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RESEARCH ARTICLE

AN IMPACT OF SMILE DESIGNING ON ORAL HEALTH- RELATED QUALITY OF LIFE

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ABSTRACT

Aim: The aim of the present study was to evaluate the impact of smile designing on oral health - related quality of life.
Objectives: Comparative evaluation of health-related quality of life (OHQoL) in patients before treatment and after treatment ie:- after 1 month of smile designing.
Methods: In this case series study, the impact of treatment on OHQoL was measured using the standard questionnaire OHIP 14. This tool was applied to 15 patients who visited department of Prosthodontics SPDC wardha, before and after 1 month of treatment.
Results: A total of 15 patients participated in the study. The average mean score recorded before treatment was 2.65 which was reduced to 1.13 after smile designing treatment. OHIP-14 scores were shown a statistical significant difference before and after treatment and had a greatest impact on quality of life after treatment. As can be seen, comparison of the frequencies of these responses suggested that after treatment, changes in OHRQoL for almost all questions.
Conclusion: This study showed a positive effect on the OHRQoL and a strong impact on social, psychological emotional daily life of each patient.

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INTRODUCTION

Oral health related quality of life OHRQoL represents a personal assessment of how much and how a person's social life and its functional and emotional aspects are affected by the health related issues of their mouth (Navabi, 2015). OHRQoL is an integral part of general health and well-being. Infact it is recognized by the world health organization (WHO) as an important segment of the global health program (2003) (Sischo, 2011). The assessment of the outcome of a dental therapy is based on four parameters: biologic and physiologic features (health of oral structures, nutrition, chewing, esthetics), longevity and survival time (of natural teeth, restorations, implants), psychological and social parameters (personal satisfaction from dental treatment, self confidence, quality of life, perception of body image), financial and economic factors (direct and indirect cost) (Guckes *et al*., 1996; Anderson, 1998).

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However, it appears that professional treatments and cosmetic restorative dentistry can have a significant impact on OHQoL through their impact on quality aspect on life, such as increase in confidence and improved smiling, speech and facial appearance (Samorodnitzky, 2007) smile designing by porcelain laminates and veneers treatment with cosmetic and conservative mechanical properties in relation to health and beauty and is ideal for use in restoration of anterior teeth (Prajapati P,seturaman, 2013; Korkut, 2013) Therefore, smile designing with porcelain laminates and veneers treatment is highly favorable for dentists and patients due to its excellent imitation of natural tooth characteristics such as color, translucency, shape and surface characteristics (Faezeh Hamzeh *et al*., 2016). The oral health impact profile (OHIP-14) was chosen for its simple comprehension, ease to use and higher validity and sensitivity in detecting patients dissatisfaction after prosthetic treatments.Additionally,OHIP-14 is a shortened version of the OHIP-49 containing just 14 items in order to make it more practical to administer in the clinical setting (Table 1) (Bramanti *et al*., 2013)

MATERIALS AND METHODS

In this study, Oral health related –quality of life (OHRQol) was evaluated for 15 patients, before and after 1 month of treatment, reported to Department of Prosthodontics, Sharad Pawar Dental College, Sawangi (M), Wardha.

Inclusion criteria

- Patients of age of 14 years and above
- Patient having problem only in esthetic region will be consider.

Exclusion criteria: Those unable to complete the questionnaire for whatever reason were excluded from the study and not ready to participate in the study.

MATERIALS AND METHODS

Based on these criteria, a total 15 patients were included in this study. All patients provided informed consent, which included a complete discussion of potential benefits of smile designing by porcelain laminates and veneers, care of prosthesis and improvement in quality of life. Purpose of the study was also explained to the patients and they were given a choice to exit from the study whenever they want. After providing informed consent, patients performed the OHIP-14 (Italian version of the OHIP-14 questionnaire) in order to investigate the OHRQoL of the participants before and after 1 month of smile designing treatment. Subsequently patients were subjected to the smile designing treatment performed by the same operator. After 1 month of completion of smile designing treatment, patients were completed again the same OHIP-14 questionnaire, which was then comparatively analyzed between pretreatment and post treatment OHIP-14 questionnaire. OHIP-14 measures quality of life in seven domains (2 questions for each domains) of functional limitation, physical discomfort, physical discomfort, physical disability, psychological disability, social disability, and physical disability. Frequency was codified using a likert scale with 5 options like zero for (never), one for (rarely), two for (sometimes), three for (frequently), and four for (almost always).The final total score of OHIP-14 ranged from 0 to 56. A lower total score and closer to zero indicted a higher level of quality of life and a better OHRQoL. Demographic data of the patients as well as information obtained from OHIP-14 at the two time points were analyzed with SPSS(version 22.0) using descriptive stastistics. Shaprio-wilk test was used to check the normality of data and Wilcoxon test was used to compare the average scores of the questionnaire before and after treatment.

RESULTS

A total of 15 patients participated in the study. Table 2 shows the data of the patients before and after treatment based on OHIP-14 scale. The average mean score recorded before treatment was 2.65 which was reduced to 1.13 after smile designing treatment. OHIP-14 scores were shown a statistical significant difference before and after treatment and had a greatest impact on quality of life after treatment (Graph1). As can be seen, comparison of the frequencies of these responses suggested that after treatment, changes in OHRQoL for almost all questions.

DISCUSSION

OHRQoL is defined as multifaceted model that considers individual's comfort when eating, sleeping, and engaging in social interaction, their self esteem and their satisfaction with respect to their oral health.

OH-Qol is explained by using the personal assessment of how the following factors affect a person's well being.

- Functional factors
- Psychological factors
- Social factors
- Experience of pain and discomfort.

There are three groups of instruments which may be used as standards of OHQoL measures.

- **Generic measures:-** Generic measures do have uses in comparisions across populations and have scope for use in economic evaluation. But they have limited ability to capture the effect of certain interventions
- **Utility measures:-**The use of these measures in clinical trial require measurement of the patient's quality of life throughout the study. There are two fundamental approaches to utility measurement.
  - To ask patients a number of questions about their function and to classify the patients into categories on the basis of their responses.
  - To ask patients to make a single rating of all aspects of their quality of life.
- **Specific measures:-** they focuses on a particular condition, disease, population or problem.

The need to develop patient oriented measures of oral health status was first given by Cohen and Jago. Basically, there are three categories of OHRQoL measure as indicated by Slade. These are ;-

- Social indicators
- Global self rating of OHRQoL/ single item rating
- Multiple item questionnaire.

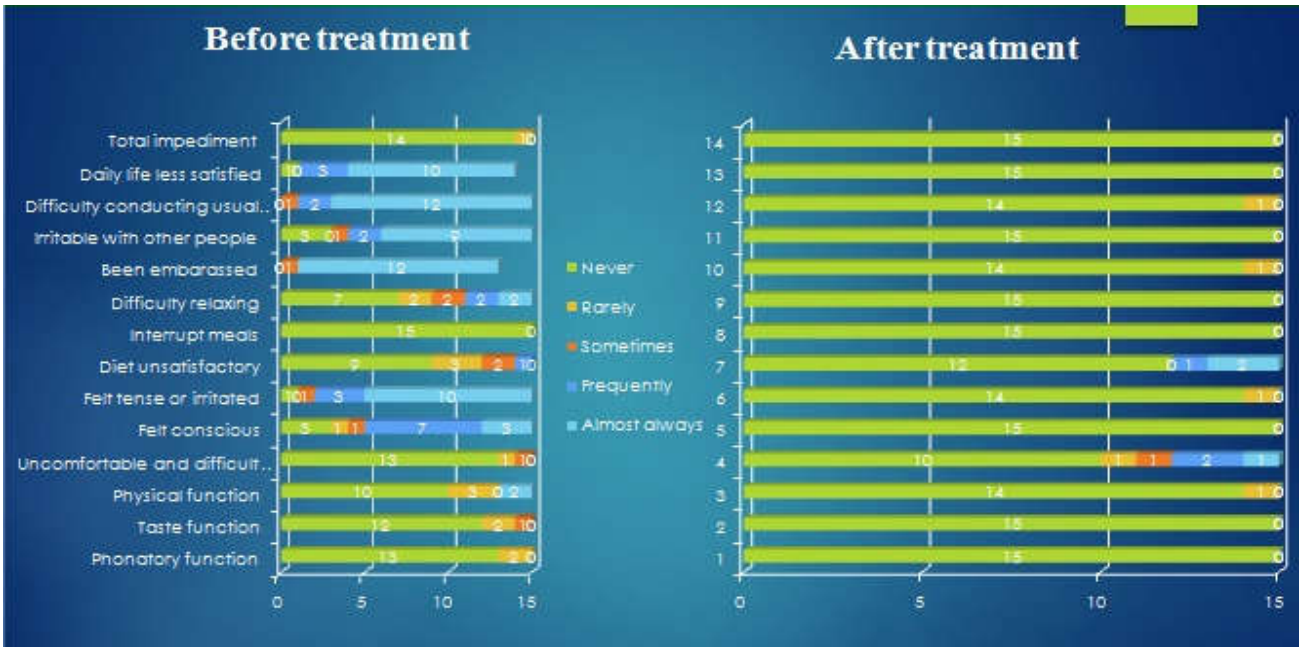
So, according to all these instrumental scale present study is based on multiple item questionnaire system given by Slade and these system, we prefer these scale because it is considered as most extensive method to evaluate OHRQoL. The specific instruments are specialized by some researchers to measure specific oral conditions. Some of the currently adapted OHRQoL questionnaire are mentioned (Deepa chandrashekaraiah, 2017). OH-QoL is considered as best self assessing tool. So, in this present study OH-QoL assessing tool is used to see the patients perception regarding their dental treatment (Pre treatment assessment and Post treatment assessment). The questionnaire used is validated questionnaire, and is one of the most comprehensive measures of oral health based on 7 domains: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap (Slade, 1994). E-Baramanti in 2013 carried out a study to measure the OHRQoL before and after prosthodontic implant therapy to determine physical and psychological impact amongst patient (Bramanti *et al*., 2013).

Table 1. Items compositing the shortened version of the oral health impact profile questionnaire

1)	Phonatory function : trouble pronouncing words
2)	Taste function : Sense of taste worsened
3)	Physical pain : Painful aching in mouth
4)	Uncomfortable and difficult eating
5)	Felt self conscious
6)	Felt tense or irritated
7)	Diet unsatisfactory
8)	Interrupt meals
9)	Difficulty relaxing
10)	Been embarrassed
11)	Irritable with other people
12)	Difficulty conducting usual jobs
13)	Daily life less satisfying
14)	Total impediment

Table 2. The comparison of OHIP-14 In 15 patients before and after smile designing treatment.

Sr. No	Questions	Before Treatment						After Treatment						χ2-value/p-value
		Never 0N (%)	Rarely 1	Sometimes 2	Frequently 3	Almost always 4	Mean ± SD	Never 0	Rarely 1	Sometimes 2	Frequently 3	Almost always 4	Mean ± SD	
1	Have you had trouble pronouncing any words because of problems with your teeth, mouth?	13 (86.7)	2 (13.3)	0	0	0	1.13 ± 0.35	15 (100)	0	0	0	0	1.00±0.00	0.157
2	Have you felt that your sense of taste has worsened because of problems with your teeth, mouth?	12 (80)	2 (13.3)	1 (6.7)	0	0	1.26 ± 0 .59	15 (100)	0	0	0	0	1.00 ±0 .00	0.102
3	Have you had painful aching in your mouth?	10 (66.7)	3 (20.0)	0	0	2 (13.3)	1.73 ± 1.38	14 (93.3)	1 (6.7)	0	0	0	1.06 ±0 .25	0.039
4	Have you found it to eat any uncomfortablefoods because of problems with your teeth, mouth?	13 (86.7)	1 (6.7)	1 (6.7)	0	0	1.20± 0.56	10 (66.7)	1 (6.7)	1 (6.7)	2 (13.3)	1 (6.7)	1.86± 1.40	0.039
5	Have you been self conscious because of your teeth, mouth?	3 (20.0)	1 (6.7)	1 (6.7)	7 (46.7)	3 (20.0)	3.40± 1.45	15 (100)	0	0	0	0	1.00± 0.00	0.002
6	Have you felt tensed because of problems with your teeth, mouth?	1 (6.7)	0	1 (6.7)	3 (20.0)	10 (66.7)	3.70± 1.12	14 (93.3)	1 (6.7)	0	0	0	1.06± 0.25	0.001
7	Has your diet been unsatisfactory because of problems with your teeth, mouth?	9 (60.0)	3 (20.0)	2 (13.3)	1 (6.7)	0	1.66± 0.97	12 (80.0)	0	0	1 (6.7)	2 (13.3)	1.73± 1.53	0.739
8	Have you had to interrupt meals because of problems with your teeth, mouth?	15 (100)	0	0	0	0	1.00± 0.00	15 (100)	0	0	0	0	1.00± 0.00	1.000
9	Have you found it difficult to relax because of problems with your teeth, mouth?	7 (46.7)	2 (13.3)	2 (13.3)	2 (13.3)	2 (13.3)	2.33± 1.54	15 (100)	0	0	0	0	1.00± 0.00	0.011
10	Have you been a bit embarrassed because of problems with your teeth, mouth?	0	0	1 (6.7)	2 (13.3)	12 (80.0)	3.73±0 .59	14 (93.3)	1 (6.7)	0	0	0	1.06± 0.25	0.000
11	Have you been a bit irritable with other people because of problems with your teeth, mouth?	3 (20.0)	0	1 (6.7)	2 (13.3)	9 (60.0)	3.93± 1.62	15 (100)	0	0	0	0	1.00±0 .00	0.001
12	Have you had difficulty doing your usual jobs because of problems with your teeth, mouth?	0	0	1 (6.7)	2 (13.3)	12 (80.0)	3.83± 0.59	14 (93.3)	1 (6.7)	0	0	0	1.06± 0.25	0.000
13	Have you felt that life in general was less satisfying because of problems with your teeth, mouth?	1 (6.7)	0	0	3 (20.0)	10 (73.3)	3.53± 1.06	15 (100)	0	0	0	0	1.00± 0.00	0.000
14	Have you been totally been unable to function because of problems with your teeth, mouth?	14 (93.3)	1 (6.7)	0	0	0	1.06± 0.25	15 (100)	0	0	0	0	1.00± 0.00	0.317



Graph 1. The comparison of OHIP-14 In 15 patients before and after smile designing treatment

Sr no.	Authors	Year	Name of measures
1	Cushing et al	1986	Social impact of dental disease
2	Atchison and Dolon	1990	Geriatric oral health assessment index
3	Strauss and Hunt	1993	Dental impact profile
4	Slade and Spencer	1994	Oral health impact profile
5	Locker and Miller	1994	Subjective oral health status indicators
6	Leo and sheiham	1996	Dental implant on daily living
7	Aduulyanon and sheiham	1997	Oral impacts on daily performances
8	Mc- Grath and Bedi	2000	OH-QoL

Faezeh Hamzeh *et al* in 2016 carried out a study to determine a impact of laminate veeners, on oral health -related quality of life and concluded that esthetic dental treatment using laminate veeners would significantly affect OHQoL. But this study is limited to patients undergoing laminates an veeners (Faezeh Hamzeh *et al*., 2016). So this present study was carried out to evaluate the impact of smile designing on oral health related quality of life. So that evaluation of OHQoL is applicable to all patients undergoing anterior restoration or smile designing. This study confirmed the improvement of OHRQoL in almost all domain. After smile designing treatment significant and nearly significant results were achieved regarding all questions based on OHIP-7 scale. As Faezeh Hamzeh *et al* in their study concluded that maximum score recorded was 34 before treatment which was reduced to 31 after treatment. Similarly, the present study also shows a marked difference or dropdown when it was compared for same patient for before and after questionnaire format based on OHIP-14 scale, Average mean score before treatment was 2.65 which was reduced to 1.13 after treatment. Nowadays, due to increased awareness of beauty among society and its importance in the community, many patients are seeking cosmetic restorations, natural tooth color and correction of dental problems with smile designing to change their appearance in an attempt to achieve improvements in their quality of life (Samorodnitzky *et al*., 2007).

Conclusion

OHRQoL, has a multitude of substantive applications for the field of dentistry, healthcare, and dental research. Patient oriented outcomes like OHRQoL will enhance our understanding of the relationship between oral health and general health. Preoperative and postoperative assessments of OHRQoL exhibited significant differences in all the patients. This study showed a positive effect on the OHRQoL and a strong impact on social, psychological emotional daily life of each patient.

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