

Original Research

A cross sectional study to evaluate dental caries prevalence and its influential factor in child population of Kashmir

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ABSTRACT:

Background: The study was conducted to assess the prevalence of dental caries among the general children population of Kashmir. The main objective of the study was to evaluate the association of dental caries with that of oral hygiene status, socio-economic status, and dental service availabilities. **Methods:** A Cross-sectional study of total 300 subjects was done. Decayed, filled, and missing teeth (DMFT), oral hygiene status, Socio-economic status and availability of dental care facility were recorded. A self-made performa was used to record the data. **Results:** Comparison of mean DMFT status was evaluated which revealed a high tendency towards decayed teeth in children of age group 3-12 years. Mean DMFT score was found to be around 4.42 Maximum DMFT was recorded among 12 years age group, followed closely 3-5 years. Prevalence of increased caries was seen in subjects with poor oral hygiene and belonging to low socioeconomic status. Rate of caries was also found to be high in areas with a lack of dental care facilities. **Conclusion:** Oral hygiene practices, dietary habits and access to dental care were found to play an important role in the prevalence of dental caries. It was also observed that socioeconomic status of the subject plays a significant role in access to dental care facilities.

Keywords: Dental caries, oral hygiene, prevalence, socio-economic status.

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INTRODUCTION

Dental caries, the most well-known oral disease, shows a striking contrast in its circulation all over the world. The worldwide conveyance of dental caries presents a fluctuated picture.¹ In a few industrialized nations, a decrease of dental caries rate and improvement of gingival medical care are clear a direct result of the preventive measures embraced. In creating nations, relocation of individuals from rustic zones and urbanization causes an adjustment in way of life and dietary propensities, which thusly influences oral health. The situation in Kashmir (INDIA) likewise shows a comparable increment in commonness with other creating nations. Numerous overviews with respect to oral healthcare have uncovered expanding patterns in dental caries commonness among youngsters and adults.² Socioeconomic status, low training status of guardians and parental demeanor affects the foundation of oral wellbeing propensities in kids. There has been a worldwide change in commonness, seriousness, circulation and example of dental caries.³ Most of the twentieth century, caries was viewed as an infection of the financially evolved nations, with low predominance in creating countries.⁴ There are a few interrelated purposes behind this example. The most clear is diet. High utilization of refined sugars in monetarily created nations prompted the specific multiplication of cariogenic microorganisms and the ensuing ascent in the pervasiveness of dental caries in those countries.⁵ In the eighties, the predominance in most western nations had consistently declined while simultaneously, the commonness of dental caries in lesser created nations was on the rise.⁶ The connection between expanded industrialization, urbanization, commercialization, utilization of refined starches and dental caries has been proposed in numerous studies.^{7,8}

MATERIAL AND METHODOLOGY

This investigation was done in various private clinics with paedodontic setups in district Srinagar, Jammu And Kashmir, India. The length of the examination was 6 months, from 10th June 2019 to 10th November 2019. Around 300 subjects were included from the age group of 3-12 years. To keep away the study from error, all the subjects were seen by a single examiner.

The WHO oral health assessment form 5 (1997) was utilized for recording dentition status. A self made proforma was utilized to record all the information as to oral hygiene practices, socio-economic status and dental treatment accessibility. Information obtained were statistically analyzed utilizing SPSS version 15 software. Chi-square is utilized to test the relationship between all categorical variables. ANOVA test was used to examine the distinction in DMFT scores of different age groups. The degree of significances was

considered to be about 0.05. Student T-test was applied to test the difference in DMFT scores in both genders.

INSTRUMENTS USED: The patients were analyzed by utilizing mouth mirror, explorer and a CPITN probe.

DMFT: For estimating the severity of caries DMFT index was used: "DECAY-MISSED-FILLED-TOOTH."³ It is usually generally utilized index for estimating dental caries, this index depends on the way that dental hard tissues are not self-healing, established caries leave a scar or something to that affect, the tooth either remain decayed or whenever treated it is extracted or filled.³ This is the method for decision for the World Health Organization in its basics study survey and is applied to all teeth.

Calculation of Index: 1) Individual DMFT: Total each component i-e. D, M and F separately, then total $D+M+F= DMFT$

2) Group Average: Total D, M, F for each individual, the divide the total DMF by a number of individuals in the group i-e average $DMFT= \text{total DMFT} / \text{total no. of subjects examined}$.

ORAL HYGIENE STATUS:

The Community Periodontal Index (CPI) was introduced by WHO for measurement of oral hygiene status and provide profiles of periodontal health status in countries and to enable to plan various intervention programs for effective control of the periodontal disease.^{9, 10} In addition, it might be helpful in the surveillance of oral health at the country and international levels. Although CPI index is the mean of assessing the extent and severity of the periodontal disease,¹¹ it has been widely used for descriptive periodontal epidemiologic studies and needs assessment in developed and developing countries.

CPI scores:

Score 0 = healthy periodontal conditions;

Score 1 = gingival bleeding;

Score 2 = gingival bleeding and calculus;

Score 3 = periodontal pockets (shallow) (4 to 5 mm);

Score 4 = periodontal pockets (deep) (6 mm).

The most extreme score or indication of periodontal infection (CPI score 4) fluctuates worldwide from 10% to 15% in grown-up populaces; nonetheless, the most common score in all locales is CPI score 2 (gingival draining and math), which fundamentally reflects helpless oral hygiene.^{9, 10} Considerable contrasts in the event of periodontal ailment are found by urbanization. The effect of socio-environmental factors was reminiscent of particular profiles of periodontal sicknesses seen in population living in certain geographic regions.¹²

The Community Periodontal Index (CPI) had been used as follows:¹³

Good oral hygiene = score 1, Average oral hygiene = score 2, Poor oral hygiene = score 3

SOCIOECONOMIC STATUS (SES):

There were different alternatives for characterizing socio-economic groups. One of them comprised of utilizing per capita GNP to frame gatherings, so that inner homogeneity is maximized.¹⁴ The methodological alternative had been to utilize to measure the effect of socio-economic status on health. Proportions of impact depend on fixed classes of the socio-economic variable (e.g., e.g., primary schooling versus university education). Measures of impact, conversely, use classes characterized by a socio-economic indicator quantifiable in population terms (e.g., e.g., highest income quintile versus lowest income quintile), so that if the dissemination of the marker changes, the estimation of imbalance additionally got modified.¹⁵

Low SES: monthly earning of < Rs.6000, **High SES:** monthly earning of > Rs.50,000 and **Middle SES:** monthly earning between Rs.6000- 50,000

PRESENCE OF DENTAL CONSIDERATION:

The points were to estimate dental treatment needs also, to relate various background factors such as, the quantity of dental administrations accessible, socio-economic status, and education level in seeking for dental treatment needs.

RESULTS:

Comparison of mean D, M and F status revealed a high tendency towards decayed teeth 3.55, while 2.25 were missing and only 0.51 were filled in the study subjects. Mean DMFT score was found to be 4.52. Mean DMFT was high (2.95) among 12 years age group, followed closely (2.11) by 3-5 years. Patients in 6-8 years age group had DMFT (1.85). However, patients of 9-11 age groups showed 1.76 DMFT. In males, DMFT score was found to be (1.97) as compared to females with 1.95, it showed a trend towards slightly higher prevalence in females, as compared to males. High DMFT (1.99) was found in patients belonging to low SES. Results were found to be statistically significant (p-value<0.01) in showing predominant DMFT (2.00) in patients with poor oral hygiene as compared to average (1.76) and good oral hygiene (1.87). The absence of facilities denoted an increased DMFT (1.93) as compared to the presence of facilities (1.89). The result was statistically significant (p-value 0.04).

TABLE 1: COMPARISON OF MEAN DMFT SCORES WITH AGE GROUPS

| AGE (YEARS) | FREQUENCY(N) | MEAN±SD | F-VALUE | P-VALUE |
|-------------|--------------|-----------|---------|---------|
| 3-5 | 98 | 2.11±0.22 | 1.832 | 0.25 |
| 6-8 | 56 | 1.85±0.12 | | |
| 9-11 | 69 | 1.76±0.23 | | |
| 12 | 77 | 2.95±0.11 | | |

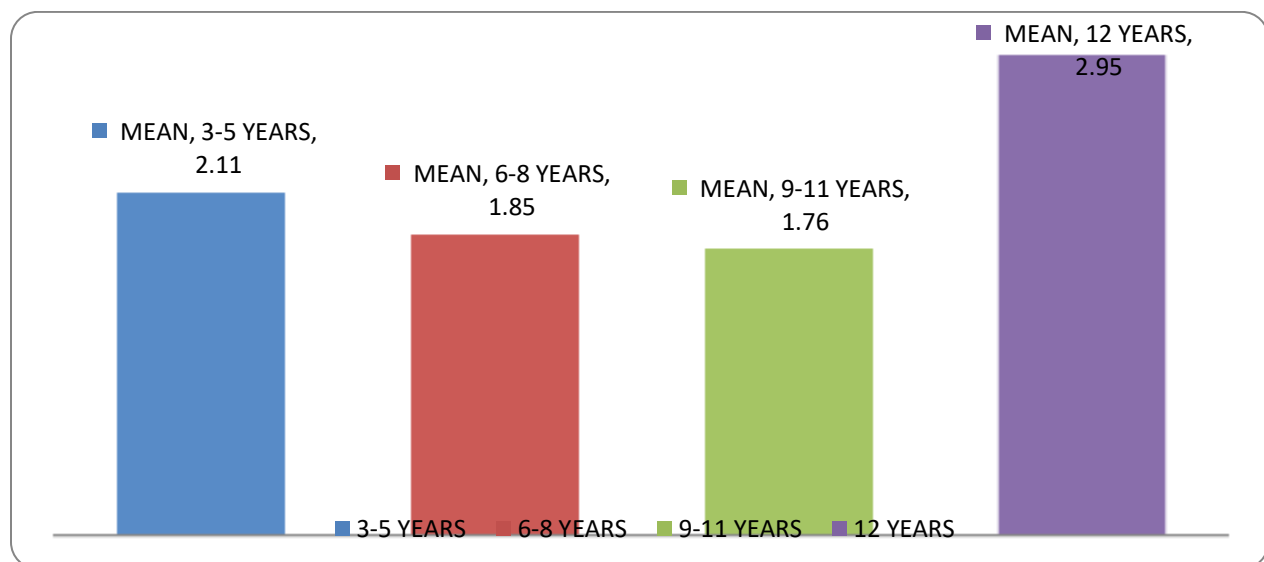


TABLE 2: COMPARISON OF MEAN DMFT WITH GENDER

| GENDER | FREQUENCY | MEAN±SD | T-VALUE | P-VALUE |
|--------|-----------|-----------|---------|---------|
| MALE | 180 | 1.97±0.23 | 0.34 | 0.56 |
| FEMALE | 120 | 1.95±0.19 | | |

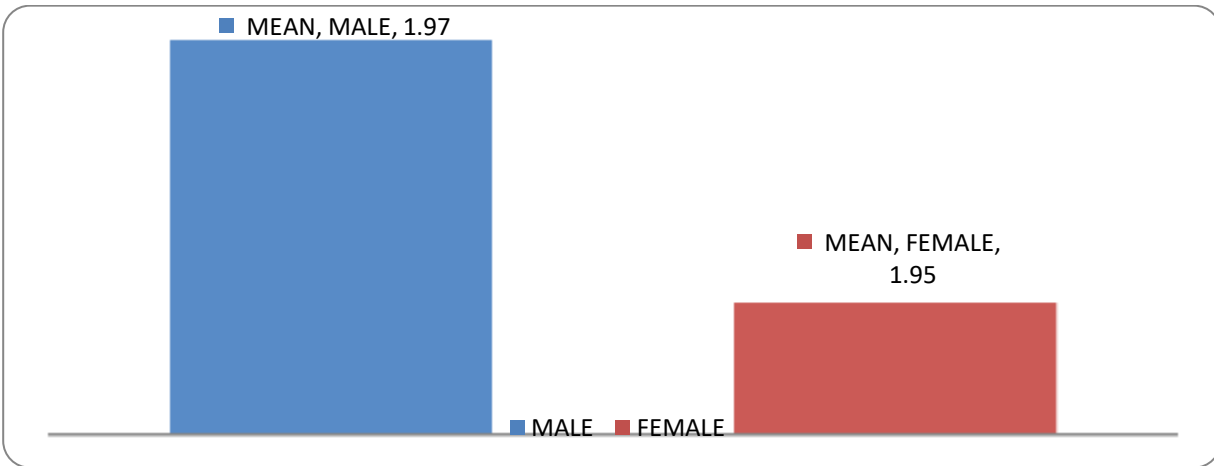


TABLE 3: COMPARISON OF MEAN DMFT WITH SOCIO-ECONOMIC STATUS

| SES | FREQUENCY | MEAN±SD | F-VALUE | P-VALUE |
|--------|-----------|------------|---------|---------|
| HIGH | 89 | 1.93±0.26 | 2.28 | 0.12 |
| MIDDLE | 90 | 1.83±0.129 | | |
| LOW | 121 | 1.99±0.30 | | |

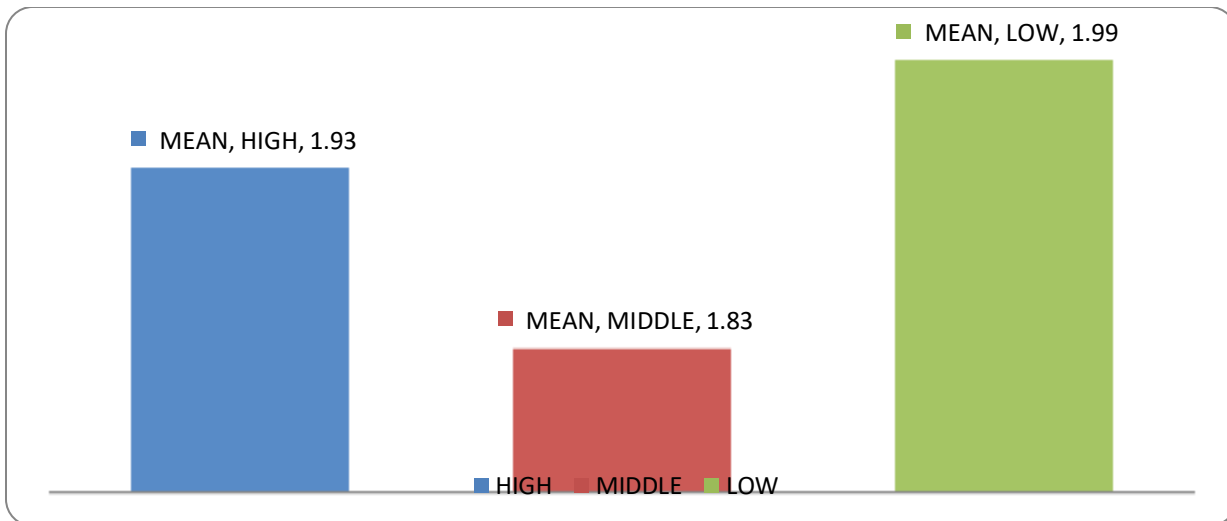


TABLE 4: COMPARISON OF MEAN DMFT WITH ORAL HYGIENE STATUS (OHS)

| OHS | FREQUENCY | MEAN±SD | F-VALUE | P-VALUE |
|---------|-----------|-----------|---------|---------|
| GOOD | 29 | 1.87±1.26 | 16.83 | 0.01 |
| AVERAGE | 118 | 1.76±1.02 | | |
| POOR | 153 | 2.00±0.22 | | |

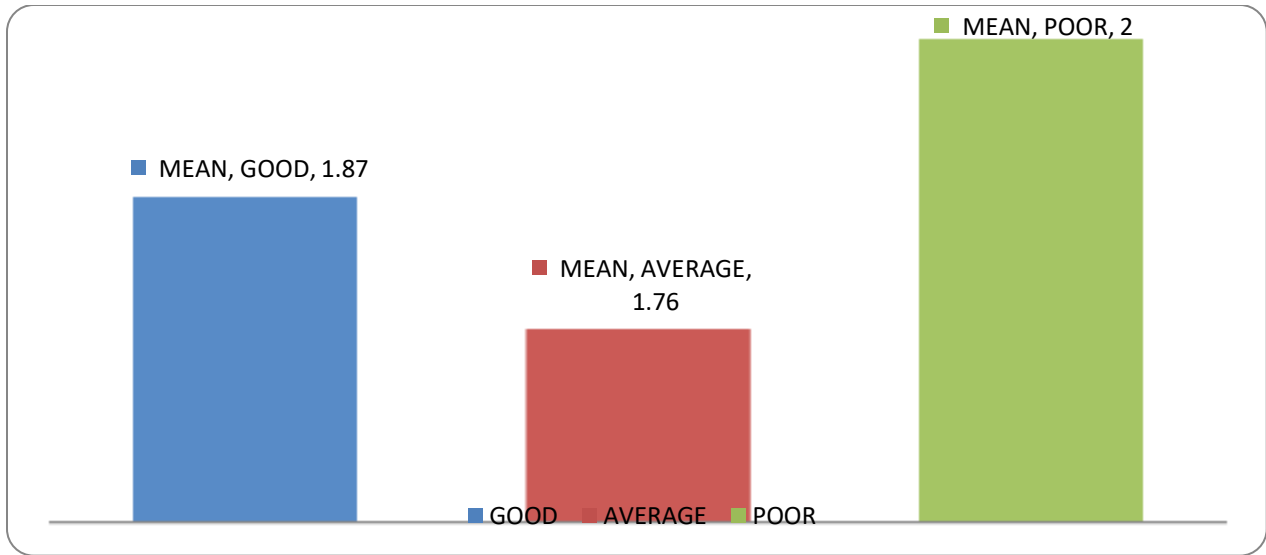
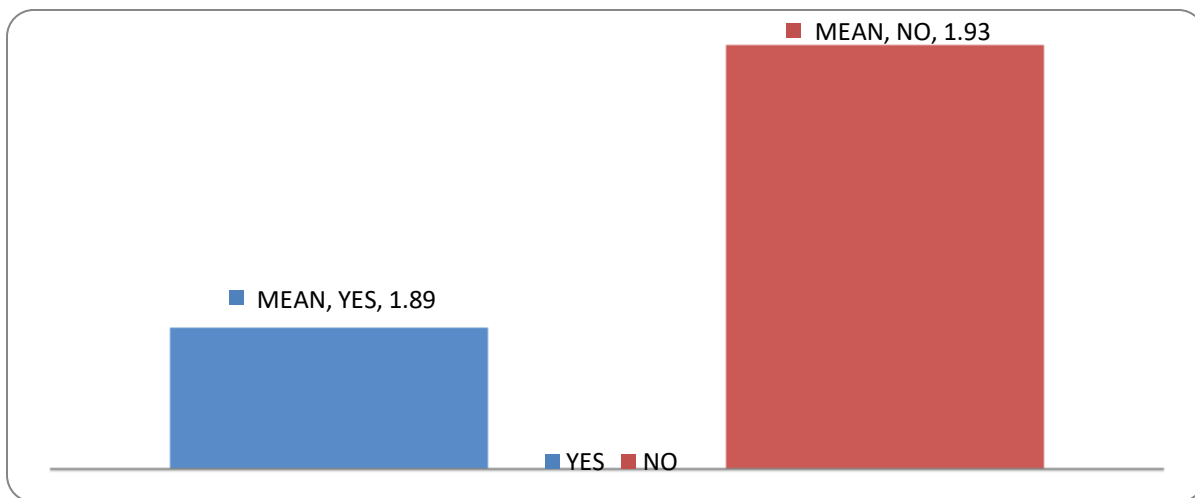


TABLE 5: COMPARISON OF MEAN DMFT WITH DENTAL FACILITIES AVAILABLE

| DENTAL CARE | FREQUENCY | MEAN±SD | T-VALUE | P-VALUE |
|-------------|-----------|-----------|---------|---------|
| YES | 122 | 1.89±0.12 | 4.17 | 0.04 |
| NO | 178 | 1.93±0.27 | | |



DISCUSSION:

Oral healthcare has advanced strikingly in most developed nations because of different fast advances in the field of preventive dentistry. In developing nations and particularly in the underprivileged group's oral diseases are on the expansion. This can be because of restricted admittance to dental consideration, innovation furthermore, professional capability. This investigation endeavored to discover the commonness of caries and the conceivable relationship between different elements that can influence the caries status of the population. The accessible half of the kids between the ages of 12-15 years were without caries, however on the negative side 97% of all carious sores were untreated.^{16,17} In this examination results were like the recently revealed

information. Decayed teeth were prevalent with Mean DT score (3.55), while the Mean MT score for missing teeth was (2.25) and the filled segment MF score was (0.51). The negligence and all out absence of treatment were obvious in all age gatherings. This finding likewise associates with the absence of dental consideration offices, particularly for individuals in the low-pay gathering. Examination of Mean DMFT with an age of the tolerant indicated patients inside the age scope 12, made the most prominent group being influenced via caries with a mean DMFT score (2.95). Another striking finding was increased mean DMFT score (2.11) among patients age 3-5. This finding is similar to other studies in which the requirement for dental treatment was most prominent among grown-

ups.^{18,19} It's been anticipated that needs increase with population growth as the teeth are held longer. The hindrances referenced were the expense of treatment, dread of the dental specialist, idleness and the inclination that they thought not trouble the dentist.¹⁹ Patients between 9-11 years indicated mean DMFT (1.76), a marginally low score when contrasted with above age gatherings. Every one of these discoveries is predictable in demonstrating a high score of decayed and missing teeth when contrasted with filling.²⁰⁻²¹ The ongoing most pathfinder study was done in 2004.²² According to this study the DMFT scores for 12-year-old, 15-year-old, long term old and 65 a long time old were 1.38, 1.94, 8.02 and 17.73 respectively.²³ Our outcomes were pretty the equivalent with high mean DMFT scores in grown-ups and the older populace when contrasted with youthful and youthful adults.^{16,22} Another intriguing finding was that the males group had a more significant level of caries with mean DMFT score (1.97) as analyzed to females (1.95). These outcomes are predictable with the studies done in America and Europe, however the studies done in India portray that guys have a higher DMFT score.^{21,22} This distinction has been credited to the earlier eruption of teeth in females, however this clarification is difficult to help when the studies are seen in more established age groups. As referenced before, it's difficult to state anything on this distinction of results from the remainder of the world, as more overviews and comprehension of this ailment design is required in our populace. In this investigation, 300 children patients were analyzed, taken haphazardly. Consequences of this investigation indicated 40% of the patient looking for treatment for dental caries had a place with the lower class, while 30% had a place with the middle and 29.7% had a place with the high society. This shows a high pattern of caries towards lower socio-economic.²⁴⁻²⁸ The mean DMFT score in the low financial status group was (1.99). In middle SES it was (1.83), while in high socio-economic status it was (1.93). Individuals from the low socio-economic group had somewhat high DMFT scores when contrasted with others. These outcomes indicated a pattern towards studies in which no huge distinction was found between social classes and the impact of diet on caries prevalence.^{22,5,19} In this investigation patients with poor oral cleanliness had a more noteworthy mean DMFT score of (2.00), followed intently by average oral hygiene group (1.76). The good oral hygiene group had a (1.87) score. These outcomes were like those detailed in other studies.^{29, 30, 31} Results indicated a higher mean DMFT (1.93) in patients who didn't have had any dental consideration offices when contrasted with different gatherings in which the mean DMFT was (1.89). Results were factually

high and demonstrated an increase need of dental care offices. Aside from that, it likewise demonstrated an absence of awareness with respect to the understanding for looking for dental treatment.^{32,33,34}

CONCLUSION:

Inside its impediments, this investigation gives important data on the caries pervasiveness and related hazard factors in the population. Oral hygiene practice, dietary propensities and admittance to dental consideration administrations assumed a significant function in the pervasiveness of dental caries. It was seen that the socio-economic status, parent's educational status furthermore, broad communications affected oral health care however without a critical commitment. Individuals having a place with low SES don't get adequate data on oral healthcare related maladies and strategies for their anticipation. It recommends an approaching requirement for dental consideration offices, particularly in the oppressed population.

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