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A Comparative Study Based On The Level Of Oral Health Standards Calculated Using Sweet Score, Pufa Index And Diet Quality Index Between A Population Involving Bihar And Tamil Subjects

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ABSTRACT:

Aim - To compare the overall diet quality and the oral health quality of life conditions among the ethnic Bihari and Tamil Nadu Population

Methodology - This was a Questionnaire - based study conducted among ethnic Bihari and Tamil subjects. Data was collected from a total of 219 participants. A pretested open ended questionnaire was used for the study.

Results - Data was collected from a total of 21 9 people with 11 0 participants from Bihar and 10 9 from Tamil Nadu. 10 6 female and 11 3 male students. Results show a higher diet quality score of more than 1.97 in Bihar as compared to Tamil Nadu with a higher sweet score of 21.38 in Bihar as compared to that of 17 in Tamil Nadu with a higher incidence of oral health issues in Bihar.

Conclusion- The statistical data confirm s the correlation between the higher intake of sugar and sugar based products in Bihar resulting in the higher prevalence of oral health disorders as compared to Tamil Nadu.

INTRODUCTION:

Oral health is a natural indicator of the overall body's wellbeing. Being the gateway to the body it is associated to a wide array of both oral and systemic diseases. A certain survey conducted by World Health Organisation (WHO) calculated about 60 percent to 90 percent of children and nearly every adult in the world having dental cavities [1], American Dental Association (ADA) describes oral health as a functional, structural, aesthetic, physiologic, and psychosocial state of well - being which is essential to an individual's general health and quality of life [2],

Poor oral health is related to significant morbidity which is the condition of suffering from any medical condition and mortality which is the causation of life [3], Oral health is based critically upon the individual's personal oral hygiene. Poor oral hygiene can have a significant impact on general health and is the gateway to various systemic diseases [4], According to a study done in the USA, emergency departments reported a whopping 16% hike on conditions initiated due to preventable dental conditions since 2006 highlighting the correlation of dental health with the overall general health of an individual [5]

On establishing the importance of oral health, the next step is on how to analyse given oral health. One of the majorly associated conditions pertaining to oral health is diabetes. Hyperglycaemia in diabetes had been

previously associated with five major classic complications including retinopathy, neuropathy, nephropathy, cardiovascular complications and delayed wound healing. The recently developed studies has also recognised periodontal diseases as the "sixth complication" (6). Diabetes a major player in the game of oral hygiene. Sweet score and glycaemic indexes are various methods of identifying the oral health pertaining to diabetes. According to a review article, poor glycaemic control is associated with an increased risk of severe periodontitis [7].

Glycaemic index divides food on the basis of contribution to blood sugar in 3 classes; 55 or less for low, 56 - 69 for medium and a 70 - 100 for high. The lower the level the less hike in the blood sugar levels (8). Various evidence shows the association between frequent sugars intake and dental caries (9). Sweet score is an effective way of checking the amount of sugar intake. PUFA was a developed index which helped to record the state of oral health incorporating 4 advanced stages of an untreated carious lesion (P - Pulpal involvement, U - Ulceration, F - Fistula and A - abscess) [10]. Thus forms an important role in detecting the status of oral health. Thus the ease of living and satisfaction of someone with good oral hygiene is far superior to someone with poor (11)

METHODS AND METHODOLOGY:

The study was conducted among the dental students of various colleges in India. Ethical clearance was obtained from the Ethical Review Committee of the Institutional Review Board of SRM College of Dental Sciences and Hospital. The head of the institution and the other faculty members were informed about the purpose of the study, and their permissions were obtained. The study constituted 219 people from Tamil Nadu and Bihar through a convenient sampling method.

The questionnaire was investigator approved, self - administered and closed - ended. The study participants were supplied with instructions and given the questionnaire for which they were allotted approximately 15 minutes for completion.

The questionnaire consisted of 38 questions, among which five were aimed at intake of rice wheat and fruits, 8 questions were aimed at intake of milk products, protein and iron containing products, 6 question s were aimed at consumption and eating frequency of vegetables, 5 are aimed at different forms of sugar intake, time interval, frequency of sugar intake. 11 questions are aimed at oral health measures consist of frequency of brushing, types of toothpaste, past dental visits, any pain or discomfort related to oral health recently, any use of interdental cleaning Aids. 3 questions are aimed at different type of habits like alcohol intake or tobacco consumption.

The statistical analysis was done using SPSS software version 26.0, descriptive statistics were done by using frequency and percentage, and inferential statistics were calculated using the chi - square test. P-value <0.05 was considered to be statistically significant.

RESULTS:

The questionnaire was completed by a total of 219 people among whom there were 106 females (48.9%) and
113 males (51.1%) of general people within 18 - 60 years of age, among which there were 111 residents from Bihar (50.2%) and 108 participants from Tamil Nadu (49.8%)

Place of Birth

Sex

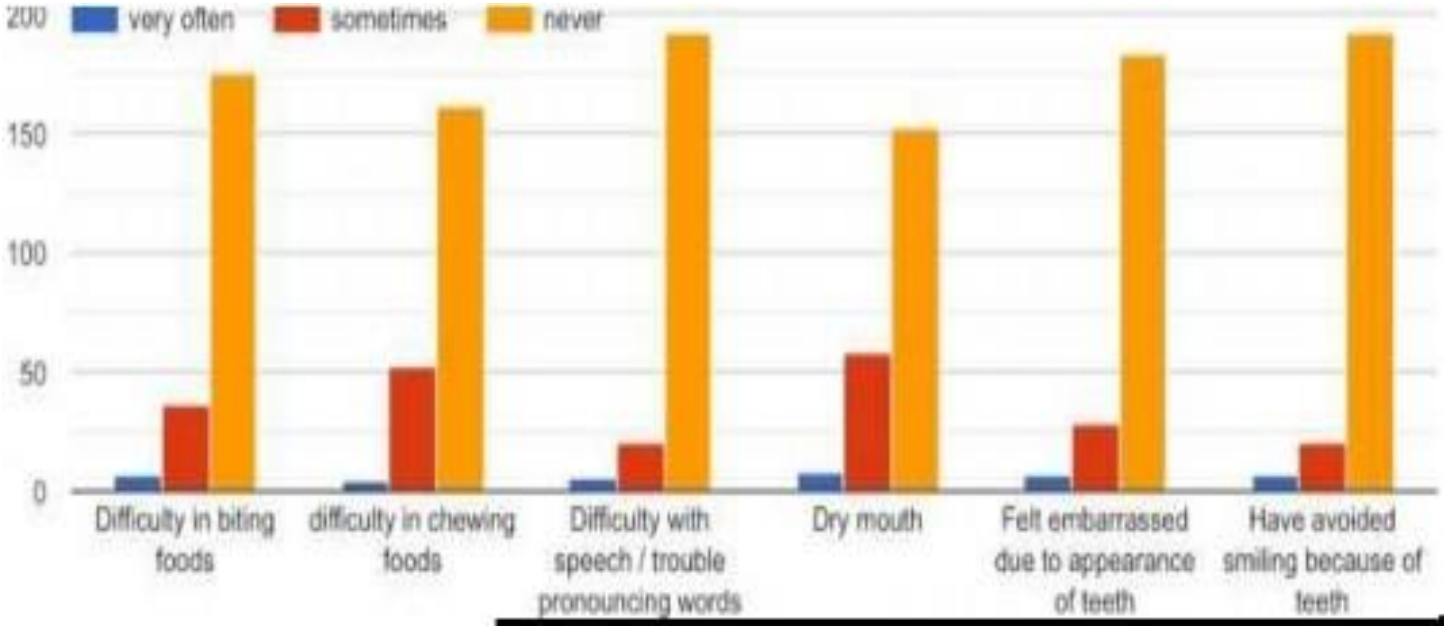
Bihar

Tamil Nadu

Table 1a

Table 1b

Table 2

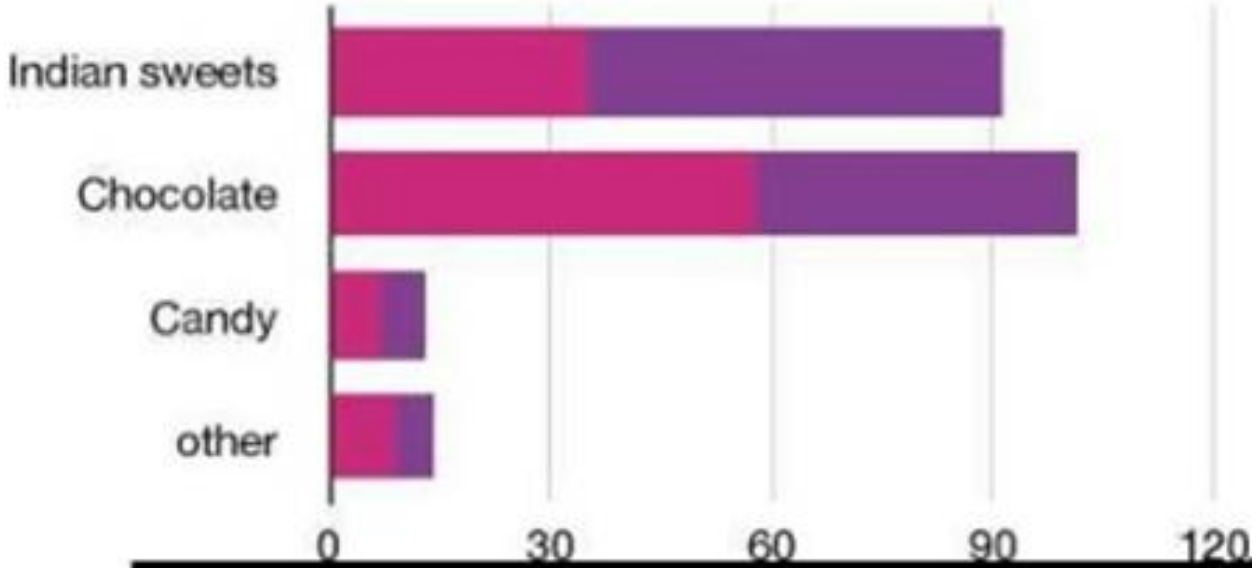


Based on Table 2, the state of the teeth or mouth 31 Tamil, 27 Bihar subject sometimes experience dry mouth while 36 Tamil, 53 Bihar subject faces difficulty in chewing and biting foods. 17 Tamil subject, 12 Bihar subject felt embarrassed due to appearance of their teeth. Thus concluding that dry mouth and difficulty in chewing food is more common problem in both

Tamil Nadu

Bihar

Table 3



the region.

Based on Table 3, among all the subjects from Tamil Nadu 58 people prefers to eat chocolate in Tamil Nadu as compare to Bihar where only 43 people prefer to eat chocolate. In Bihar 56 people prefer to eat Indian sweets as compared to 35 in Tamil Nadu. 7 people in Tamil Nadu likes to eat candy whereas only 5 in Bihar. So it concludes that chocolate is preferred in Tamil Nadu and younger subjects while Indian sweets is preferred more in Bihar and elder subjects prefer to eat Indian sweets as compare to 35 in Tamil Nadu. 7 people in Tamil Nadu likes to eat candy whereas only 5 in Bihar. So it concludes that chocolate is preferred in Tamil Nadu and younger subjects while Indian sweets is preferred more in Bihar and elder subjects.

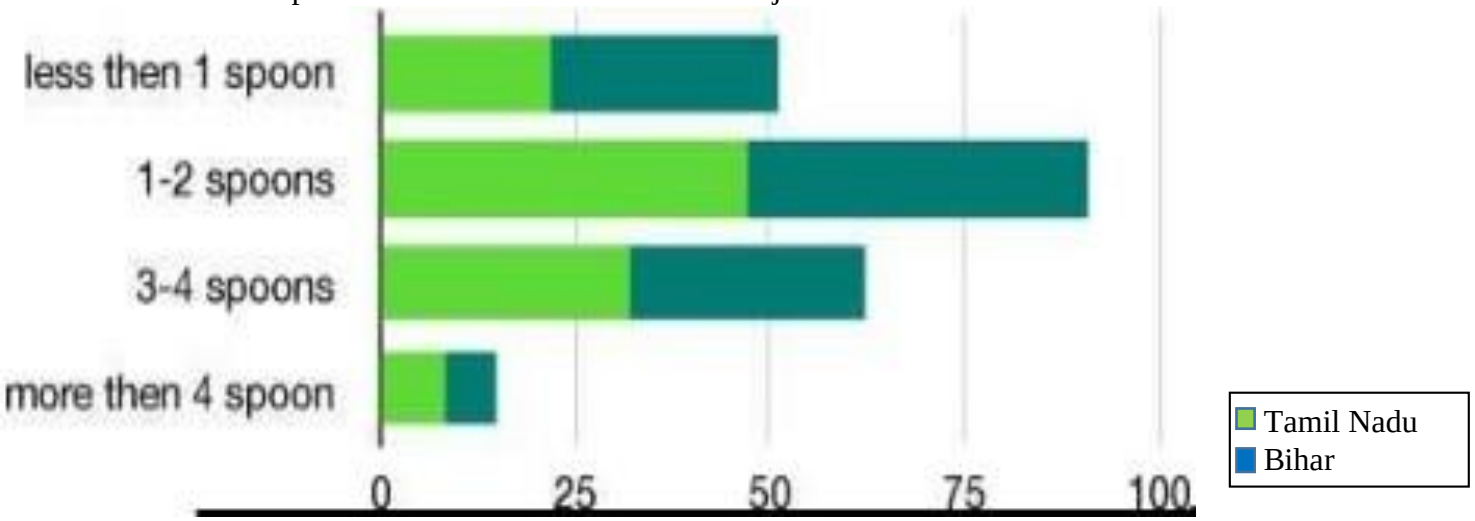


Table 4

Based on table 4, Among sugar consumption 30, 7 people taking sugar three - four tablespoon or 4 tablespoon in Bihar compared to 32,8 people in Tamil Nadu. While 44 taking only one - two table spoon sugar in Bihar as compared to 47 in Tamil Nadu. 29 people of Bihar taking less than 1 tablespoon of sugar as compared to 22 in Tamil Nadu, thus concluding that sugar consumption in Tamil Nadu is collectively more with higher frequency of intake.

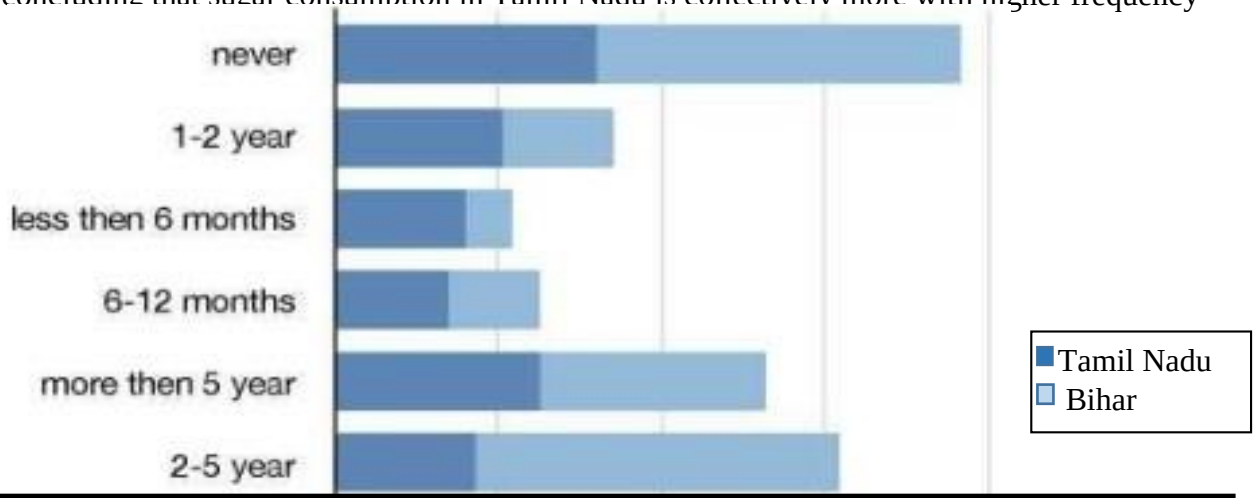


Table 5

Based on Table 5, Among 109 people of Tamil Nadu 14 people had their dental visit within 6 month, 12 visited within 12 month, 18 visited within 2 year, 15 visited in between 2 to 5 year, 22 visited 5 years ago while 28 never had any dental visit. Among 1 10 people of Bihar only 5 had their dental visit within 6 month, 10 visited within a year , 12 within 2 year , 20 visited within 2 to 5 year , 24 visited 5 years ago , while 39 never had any dental visit. Thus concluding that people from Bihar had lower dental visit or dental awareness compare to Tamil Nadu people.

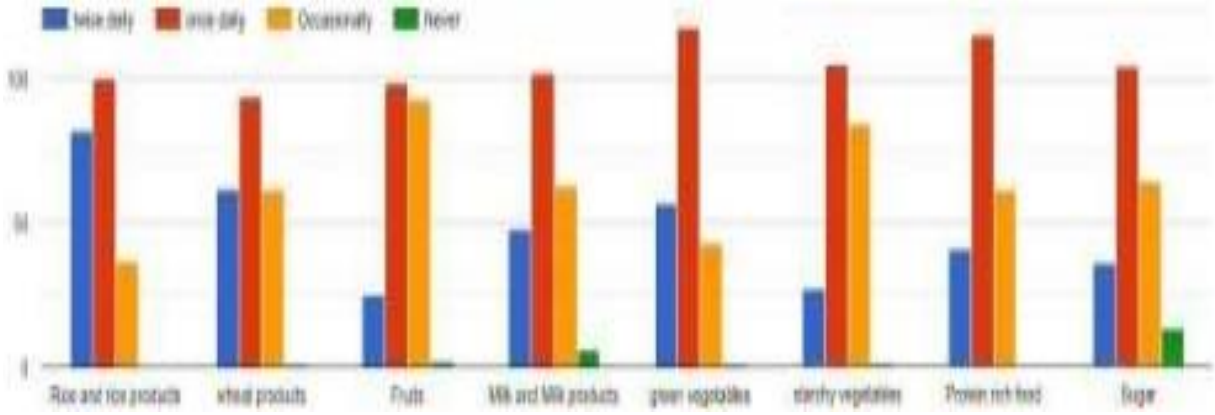


Table 6

Based on Table 6, Among rice consumption, 70,12 people consumed rice once a day and twice daily in Bihar compared to 30, 70 people in Tamil Nadu while 28 consumed rice occasionally in Bihar as compared to 9 in Tamil Nadu thus concluding that rice consumption in Tamil Nadu is collectively more with higher frequency of intake. Among wheat consumption, 45,58 people consumed rice once or twice daily in Bihar compared to 48 ,4 people in Tamil Nadu while 6 consumed wheat occasionally in Bihar as compared to 58 in Tamil Nadu thus concluding that wheat consumption in Bihar is collectively more with higher frequency of intake. Milk and milk product consumption is higher in Bihar compared to Tamil Nadu.

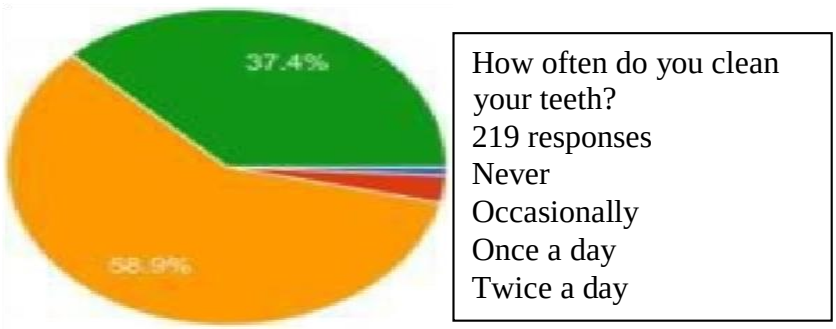


Table 7

Based on Table 7, Among Bihar subject 71 people clean their teeth once a day and 35 people twice a day while compared to Tamil Nadu where 58 people clean their teeth once a day and 47 people clean their teeth twice , only very few people cleans occasionally . So we can conclude that awareness towards oral hygiene in both region is similar.

DISCUSSION:

Based on the data the diet quality index showed a difference of 1.97 in the mean diet quality score with Bihar having a higher diet quality score which maybe contributed to the diverse range of food which are consumed in Bihar as compared to Tamil Nadu as Bihar had a higher score for almost each category.

The statistical data also showed an evidence of higher intake of sugar in its solid form which is usually a s chocolates and candies in Tamil Nadu compared to Bihar while in Bihar there is more intake of liquid and sticky sugar in the form of sweets. Usually both of the places consumed a mean of 1 - 2 teaspoons of sugar a day, with this on mind the mean sugar score of Bihar is around 21.38 as compared to 17 in Tamil Nadu thus even with more sugar intake in Tamil Nadu as seen through a higher mean in the intake of sugar in teaspoons, Bihar has a higher mean sugar score due to intake of more sugar in its sticky form.

Based on the higher sugar intake resulting in a higher incidence of oral related problems theory, the statistical data of the number of oral health problems were accounted in both the places on which it was observed that usually the people from Bihar seem to have higher rate of occurrence of dental problems with respect to Tamil Nadu thus a positive correlation is formed between the sugar score and oral health status enticing that people of Bihar are more likely to suffer from oral health defects as compared to Tamil Nadu due to their higher sugar intake, it forms a negative correlation between the diet quality index which shows that even with a high score in the diet quality people in Bihar seem to have higher incidence of dental problems which can also be a tribute to increased part of the population engaged in chewing tobacco with a rather comparable scores of other adverse habits.

Finally on judging the attitude towards maintaining a good health, there were an increased number of people who visited the dental clinic in Tamil Nadu although it was noted that a good amount of people in Bihar would visit the clinic but at an average gap of 2 - 5 years as compared to a frequency of 6 months to 2 years in Tamil Nadu thus clarifying a better maintenance of oral health in Tamil Nadu

CONCLUSION:

Results show a higher diet quality score of more than 1.97 in Bihar as compared to Tamil Nadu with a higher sweet score of 21.38 in Bihar as compared to that of 17 in Tamil Nadu with a higher incidence of oral health issues in Bihar.

CONFLICT OF INTEREST:

Authors report no conflict of interest

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