# INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

## ASSESSMENT OF ORAL HEALTH AMONG DIABETIC & HYPERTENSIVE PATIENTS

**Dental Science**

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## ABSTRACT

**Introduction:** There are some evidences on literature correlating Essential Arterial Hypertension and Diabetes Mellitus type 2 with oral health / oral manifestations like occurrence of periodontal severe insertion losses, hyposalivation, microbial changes, healing difficulties, abscesses, hyperplasias, polyps, cheilitis and clefts etc. associated to physiopathology of the diseases or their drug treatments. Considering the necessity of understanding the role dentition plays on welfare and daily life of hypertensive and diabetic people, this study was done around a tertiary medical Institute's adjoined territory, Urban & Rural health centres aiming to assess the quality of life related to Oral Health Clinical Conditions (OHCC).
**Method:** Study was designed as a cross sectional analytical study . Information was analysed by using the Microsoft Excel and SPSS 20. A cross sectional analytical study was conducted around a tertiary medical Institute's adjoined territory, Urban & Rural health centres aiming to assess the quality of life related to Oral Health Clinical Conditions (OHCC). OHRQL evaluation was done through OHIP-14 application on the interview modality. Total of 218 people took part in this study
**Results:** We did not notice any significant differences on OHCC or OHRQL among the groups of hypertensive, diabetic and hypertensive-diabetic. No significant differences among the groups were noticed concerning OHIP-14. In general, the scores showed a low impact on oral health quality of life
**Conclusion:** Such results redirect us to public policies in order to make the needful changes .

## KEYWORDS

Oral Health , Diabetics , OHCC , OHIP

## INTRODUCTION

Demographic and epidemiologic transitions have reflected on a significant increase on the prevalence of Chronic Non-Communicable Diseases such as Diabetes Mellitus type 2 and Essential Hypertension Both of them reach up to 1.5 billion people in the world[1]

There are some evidences on literature correlating SAH and DM with oral health. Adequate examples of oral manifestations would be the occurance of periodontal severe insertion losses, hyposalivation, microbiota changes, healing difficulties, abscesses, hyperplasias, polyps, cheilitis and clefts associated to physiopathology of the diseases or their drug treatments [2,3,4,5]. For example Poorly controlled DM has been associated with various pathologies and Infections characterized by loss of connective tissue and bone support, which eventually might lead to tooth loss.

Quality of life has been frequently associated to Oral Health Clinical Conditions (OHCC)[6,7,8,9,10].

Slade and Spencer[11] developed a questionnaire to assess OHRQL (Oral Health-related Quality of Life): OHIP-49 (*Oral Health Impact Profile*).Its original version has 49 questions which approach the dimensions proposed by Locker. Slade prepared, reduced and validated the questionnaire (OHIP-14). The author described a hierarchy among dimensions. Functional limitation, physical pain and psychological discomfort are related to questions the individual has to himself/herself in an organic basis. They express impact on speech, sense of taste, besides pain, masticatory discomfort, tension and preoccupation. Physical, psychological and social incapacities refer to individual behavioural aspects which reverberate in daily life, expressing restrained eating behaviour, difficulties to relax, shame, irritation and injury on daily activities in general. Finally, social disadvantage is described as the highest degree of impact and represents social consequences of oral problems. Absence at work and feeling that life has become worse are targets of that dimension. So, the gravity of the impact might be understood according to the affected dimensions. A problem which leads to discomfort and pain brings fewer consequences to quality of life than a problem which leads to incapacities and disadvantages[12]. OHIP-49 and OHIP-14 were submitted to transcultural validation processes into numerous languages and places[13,14]

Considering the necessity of understanding the role dentition plays on welfare and daily life of hypertensive and diabetic people, this study was done around a tertiary medical Institute's adjoined territory, Urban & Rural health centres aiming to assess the quality of life related to Oral Health Clinical Conditions (OHCC).

## METHEDOLOGY

After local ethical committee approval study was done over a period of 6 months .A cross sectional Analytical study was conducted around a tertiary medical Institute's adjoined territory, Urban & Rural health centres aiming to assess the quality of life related to Oral Health Clinical Conditions (OHCC).

The total amount of people to be part of the sample was defined through a formula for finite populations proposed by Silva[15], taking the DMFT (Decayed, Missed of Filled Teeth) index as reference. It was established a level of 95% of assurance, with a 10% error possibility.

OHCC were investigated through the following indices: DMFT, according to codes and criteria claimed by WHO[16]; T-Health (Tissue Health - through which different values can be attributed to healthy, recovered, decayed or missing teeth. The closer the value gets to 32, the more healthiness the indicatives show)[17], according to Barnabé et al.[18] ; c) FS-T (Filled and Sound Teeth – the sum of healthy and filled teeth, aiming to check the amount of teeth presumably functional in the oral cavity - it is important to highlight that the closer the index value is to 32, the higher the quantity of functional teeth will be[17]) and d) SiC (Significant Caries Index*,* an average calculation between DMFT and the third part of the sample in which values are higher, what also serves as a parameter to analyse the distribution of tooth cavity)[19]. We also assessed usage and necessity of prostheses, which were divided into types of dentures (partial [fixed permanently or removable] and complete)

OHRQL evaluation was done through OHIP-14 application on the interview modality[20] considering possible difficulties on reading and writing among elderly individuals. An answer sheet, with a codified instrument scale (0 = never; 1 = rarely; 2 = sometimes; 3 = often; 4 = always) was handed to the participants. We obtained general and dimension scores, multiplied the codified answers (0, 1, 2, 3 or 4) and specific weighted grades, proposed by Slade[11]. The maximum value each dimension would reach would be 4, considering that the general OHIP-14 ranking varies from 0 and 28. This way, the highest the scores are, the worst OHRQL is going to be according to the interviewees.

In order to make a table with the data analysis, we used a statistical pack *SPSS*® 20 The individuals were organized into groups related to their systemic conditions (Hypertension; Diabetes; Hypertension-Diabetes).We did not observe any abnormality in the distribution of the data (Kolmogorov-Smirnov test, $\rho<0.05$), we proceeded to the application of non-parametric tests. The average (Kruskal-Wallis) and proportional (McNemar test) rates related to OHCC and OHRQL were compared between the systemic conditions under investigation. Speaman Correlation Coeficient was used to determine associations between OHCC and OHIP-14. In all procedures, we used a 95% level of significance.

## RESULTS

A significance level of 0.05 was used in all analyses. Information was analysed by using the Microsoft Excel and SPSS ( Version 20 , IBM , USA )

Total of 218 people took part in this study, most of the individuals in this research (59.42%) presented only with Hypertension, , with an average age of 54.83 (± 11.99), varying between 35 and 83 years.

No significant, statistical differences on the OHCC variables among the groups were noticed. There was no disparity on the teeth cavity distribution (Sic=32 [± 0.00]) and the average DMFT to the total sample was 28.16 (± 6.35), with "missing" component prevalence (22.94 [± 10.46]).

Among the examined individuals, 35.78% were using prostheses, being the Dentures the most common (58.72%). The necessities of use of prostheses were still high , specially for the use of Partial Prostheses (27.16%).When it comes to the arch, the jaw presents most part of the demands (68.26%).

No significant differences among the groups were noticed concerning OHIP-14. In general, the scores showed a low impact on oral health quality of life

In order to obtain correlations between OHCC and OHIP-14, considering the lack of difference among the results from the groups, we considered the total sample. The increase of healthy, filled teeth, supported by fixed prosthesis, and the increase of FS-T and T-Health indexes, as well as the decrease on the quantity of missing teeth, OHCC and the extension of the prostheses used in lower and upper arches, contribute to the increase of psychological discomfort (p < 0.05). But, as healthy feet decrease in number, the increase in teeth loss and FS-T and T-Health indexes, along with OHCC and the demanded prostheses dimension, are physical dimensions, specially when it comes to incapacities, which increase (p < 0.05). Social disadvantage is affected only with the healthy teeth decrease and the increase of necessary extended prostheses. And the general impact (OHIP-14) only grows with the increase of the necessity of prostheses (<0.05)

## DISCUSSION

We did not notice any significant differences on OHCC or OHRQL among the groups of hypertensive, diabetic and hypertensive-diabetic. Although the evidences of relations in CNCD, specially the DM, such as OHCC[2,3,4,5], it is possible that other factors, such as other pathologies associated (age, gender; economical, social and cultural aspects) and variable aspects that remain unclear, play a more relevant role on determining health issues in adult and, specially, elderly populations (considering 64.83 the average registered age), concealing or dissimulating the comorbidity role, such as SAH and DM on oral diseases.

Concerning OHRQL, there are plenty of cases in literature, determined by OHIP-14[6,7,8,9,10], related to OHCC in adults and elderly people. Although some of these studies are related to diabetic people, researches which include both conditions (Systemic Arterial Hypertension and DM)are rare. This way, this paper can be considered one of the first investigations to address OHRQL and OHCC in these populations on a comparative perspective.

OHCC is similar in some populations with and without SAH and DM, but when we compare it to OHRQL some findings are pretty off-key. We highlight the incidence of natural dentition and naturalization of dental loss in the population we analyzed, aspects evidenced mainly through the correlation between the psychological dimensions from OHIP-14 and T-Health, FS-T and DMFT compounds. Such relations

can integrate a complex amount of grievances of CNCD which surpass physical aspects (clinical indicators), echoing psychological and behavioural components.

OHRQL could be more explained by factors other than OHCC, these predictors being a reduced part of impact. Cultural, social and economical factors tell us more about health than biological aspects exclusively, in according to what the social health determining model (WHO) has already been alerting specialists about. Likewise, it is important to search for actions to analyse oral health from the healthy structure point of view, apart from the biomedical tradition of looking at events focusing on the illness behind them. In this research, we attempted to connect traditional, descriptive OHCC indicators and alternatives which prize health measurement instead of illness (FS-T, T-Health), besides trying to subjectively measure the aftermath of oral health on people's welfare and daily life: OHRQL. Nonetheless, the non-inclusion of social-economical variables related to OHCC and OHRQL is often considered a limitation. Besides, the results lead to the necessity of wide approaches, incorporating qualitative methodologies and longitudinal follow-ups to a social-humanistic perspective in order to better elucidate matters such as the lack of faith on natural dentition, the naturalization of dental loss and the "prothesism" culture – what urges for further investigation.

## CONCLUSION:

Such results redirect us to public policies in order to make the assistance (which is so important to these population) be marked by actions which  reachs the "prothesism"/dental loss naturalization culture, which negatively reverberates on quality of life of hypertensive and diabetic people.

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