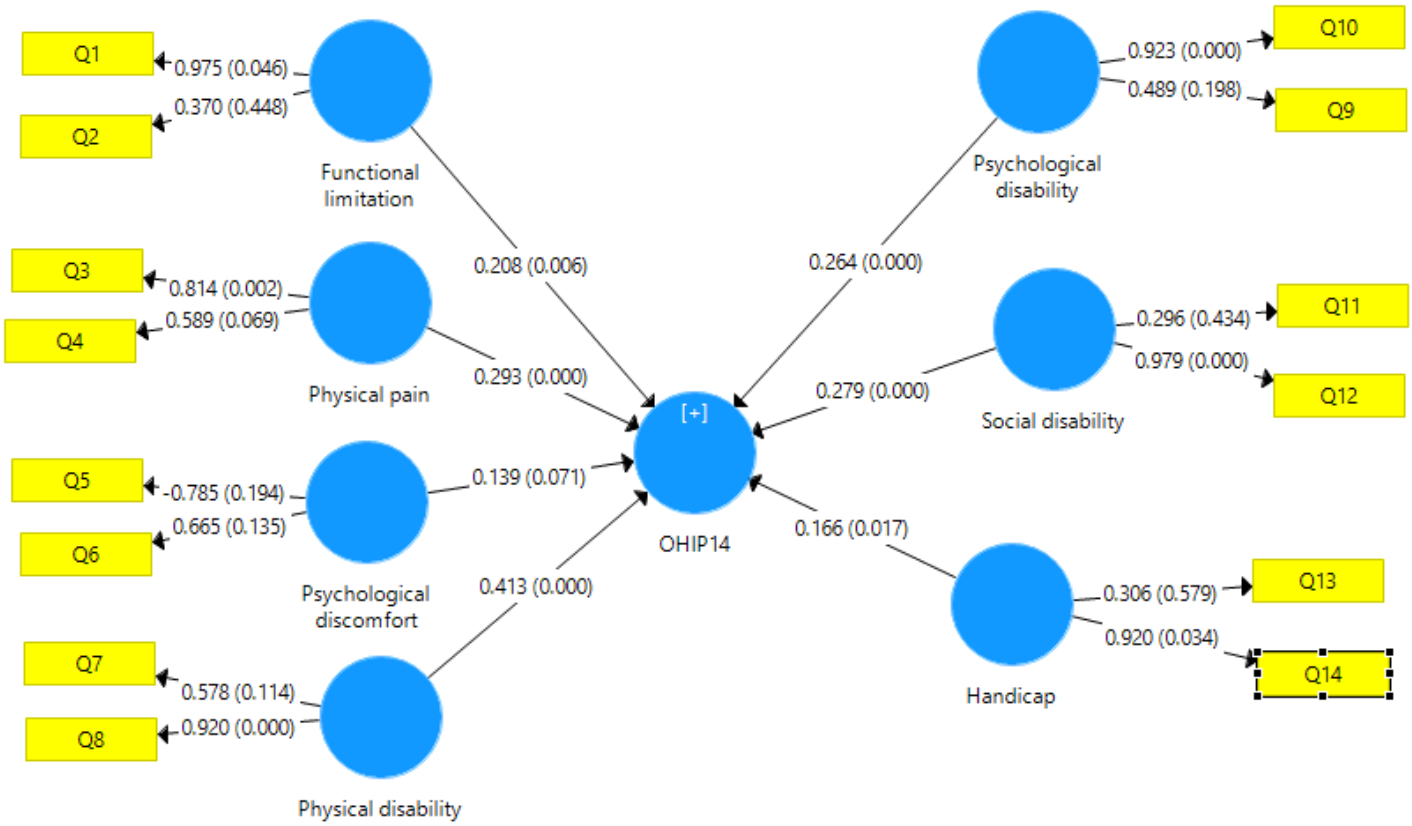

Figure 2

Relationship between scores in the dimensions of OHIP-14 scale and the total score of quality of life related to oral health in narcotic addicts

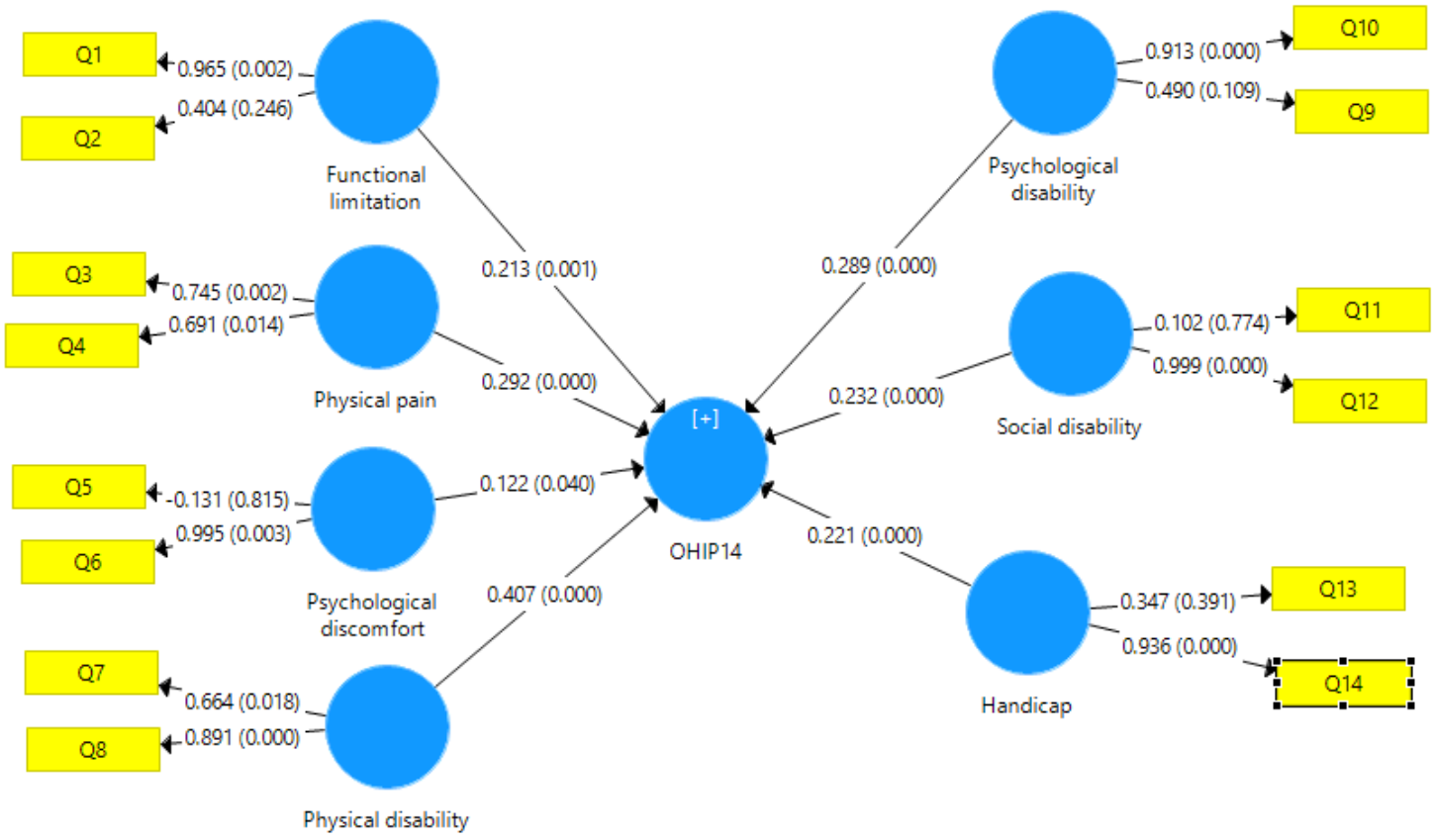

Figure 3

Relationship between scores in the dimensions of OHIP-14 scale and the total score of quality of life related to oral health in addict subjects