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Periodontium and Quality of Life

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Abstract:- The field of dentistry has been moving towards developing therapies that will positively influence the 'Quality of Life' of the patient. Various parameters have been developed to assess the Oral Health-Related Quality of Life, and the Oral Health Impact Profile (OHIP) is one among them. In the present article we will review OHIP and also its application in periodontics and oral implantology.

Keywords:- *Oral Health, Quality of Life, OHIP, Periodontitis, Implant.*

I. INTRODUCTION

The past 30 years have seen, increasing use of the terms "Health-Related Quality Of Life"(HRQOL) and "quality of life with the results of health issues and therapy for such diseases" in the field of medicine. [(1)(2)]HRQOL is a multifaceted concept that encompasses a patient's physical, psychological, and social well-being. The individual's dental health is a critical element that can have a significant impact on their overall HRQOL. The contribution of oral health in determining overall health, well-being, and quality of life has given rise to the notion of "Oral Health-Related Quality Of Life" (OHRQOL). OHRQOL, despite being a relatively new concept, is gaining a lot of traction.

Oral Health-Related Quality Of Life

The idea of OHRQOL is particularly relevant in oral health promotion and community access to oral health care. This idea is used in clinical research to assess a patient's treatment needs, the type of treatment, and to evaluate treatment outcomes. In a essay summarizing the minutes of a large conference on measuring OHRQOL in 1997, ten such measures were described. [(3)] Since then, at least six other measures have been devised, with several more in the works.

To date, the following oral health outcome measures have been developed:

Before 1997 (Presented at the 1997 conference) [(4)]

Dental Disease's Social Consequences (Geriatric) Oral Health Assessment Index is a scale that measures how healthy your mouth is (GOHAI)
Profile of Dental Impact (DIP)
Profile of Oral Health Effects (OHIP)
Oral Effects on Day-to-Day Activities (OIDP)
Indicators of subjective oral health (SOHSI)Oral Health-Related Quality of Life Measure
Dental Impact on Daily Living (DIDLS)
Oral Health Quality of Life Inventory
Rand Dental Questions

Post-1997

Oral Health Quality of Life (OHQoL)-UK
Child Oral Health Quality of Life Questionnaire (COHQoL)
Child OIDP
OHRQOL for Dental Hygiene
Orthognathic Quality Of Life(QoL) Questionnaire
Surgical Orthodontic Outcome Questionnaire (SOOQ)

In this article, we shall focus on 'Oral Health Impact Profile', its significance as one of the tools to measure the OHRQOL and influence of periodontal diseases and treatment on patient's health.

II. ORAL HEALTH IMPACT PROFILE-49 (OHIP-49)

The World Health Organization (WHO) defined health in 1948 as "full physical, mental, and social well-being, rather than only the absence of sickness or illness." With this definition in mind, it became evident that judging health solely based on physical signs would miss certain crucial aspects of health.

Purpose

The Oral Health Impact Profile (OHIP) was created to create and test a scaled measure of the social impact of oral illnesses based on a theoretical hierarchy of oral health outcomes.

Background

This is a 49-item measure of OHRQOL, which interprets people's perception of the impact of oral disorders on their well-being, that is, the dysfunction, discomfort, disability, and handicap caused by oral conditions. [(5)]

G.D SLADE

OHIP was developed by G.D Slade and A.J Spencer (1994) as a self-reported patient-focused instrument, to provide a comprehensive measure of patient-reported

dysfunction, discomfort, and disability attributed to oral conditions. The OHIP is concerned with assessing impairment in three of the seven functional dimensions (social, psychological, and physical) proposed by Patrick and Bergner. [3]

Question	Domain	Item
1	Restrictions	pleasure out of eating
2	Restrictions	cannot finish meal
3	Restrictions	longer to finish meal
4	Restrictions	problems eating ice-cream
5	Approach coping	modification in eating
6	Approach coping	careful when breathing
7	Approach coping	warming food/drinks
8	Approach coping	cooling food/drink
9	Approach coping	cutting fruit
10	Approach coping	putting a scarf over mouth
11	Approach coping	cold drinks/foods
12	Approach coping	hot drinks/foods
13	Approach coping	contact with certain teeth
14	Approach coping	change toothbrushing
15	Approach coping	biting in small pieces
16	Approach coping	other food
17	Social	longer than others to finish
18	Social	choose food with others
19	Social	hide the way of eating
20	Social	unable to take part in conversations
21	Social	painful at the dentist
22	Emotions	frustrated not finding a cure
23	Emotions	anxious of eating contributes
24	Emotions	irritating sensations
25	Emotions	annoyed I contributed
26	Emotions	guilty for contributing
27	Emotions	annoying sensations
28	Emotions	embarrassing sensations
29	Emotions	anxious because of sensation
30	Identity	difficult to accept
31	Identity	different from others
32	Identity	makes me feel old
33	Identity	makes me feel damaged
34	Identity	makes me feel unhealthy
35	D2	Have you found it difficult to relax because of problems with your teeth, mouth or dentures?
36	D2	Have you felt depressed because of problems with your teeth, mouth or dentures?
37	D2	Has your concentration been affected because of problems with your teeth, mouth or dentures?
38	D2	Have you been a bit embarrassed because of problems with your teeth, mouth or dentures?
39	D3	Have you avoided going out because of problems with your teeth, mouth or dentures?
40	D3	Have you been less tolerant of your partner or family because of problems with your teeth, mouth or dentures?
41	D3	Have you had trouble getting along with other people because of problems with your teeth, mouth or dentures?
42	D3	Have you been a bit irritable with other people because of problems with your teeth, mouth or dentures?
43	D3	Have you had difficulty doing your usual jobs because of problems with your teeth, mouth or dentures?
44	H	Have you felt that your general health has worsened because of problems with your teeth, mouth or dentures?
45	H	Have you suffered any financial loss because of problems with your teeth, mouth or dentures?
46	H	Have you been unable to enjoy other people's company as much because of problems with your teeth, mouth or dentures?
47	H	Have you felt that life in general was less satisfying because of problems with your teeth, mouth or dentures?
48	H	Have you been totally unable to function because of problems with your teeth, mouth or dentures?
49	H	Have you been unable to work to your full capacity because of problems with your teeth, mouth or dentures?

FL=Functional limitation, P1=Physical pain, P2=Psychological discomfort, D1=Physical disability, D2=Pscyhological disability, D3=Social disability, H=Handicap

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The OHIP is constructed to capture the effects of diseases affecting the oral cavity in general, rather than specific oral disorders or syndromes. As OHIP does not assess positive elements of oral health, all the outcomes are viewed as negative. It also removes views of oral health satisfaction, changes in oral health, prognosis, or self-reported diagnoses.

THE OHIP-49 QUESTIONNAIRE [6]

The OHIP has been utilized in cross-sectional studies in numerous populations, and the results show levels of dysfunction, distress, and debility that are congruent with oral findings in those populations. There is also a lot of correlation between domains, thus statistical associations with impact, whether using subscales or summary scores, appear to be quite constant.

However, more research is needed to analyze the interaction of the other components of quality of life with the dimensions/domains represented in the OHIP. It should be part of a large health service research agenda, which looks at the influence of dental treatment on a person's overall well-being. [3]

ORAL HEALTH IMPACT PROFILE -14

The original OHIP-49, based on a notional model produced by the WHO [7,8] was adapted for oral health by Locker[9], but it was too long, therefore Dr. Gary Slade [5,6] devised a 14-item version in 1997, dubbed OHIP-14.

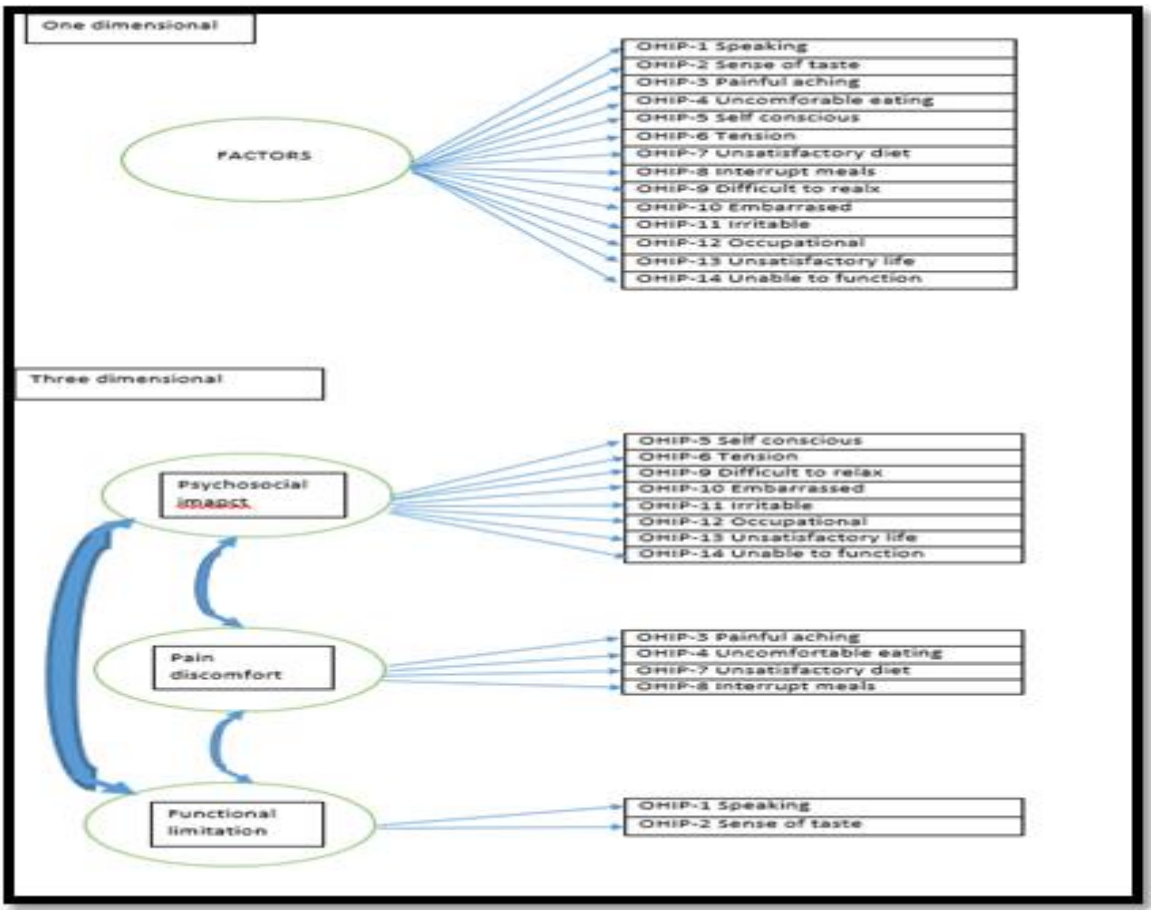
The Oral Health Impact Profile-14 (OHIP-14) is a 14-item questionnaire modified from the original extended version of the OHIP-49 that measures self-reported functional impairments ascribed to oral conditions.[6][10]

Rationale for developing a shorter version of OHIP-49

The short-form OHIP-14 was developed to compensate for some of the limitations, eliminate items that apply only to denture-wearers, along with items that have a non-response rate (left blank or marked "don't know") of ≥5%, and to shorten the original OHIP-49 instrument using a controlled stepwise regression technique.

Development of OHIP-14

Two elements from each of the seven dimensions were retained among the 14 questions subset. On a 5-point scale, responses were categorised as: 0 (never), 1 (rarely), 2 (sometimes), 3 (very frequently), and 4 (frequently) (very often). All the responses from the patients over a year were evaluated. Weights were then computed, representing the proportion of individuals who remarked the impact within each dimension to be more unpleasant than others. Finally, the standardized and summed scores yielded 3 summary measures: Prevalence, Severity, and Extent.



Prevalence score was arrived at by tracking the responses of "fairly often" or "very often" to one or more items, indicating the population who reported chronic oral health impact.

Severity score was arrived at by summing ordinal responses for all 14 items and additionally taking into account impacts experienced "occasionally" or "hardly ever."

Extent was summarized for each survey participant by the number of items reported as "fairly often"/ "very often."
The OHIP-14, despite being a short questionnaire, is a reliable and sensitive tool that seems to have adequate consistency.

While the OHIP-49 is intended to provide comprehensive data, the use of the complete set of 49 questions seems impermissible in some settings. On the other hand, OHIP-14 serves as a valuable instrument for quantifying the individual's wellbeing in situations where only a limited number of questions can be overseen, while still retaining the original dimensions conceptualized in the OHIP-49. [6]

Dimensional structure of OHIP-14

Exploratory analyses found that a single component elucidated 70% of the variance when the OHIP-14 was first designed. Few studies which analyzed the OHIP's dimensional structure have shown mixed results. Two studies[11,12] utilised exploratory factor analysis (E.F.A), while one employed both E.F.A and confirmatory factor analysis (C.F.A).among studies that performed E.F.A, one used the OHIP-49 and found the following four dimensions: (1) oral functions; (2) orofacial pain; (3) psychosocial impact; and (4) appearance [11]. The other study used the OHIP-14 and described a range of OHIP items loaded highly on two factors [12]. C.F.A demonstrated a three-factor structure for the OHIP-14 in a more recent study that combined the Oral Impacts on Daily Performance (OIDP) with the OHIP-14[13]. These results confirmed the existence of a set of three underlying factors considered in the questionnaire i.e., functional limitation, pain-discomfort, and psychosocial impact; these dimensions showed high consistency when they were integrated with the Locker model [9].

However, a study conducted by Santos et al to investigate the dimensional structure of the OHIP-14 found that it was uni-dimensional and may not provide a multidimensional view in the evaluation of oral health impacts on quality of life, expressing doubst on the validity of results produced by this tool.

TRANSLATION OF OHIP-14 TO OTHER LANGUAGES

For the English-speaking population, the OHIP14 was initially established in English[14]. However, due to the difficulty in administering the OHIP14 among the non-English speaking countries or in places with a local dialect that diverged from English[15], numerous OHIP14 translations were generated.

OHIP-14 has many versions in different languages such as German, Swedish, Hebrew, Chinese, Scottish [16], Romanian [17], Latvian[18], Russian [18], Greek [19], Spanish[20]Polish[21], Maltese[22]and Brazilian [23]. All of these translated versions provide a proven and accurate tool for assessing OHRQOL in their respective populations.

OHIP14 has also been translated into Indian languages such as Gujarati [16] and Hindi, the latter of which includes surveys on OHRQOL in Hindi among India's population[24].

III. OHRQOL AND PERIODONTAL STATUS

According to reports[25,26], periodontal disease is a serious chronic disease that affects 15–17 percent of Hong Kong's population, 5–36 percent population in the United States. Although there have been coniderable advances in our knowwledge regarding the pathogenesis, prevention, and treatment of periodontal disease, these advances have not been able to concurrently reduce the incidence and prevalence of periodontal disease [27, 28].

A great difference in quality of life exists between a periodontally healthy versus periodontally compromised patient, as a consequence of the periodontal destruction in patients suffering from periodontitis. However, more studies are needed to determine whether the OHRQOL measure as a patient-centered outcome is sensitive to disparities in periodontal health over the course of the disease progression.[29]

Impact of Aggressive Periodontitis and Chronic Periodontitis on OHRQOL

Periodontal diseases cause destruction of the tooth-supporting tissues and manifests in a wide range of inflammatory sequelae that lead to tooth loss. It is an immuno-inflammatory reaction to dysbiosis in the dental biofilm from a physio-pathological standpoint.[30,31] Periodontitis is was previously divided into two types: chronic periodontitis (CP) and aggressive periodontitis (AP).[32] Ng and Leung [33] gauged the impact of OHRQOL-related to periodontal status in 767 patients and observed a statistically positive correlation between patient education level and OHIP-14. The authors reported that >10% of patients had some type of difficulty or discomfort when eating meals because of problems with their mouth and teeth "quite often" or "very often". In regards to clinical evaluation, Eltas et al. [34] studied the indices of BOP, PD, CAL, recession (REC), and tooth mobility and their effects on OHRQOL. They claimed that the clinical parameters of BOP, REC, and tooth mobility most affected the patient's quality of life .

Buset et al.[35] conducted a systematic evaluation on the influence of periodontal disease on OHRQOL and found that OHRQOL deteriorated concomitantly with the deteriorating periodontal status. They also added that, OHIP-14 was the most frequently used tool in studies evaluating periodontitis related-OHRQOL.

As demonstrated by significant disparities in the physical and psychological discomfort categories of the questionnaire, patients with widespread forms of CP,AP had inferior OHRQOL than those with localised AP.[23]

Oral Health-Related Quality Of Life Perceptions In Patients With Dental Implant.

Edentulousness and the resulting disability have been demonstrated to produce functional limitations, as well as physical, psychological and social handicaps, all of which have a negative bearing on one's health or well-being.[36,37] More patients are opting for dental implants as an apt replacement for their lost dentition as a result of the long-term success of edentulous site rehabilitation with dental implants.

A study by Alzarea[38] to assessed and evaluated OHRQOL of 92 patients rehabilitated with dental implants using the OHIP-14, while the peri-implant tissue health was evaluated by recording the Plaque Index (PI), PPD, BOP, and CAL as compared to contra-lateral natural tooth (considered as control).Results revealed that the mean PI was statiscally higher around the natural teeth compared to implants. However, similarity was present in the other three dimensions of mean BOP; mean CAL and mean PPD around both natural teeth and implants. OHIP-14 revealed satisfactory OHRQOL in patients with dental implants.

Vered Y et al. found that implants accumulated much less plaque than their natural counterparts.[39] In comparison to Titanium implant-supported all-ceramic and metal-ceramic crowns, Sailer et al. discovered, statistically significantly higher plaque score on the natural tooth.[40] Conversely, contrary findings to this end were reported by Ericsson et al., [36] Abreu et al., [37] Anand and Mehta [41] and Bragger, et al., [42]

Using the OHIP-14 questionnaire, Ponsi J, et al.[43] assessed subjective impact on oral health in participants who received isolated dental implants. The authors found that replacing lost teeth in the anteriors and premolar areas with single dental implants could improve subjective oral health significantly.In conclusion, dental implants are shown to be more frequently considered as a viable substitute to natural teeth currently in the Indian subcontinent, due to improved outcomes on function and esthetics with the use of dental implants. Knowledge regarding the positive impact of dental implant treatment on the overall OHRQOL may help both the clinicians and patients in considering implant as a part of their treatment.

IV. CONCLUSION

Quality of life is being increasingly recognised as a credible, relevant, and a substantial indicator of health services required and intervention outcomes in current public health sector and practice. The implications of poor dental health from the patient's point of view has become a major research issue. As a result, the use of patient-spotlighted oral health status measures have increased.OHIP is one such tool, which uses a questionnaire format to measure the oral disease's impact on seven different aspects of health. It has been used to investigate the impact of oral illnesses (pulpal, periodontal), systemic diseases/conditions, and treatment modalities on OHRQOL.

Several modified and simplified versions of the original OHIP-49 have been generated since 1997, and they are frequently used in the research community. As a result, the use of such questionnaires has contributed significantly to modern-day evidence-based dentistry and the development of patient-centered treatment regimens.

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