

Modified Oral Health Quality of Life in Visually Impaired Individuals (Clinical Study)

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ABSTRACT

Aims: Assess the oral health quality of life in visually impaired patients present in Mosul city to create appropriate educational programs to maintain oral and dental health for the care of the blindness in Mosul city. Furthermore, authors recording essential individual life satisfaction in the study cases.

Material and Methods: Depending on Oral Health-Related Quality of Life Questioner forms (OHRQoLQ-14) and modified to be suitable and understandable for the patients, use the DMFT scale with gingivitis scale to evaluate the oral health of the disabled individuals.

Result: Age group (0-12) was (34.3%) as well (21-40) show the same percentage as the high proportion of cases in the sample. Forty-four males are affected. More than half of the cases are not educated and single. Disability time is distributed between trauma from the wars (10 patients). At the same time, a quarter of cases affected by diseases in the eye or other sites affecting the eye are secondary, and most cases (60%) are born with the disability of vision loss. Four patients have other disabilities, which is mental retardation. Thalassemia and other systematic disease documented in five individuals, cleft lip and palate, deaf and mute with other congenital anomalies are seen in 19 patients. The rest of the patients (72.9%) recorded solely visual impairments. According to DMFT and Gingivitis Scale, decay and missing teeth (76.1- 66.2) recorded the highest presence respectively with mild gingivitis seen in forty five patients. Concerning treatment need near half of cases needed multiple dental treatment can ranged between extraction, root canal filling and scaling.

Conclusion: Oral health and hygiene are clinical parameters that can reveal the individual satisfaction of their life quality because of the disability that may affect their daily activities. Disability or impairment that can limit the typical role of the individual, specifically vision impairment. Oral health plans with blindness individuals include making variations and habits that permit them to be independent in oral hygiene care and grow pride in their successes.

Clinical Relevance: Visual impairment is critical disability can alter quality of life. Oral health and hygiene can also influenced by the disability. Blind persons need help in many parts in their life. Independent oral health in blind patients can be encouraged by some variations.

Keywords

Visual Impairment, Oral Care, Oral Hygiene, Clinical Study, Disability.

Introduction

The good life is a concept used previously post the Second World War in the United States; recently, this concept changed to Quality of Life (QoL). This term reflects a good comfort level as having specific consumer things (psychological and social functioning). Krzysztof stated in his article 2010, "Good QoL meant affluence – having a car, a house of one's own or other commodities" [1].

Nowadays, only a healthy society can reflect good quality of life. Many efforts emphasize for assessment of QoL.

In any society, QoL can be changed and altered with various situations, whether individual or public. Individual health can be affected by passive and active perceptions observed by others to implement their lives [2].

Oral health and hygiene are clinical parameters that can reveal the individual satisfaction of their life quality because of the disability that may affect them to perform daily activities [3].

In the context of health experience, WHO defines disability as "any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being." Disability or impairment that can limit the typical role of the individual can be termed as Handicap [4,5].

The underprivileged or disabled population has various hindered types were significant proportion present in visually impaired persons. Oral Health can be influenced widely in multi-direction as physical, social, or informational barriers caused by the impairment [5].

Comparatively poor oral health statuses of blind persons are highlighted in vast numbers of kinds of literature [6,7].

Populations and families' knowledge and attitude concerning caring for visually impaired individuals are still the most common obstacles in understanding quality of life. Jain A, in his published article in 2013, summarizes the care barriers as transportation difficulties, services lack, financial resources lack, social ignorance, as well as, they highlight that "lack of education and training of service provider difficulties in rendering proper care and knowledge for the patients during the dental treatment procedure" [8,9].

Providing good dental treatment to visually impaired persons can be affected by many factors:

- Visual impairment stage
- Onset age
- Availability of other disabilities.
- Independence level.
- Patient's behavior and attitude and their families [10].

Dealing with handicapped and disable persons need the orientation and patience of the professionals and society members too. Improving their quality of life is being shared responsibility for both families and the public in society [11].

Systematic review climaxes many specified instructions for manipulating visually impaired patients. Verbal tutoring with physical instructions is crucial to make communication with such disabilities first plus clinical environment habituation; secondly, Short planned appointments. Parents should be available beside their children in the clinic. Building trust bridges between professionals and individuals with voice identification perceptions [12,13].

Immediate detailed treatment steps besides instructions should be explained for the impaired individual himself with a single person carries this duty whether the professional or the nursing assistant [14].

Another critical point that should be the focus on is the loud noises. It's disorienting for these patients because they define voice, not vision, so all excess voices should be limited to deficient levels such as suction or ultrasonic cleaner devices [15].

Evaluation of expected behavior from the patient must be outlined vaguely before the treatment initiation. Dental treatment guidance reveals the use of verbal control solely when patients become familiar with the place, staff, materials and devices sounds, taste in addition to smells [15].

In this article, the authors like to assess the quality of oral health life in visually impaired patients present in Mosul city to create appropriate educational programs to maintain oral and dental health to care for the blindness in Mosul city. Furthermore, authors recording essential individual life satisfaction in the study cases.

Material and Method

Inclusion and Exclusion Criteria

All age groups and both gender types are included in the study. Patients and their families agree to participate and answer the questioners. Demographical records include all details related to the patients. Out of these inclusion criteria, patients unlike to share in this study are excluded.

Ethical Approval

This study followed the Declaration of Helsinki, U.S. Federal Policy for the Protection of Human Subjects, and the scientific committee of Nineveh Health Directorate / M.O.H. / Iraq also confirm the study.

Evaluation Questioners

In this article, investigators chose well-known Oral Health-Related Quality of Life Questioner forms (OHRQoLQ-14) and modified them to be suitable and understandable for the patients.

Oral Health-Related Quality of Life Questioners (OHRQoLQ) Forms

Record all patient's demographical, social, psychological, cause of disability, time-lapsed for disability.

Oral health assessment includes numbers of extracted, carious, and filled teeth; oral hygiene is also evaluated through questioner forms answers and clinical examinations. Social information and clinical history were gathered from all incorporated patients: patient name, gender, age, skeletal class, education level, marital status, dental history, and detailed description of previous dental treatment. Answers to the questions are prepared through a personal interview between the patient, one person of the family, and the committee rapporteur (Specialist).

Questioner Forms

Modifies Oral Health-Related Quality of Life Questioners (OHRQoLQ) Form

Oral Health-Related Quality of Life Questioners (OHRQoL) is most widely used to evaluate patients' oral health quality of life. These adopted short version questioners were published and comprise fourteen questions developed from the original copy [10].

Personal perceptions are marked in the questioner's list and assessed according to the social and psychological impact of oral disorders on patients' quality of life. The index provides global measures of self-reported 14 elements are distributed into seven domains: "Functional limitation, physical pain and incapacity, psychological discomfort and incapacity, social inability, and jobs difficulty doing; caused by oral conditions." Five-points Likert scale used for rating replies. Score point estimated as 4 = very often; 3 = often; 2 = occasionally; 1 = hardly ever 0 = never. Final OHRQoL emphasized the sum of these scores for the 20 questions; the score can vary from 0 to 80. Score point 0 consider as negative impact absence, while 80 reflect the negative impact to be worst on oral health-related quality of life.

Questioner's forms are translated to Arabic to make it easy for the patient's partner to self-answer the questions. Each patient has unique total marks on each question, data recorded with Microsoft excel.

On the other hand, depending on simple DMFT test with the gingival scale, the oral health of each participant was evaluated and estimated.

Descriptive analysis and correlations between variables are assessed and analyzed using the Statistical Package for Social Sciences (SPSS) software program I.B.M. version 16. Correlation is considered significant if $p < 0.01$. Spearman's rho statistical test is used to screen the significant correlation.

Intra-Oral Examination for Oral Health and Hygiene evaluation

A broad through examination can help to make diagnosis adjuvant signs & symptoms assessment of disease will alter treatment

accordingly. Careful soft and hard tissues assessment will direct the clinician to an accurate diagnosis with accurate treatment. Diseases of the supportive hard & soft tissues, diseases of the lips, tongue, salivary glands, oral mucosa, and diseases of the oral tissues which are a component of systemic disease to meet the scope of responsibility.

Equipment

The resources necessary to achieve an oral examination includes:

1. Diagnostic Set (Mirror, Probe, Twizer).
2. Tissue retractor (tongue blade).
3. Dry Gauze.
4. Gloves.
5. Periodontal Probe.

The intraoral examinations are performed according to scientific principles, which include: Buccal Mucosa, Gingiva, Tooth mobility, Bleeding on probing, Evaluation of probing depth by the use of the calibrated periodontal probe, Hard palate, Minor salivary glands, Soft palate, Oropharynx, Tonsils, Floor of mouth, Mandibular bone, and Salivary Flow and Consistency. Decayed teeth (DT), missing teeth (MT), and filled teeth (FT) were also documented.

Results

The study approach one of the most crucial disabilities, which are the visually impaired patients. Table (1) displays the descriptive analysis of different variables for the participants. Demographical information has included (age, gender, marital state, education, time of the disability, and presence of any adjuvant disease with the disability).

Furthermore, table (1) highlights the patients' chief complaint, the DMFT with the gingivitis level, and the treatment plane which should be performed.

The age group (0-12 years) was (34.3%) as well (21-40 years) show the same percentage as high proportion of cases in the sample. Forty-four males are affected. More than half of the cases are not educated and single. Disability time is distributed between trauma from the wars (10 patients). At the same time, a quarter of cases affected by diseases in the eye or other sites affecting the eye are secondary, most of the cases (60 %) are born with the disability of vision loss. Four patients have other disabilities, which is mental retardation. Thalassaemia and other systematic disease documented in five individuals. Cleft lip and palate, deaf and mute with other congenital anomalies are seen in 19 patients. The rest of the patients (71.4%) recorded solely visual impairments.

All patients are called for free checking and examination to perform the treatment as needed later on. From total cases, only seven patients have pain as a chief complaint while the rest follow the call order to check their oral health status.

According to DMFT and Gingivitis Scale, decay and missing teeth (76.1 - 66.2 %) record the high presence respectively with mild gingivitis (63.4 %).

Concerning treatment needed near half of cases need multiple dental treatment can ranged between extraction, root canal filling, scaling, implant or prosthetic replacement (Table 3).

Table 1: Descriptive Analysis of Patients Sample.

Variable		No. of Participant	%
Age (in Years)	0-12	24	34.3%
	13-20	12	17.3%
	21-40	24	34.3%
	>41	10	14.1 %
Gender	Male	44	62.9
	Female	26	37.1
Education	Non-Educated	50	71.4
	Educated	20	28.6
Marital State	Single	51	71.8
	Married	19	26.8
Disability Time	Since Birth	42	60
	Trauma	10	14.3
	Disease	18	25.7
Another disease adjutant	No disease	50	71.4
	Congenital Anomalies	11	15.7
	Mental Retardation	4	5.7
	Systematic Disease	5	7.1
Chief Complain.	Checkup	63	89.7
	Pain	7	10.3
	Esthetic	0	0
DMFT	Nothing	7	10.0
	Decayed Teeth (D.T.)	53	76.1
	Missing Teeth (M.T.)	46	66.2
	Filled Teeth (F.T.)	12	18.3
Gingivitis	Mild	45	63.4
	Moderate	17	23.9
	Sever	8	11.3
Treatment Need	No Treatment	7	10.0
	Single Treatment	19	27.1
	Double Treatment	32	45.7
	Three and More Types of Treatment Need	12	17.1

Effect correlation between the disability and the DMFT/ GL is analyzed too. Spearman's rho statistical test is used to screen the significant correlation, where P values are considered significant at the 0.01 level (2-tailed). Table (2) emphasize the significant correlation between the disability and the DMFT scale.

Table 2: Effect Correlation between Disability and the DMFT Scale.

Statistical Test Used	Variable	Correlation Coefficient	Disability
Spearman's rho	DMFT	Sig. (2-tailed)	.421**
			.000
		N	70

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

Treatment needs correlated to the age groups in the disabled patients are explained in table 3. Nearly half of cases were need complicated management involving more than three various treatment type as extraction, root canal, prosthesis and scaling

or something else. On the contrary, seven individuals show no treatment need. According to age correlation to treatment options; (21-40) years age group form the high numbers (22) needing different treatments.

Table 3: Treatment Needs Correlated to the Age Groups in the Sample.

Age (Years)	Treatment Need				Total
	No Treatment	Single Treatment	Double Treatment	Three and more Treatment	
0-12 Y	4	9	11	0	24
13-20 Y	1	2	9	2	14
21-40 Y	2	5	9	6	22
>40 Y	0	3	3	4	10
Total	7	19	32	12	70

Discussion

The study is the original thorough oral health assessment of the blind people in Mosul city. High caries experience and periodontal disease are demonstrated in the blinded people, as well poor oral cleanliness reflected from the significant association between DMFT / Gingivitis level and the disability.

The oral disorder is a significant health dilemma among individuals with disabilities. Dental caries understanding variable quantity in this survey were more significant for MT., DT., and low FT., The blind individuals, are at a higher risk of occurring caries might be related inability to notice the initial signs of caries such as yellowing or any discoloration, which demonstrate the disease progression. The trouble in eliminating bacterial panels is the essential element for caries development. The constant impulse to proper oral hygiene is essential to maintain good oral hygiene in virtual impaired individuals [16].

Logically facial expressions sign should not be used as references explanation for impaired vision patients. The "oral hygiene process should be explained, and the child guided throughout the dentist's procedures alongside audio cassettes and Braille pamphlets. The line of treatment has to be redirected to the preventive line to pay compensation for the heavily loaded treatment requirements of the visually impaired population using the insufficient resources" [17].

Diet advising should be performed according to a balanced diet, which emphasizes sugar intake concerning dental caries. "Fibrous food is recommended to avoid dental caries in visually impaired children" [18].

Dental caries and periodontal disease prevalence among visually impaired children can be reduced by oral care and plaque control programs. Consequently, chemical plaque control is advised versus mechanical control in the visually reduced for actual plaque control [18,19].

Poor periodontal health and good oral hygiene have been experiential in people with incapacities. These results may be due to the slight physical capabilities of these people and consequent problems in tooth brushing. The following may affect

oral health: incomplete understanding of the importance of oral health management and fear of oral health procedures. This study demonstrates that blind persons had poor oral health. The oral hygiene of the impaired visual individuals is significantly worse concerning disability. Visual impairments were less well-informed about their oral care and did not understand the importance of regular dental visits [20]. This will alert the dentist to mention an oral health dilemma, in both direction esthetic and function.

In his published article, Drummond stated that valuable oral health and function differently would improve quality of life. Accordingly, oral health improving, quality of life increasing, acceptable oral health treatment, implementing oral health prevention properly, and oral promotion programs, mainly oral function programs, should be set as goals for the visual impairment [21].

Dental professionals should be aware of the inherent problems and limitations imposed on patients by their sensory impairment. They would know the most incredible ways to connect with blind individuals and become familiar with the dental situation. Keeping oral health is vital to a high quality of life because it reduces the risks of disease. These results reflect a severe lack of access to dental treatment of visually impaired subjects. Managing patients with such disabilities pass with many barriers, such as service cost, transference of them, skilled and trained experienced dentists that can communicate with these persons usually lacked; end with obstacles for obtaining dental care [22,23].

The importance of successful oral hygiene programs with visually impaired persons involves "creating adaptations and routines that allow them to be independent in oral hygiene care and develop pride in their achievements." This includes purchasing and labeling or storing oral hygiene materials so they won't be lost, effectively brushing all areas, and determining whether they performed adequately [10].

Oral hygiene training is essential for preventing and treating oral disorders in blind individuals as it offers the base for excellent oral health in life. Providing significant oral orders and tactile devices to improve the tooth-brushing skills of visual impairments is essential for oral hygiene education. Acceptable oral hygiene guidelines may positively impact individual's oral hygiene behaviors and periodontics status, thereby providing or improving individuals self-esteem. The proactive approach is vital for these particular groups of blindness. The dentist's role is vital as he can provide proper oral health teaching and help these populations live healthy life [24,25].

Tooth loss is a major consequence of both most common oral disease which are dental caries and periodontal diseases occurs throughout life. With the common condition of tooth loss, and increasing awareness of the value of oral health, evidence to inform clinical management of tooth loss is needed. Management of disabled persons presenting with partial loss of teeth has been a common task of dentists. Tooth loss patterns advised to manage

with different prostheses that coincide with disabled situation measuring using different materials, methods of fabrication, or the design of a specific type of prosthesis. Functional, physiologic impact including satisfactory and comfortable mastication, preservation of remaining hard and soft tissues and effect on diet will change in quality of life.

Certain limitations of this study should be acknowledged. The relatively small sample size could bias the findings of this study. Authors suggest institutional services to help such disabled patients in all situations to give them a good quality of life.

Conclusion

In any society, QoL can be changed and altered with various situations, whether individual or public. Oral health and hygiene are clinical parameters that can reveal the individual satisfaction of their life quality because of the disability that may affect them to perform daily activities. Disability or impairment that can limit the regular role of the individual, specifically vision impairment. Oral health programs with visually impaired persons involve inventing adjustments and routines that permit them to self-determine oral hygiene care and develop pride in their achievements.

Declaration

Ethical Approval:

All procedures performed in studies involving human participants were following the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration. Human Ethical Scientific Approval Application Form for Research of the Nineveh Health Directory / Ministry of Health / Iraq are prepared and the study approved by the committee.

Informed consent: For this type of study, Informed consent was obtained from all individual participants included in the study.

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