

Knowledge on Influence of DMFT index on gender equality – A cross sectional study

Srivarsha Ranjeet¹, Dr. Mahesh Ramakrishnan*²

¹Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai-600077

²Department of Paediatric Dentistry, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai-600077

Email: 152001100.sdc@saveetha.com, maresh.sdc@saveetha.com

Abstract:

Introduction: The decay-missing-filled (DMF) index, also known as the decayed, missing, and filled teeth (DMFT) index, is a commonly used method in oral epidemiology to assess the prevalence of dental caries and the need for dental treatment in populations. The Decayed, Missing, and Filled Teeth (DMFT) index has been used since the 1930s and is now the most widely used measure of tooth decay worldwide. This index calculates the total number of decayed, missing, and filled permanent teeth for an individual. **Materials and methods:** The Retrospective study was conducted in Saveetha Dental college, Chennai from Jun 2022 to May 2023. A total of 100 patients Data were collected covering oral health Conditions, demographic details, oral health practices and knowledge. The factors of poor oral hygiene practices and poor oral health conditions were examined. **Results and discussion:** Of the total participants 55% were females. The total decay score was higher among those who did not have knowledge that fluoride prevents decay compared to those who had knowledge about it. Females were more likely to have higher DMFT scores compared to males. **Conclusion:** Being female students and those having lower level of knowledge on oral health attributed to higher DMFT index. Periodic dental check-up coupled with oral health education on regular brushing, use of fluoridated paste, tongue cleaning and care of gum diseases are recommended in schools.

Keywords: Knowledge, Influence, DMFT, Gender equality

Introduction:

The decay-missing-filled (DMF) index, also known as the decayed, missing, and filled teeth (DMFT) index, is a commonly used method in oral epidemiology to assess the prevalence of dental caries and the need for dental treatment in populations (1). This index has been in use for approximately 75 years. It involves a clinical examination of individuals using a probe, mirror, and cotton rolls to count the number of decayed, missing (due to caries only), and restored teeth (2). The Decayed, Missing, and Filled Teeth (DMFT) index has been used since the 1930s and is now the most widely used measure of tooth decay worldwide. This index calculates the total number of decayed, missing, and filled permanent teeth for an individual. For example, if someone has two decayed teeth, three filled teeth, and one missing tooth, their DMFT score would be 6 (3). It's important to note that the DMFT score only counts the number of affected teeth and does not indicate the number of healthy teeth or the risk of developing tooth decay(4). Additionally, the DMFT score does not differentiate between different types of tooth problems or the reasons for tooth loss, so its accuracy is limited. The index includes all teeth except for third molars, so for adults, the DMFT score can range from zero to 28, and the DMFS score can range from zero to 128 (with molars and premolars having 5 surfaces and incisors and canines having 4 surfaces). The DMFT index takes into account both restored and missing teeth, as well as decayed teeth (5). Once a DMFT score is determined, it cannot decrease (6). When calculating population-based measures, the sum of all DMFT scores is divided by the total number of individuals in the sample. It's important to note that DMFT counts are often heavily skewed, with a majority of individuals having a score of zero, so linear models are generally not appropriate when using DMFT as a dependent variable (7). The count of DMFT is a variable that depends on other factors. While the DMFT can show both current and previous instances of tooth decay, individual variables such as decayed, missing, and filled teeth can be distinguished during data collection. One limitation is that the DMF treats decayed and well-restored teeth equally(8). The DMFT index has specific rules for scoring each tooth or surface. Each tooth (DMFT) or surface (DMFS) is only counted once, and decayed teeth take priority over filled teeth, even if the decay is secondary. The primary dentition, which consists of a maximum of 20 teeth, follows a similar approach (9). The "d" and "f" in the def represent decayed and filled primary teeth, while the "e" represents extracted or to-be-extracted teeth (10). The DMF is commonly used before teeth start to fall out, while the df is used after exfoliation begins(11). It is important to cite the specific index used when comparing data on the primary dentition (12). However, the DMFT score may be inflated because it assumes that all missing teeth and restorations are due to tooth decay, even if they are caused by trauma, orthodontic extractions, periodontal disease, esthetic reasons, preventive resin restorations, or early lesions that could have been remineralized(11,13,14). In addition to the overall measurements, other useful information can be derived from the DMF (15). The proportion of the population with no tooth decay (DMF=0) is often used to describe the concentration of caries burden in a specific subgroup(16). Dental professionals can differentiate between decayed and filled teeth within the DMF(17,18). Separating the data provides a better understanding of the current burden of tooth decay and past history(19–21). However, the DMF does not accurately indicate the need for treatment (22). The proportion of the DMF that represents decay (D/DMF) can be used as an estimate of unmet treatment needs, while the proportion of the DMF that is filled (F/DMF) can be seen as a measure of access to dental care.

Materials and Methods :

This study was a cross-sectional descriptive-analytic study conducted in saveetha dental college. The estimated sample size was 100 people, and finally, the required data were collected from DIAS of Saveetha Dental college.

The following data of each patient's demographic information, insurance coverage status, socioeconomic status (SES), frequency of brushing during a day, frequency of the use of dental floss during a day, and frequency of the use of fluoride mouthwash during a day were collected.

The DMFT score of the samples were determined based on the results of clinical examination and calculation of the number of decayed (D), filled (F), and missed (M) teeth due to caries. From the data collected through observation and direct examination of the samples, the results were recorded.

Results:

Of the total participants 55% were females and 45% were males. The total decay score was higher among those who did not have knowledge that fluoride prevents decay compared to those who had knowledge about it. Females were more likely to have higher DMFT scores compared to males.

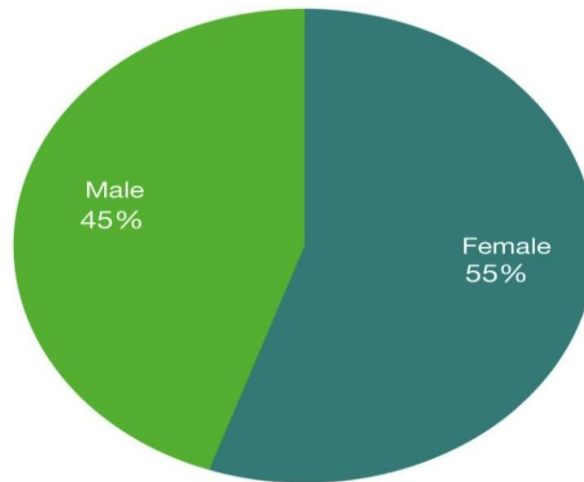


Figure 1 : Pie chart shows scores on DMFT index by males and females. Light green represents males and Dark green represents females. Among these DMFT of females (55%) increases when compared to males (45%).

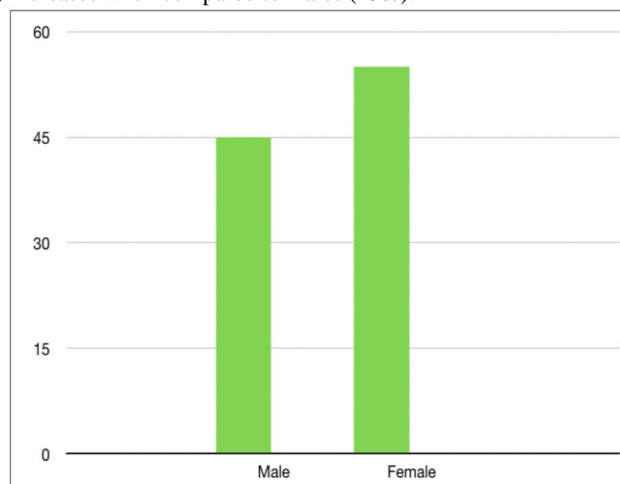


Figure 2 represents the scores obtained for DMFT index among males and females. Bar graph depicts the association between males and females. The X axis represents male and female groups and the Y axis represents scores obtained by male and female groups.

Discussion :

The reasons for the high DMFT index include lack of attention to oral health by families, limited financial accessibility due to inadequate insurance coverage, and insufficient government support for community-based oral health promotion programs(23). Factors such as frequency of dental floss use, socioeconomic status, parental education, frequency of brushing, use of mouthwash, marital status, age group, insurance status, and individual education all influence the DMFT index (24).

Individuals with higher levels of education tend to have better DMFT scores. Education, both for individuals and parents, has consistently been found to impact individual health.

Academic education is associated with improved economic status and health literacy, highlighting the need for better access to oral care services (25). In Mexico, lower education levels have been linked to poor dental health. Similar associations between lower education and adverse health outcomes have been reported in other studies.

The study findings also show that the DMFT index tends to worsen with age and gender.

As people age, the number of decayed, missing, and filled teeth typically increases. Comparing males and females , the number of decayed,missing and filled teeth increases in females. Therefore, the World Health Organization sets a higher DMFT index for older individuals. Other studies have also found a relationship between older age and poorer oral health status.

Good oral health habits, such as regular brushing, flossing, and using mouthwash, have a positive impact on the DMFT index(26). Numerous studies have shown the benefits of these habits on oral and dental health. In contrast, poor oral health habits increase the risk of oral infections and contribute to a more unfavourable oral health status (27). Additionally, behaviours like maintaining a balanced diet and regularly visiting the dentist are associated with a reduced risk of tooth decay.

Conclusion:

Being females and those having lower level of knowledge on oral health attributed to higher DMFT index. Periodic dental check-up coupled with oral health education on regular brushing, use of fluoridated paste, tongue cleaning and care of gum diseases are recommended in schools and remote areas. In contrast, poor oral health habits increase the risk of oral infections and contribute to a more unfavourable oral health status. Additionally, behaviours like maintaining a balanced diet and regularly visiting the dentist are associated with a reduced risk of tooth decay.

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