Dentition Status, Treatment Needs and Dental Aesthetic Index Scores of Individuals Attending Special Schools

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Introduction
Dentists today are more familiar with the subject of individuals with special health care needs although very few with this condition seek their services. Dental caries is the most prevalent oral disease among children in most of the developing countries. Disabled individuals tend to have a higher incidence of dental caries as a result of inadequate plaque removal due to motor, sensory and intellectual disabilities. Malocclusion too affects oral health and increases caries prevalence. Data on prevalence of dental caries, malocclusion and treatment need among those with special needs in India is scarce. Locally relevant data are needed for designing effective oral health preventive programmes for these individuals. Hence, this study conducted to: (1) determine their dentition status and treatment need using World Health Organization (WHO) criteria, and (2) evaluate for the presence of dentofacial anomalies according to Dental Aesthetic Index (DAI) criteria.

Materials and Methods
A cross-sectional study was undertaken from September 2009 - January 2010 at schools for the disabled in Mangalore. Survey administration: There are five special schools for the disabled in Mangalore. Institutional authorities of three schools accorded consent for conducting the survey. In the absence of parental consent, the Head of Institution’s deemed consent was accepted. Ethical clearance was granted by the Institutional Review Board.

Data collection
A pre-tested proforma was used for recording socio-demographic variables and oral status. Oral examinations were performed by two trained and calibrated examiners, with the assistance of recording clerks, under natural daylight with subjects seated on simple chairs. Before the survey, they participated in training and calibration exercises. Kappa values for inter- and intra-examiner reliability ranged between 0.80 and 0.84.

Dental caries [Dentition Status and Treatment Need] and malocclusion (according to components of DAI) were recorded according to the WHO, 1997 criteria. Investigators made multiple visits to the institutions to ensure examination of all enrolled individuals.

After examination, a report on oral status of each subject was handed over to the institutional authorities and the subjects’ parents. Arrangements were made to provide free dental care for those requiring treatment. Caregivers at the schools were educated about oral hygiene maintenance.

Statistical analysis
Data obtained were analyzed using the SPSS Version 17.0. Differences in proportions between genders were compared using the Chi squared ($\chi^2$) test, Fisher’s exact test and Mann-Whitney U test. A $P$ value of <0.05 was considered to be statistically significant.
Results

Coverage

Of the 281 enrollees, 19 individuals who were severely disabled or refused examination were excluded from the study [participation rate = 93.2%]. The sample consisted of 156 male (59.5%) and 106 female (40.5%) subjects in the age range of four to 40 years (mean age 13.06 ± 4.62 years).

Dental caries prevalence

75.19% subjects had dental caries of which 64.12% lesions remained untreated, 6.12% teeth had been extracted and 4.96% teeth had restorations. Mean DMFT was 2.61 ± 2.90 (males: 2.46 ± 2.87, females: 2.83 ± 2.96; \( P = 0.223 \)). Mean number of decayed teeth was 2.35 ± 2.63 (males: 2.24 ± 2.72, females: 2.50 ± 2.49; \( P = 0.183 \)); mean number of missing teeth was 0.14 ± 0.74 (males: 0.10 ± 0.48, females: 0.19 ± 1.01; \( P = 0.764 \)); and mean number of filled teeth 0.12 ± 0.69 (males: 0.12 ± 0.74, females: 0.13 ± 0.62; \( P = 0.659 \)).

Tables 1 and 2 show the distribution of subjects according to gender and the number of decayed and filled teeth, respectively. Evaluation of the number of missing teeth among subjects revealed that 4.6% had 1–2 missing teeth while 1.5% had ≥3 missing teeth (\( P = 0.922 \)).

Need for ‘one surface filling’

16% needed one, 14.5% needed two, 9.5% needed three, 3.8% needed six, and 2.3% needed ≥7 one surface fillings, respectively (\( P = 0.835 \)).

Need for ‘two or more surface fillings’

4.6% subjects needed one ‘two or more surface fillings’ while 5% needed two ‘two or more surface fillings’ (\( P = 0.456 \)).

Need for ‘pulp care and restoration’

Was found among 1.9% subjects (\( P = 0.651 \), Fisher’s exact test).

Need for ‘extractions’

7.3% subjects needed one, 5% subjects needed two, and 3.1% subjects needed four extractions, respectively (\( P = 0.382 \)).

Need for ‘crown for any reason’

1.1% subjects needed a single crown while 2.3% subjects had two teeth that required crowns (\( P = 0.405 \)).

‘Need for other care’ (i.e., partial dentures)

3.4% required a one-unit prosthesis, 1.5% needed multi-unit prostheses, and 1.5% required a combination of one- and/or multi-unit prostheses (\( P = 0.947 \)).

Prevalence of malocclusion

The DAI is used from 12 years of age. Therefore, in this study, DAI criteria were applicable only to 164 subjects [Table 3]. Prevalence of definite to very severe malocclusion was 23.2%, which was the orthodontic treatment need.

Discussion

Coverage

The male predominance encountered seen here has also been reported by Denloye et al. and Simon, et al.

Dental caries prevalence

It was similar to that reported by Rao, et al., but higher than reported by Bhowate, et al. Decayed component constituted a major part of the DMFT scores. Mean DMFT was higher than reported by Oredugba, et al., comparable to the findings of Nallegowda, et al., but lower than found by Rao et al., and Jokic et al. Caries free subjects (\( n = 65 \) ) numbered less than reported by Oredugba, et al., and Ajami, et al. In contrast to this study, Simon, et al. found that none of their subjects had filled teeth.

\[\text{Shenoy, et al.: Oral status of enrollees at special schools}\]
Need for restorations/pulp care/extractions

Oredugba, et al.\(^{(4)}\) reported that 33.3% subjects required fillings while Simon, et al.\(^{(10)}\) found that 23% required mainly one and two surface fillings, higher than found here.

Prevalence of malocclusion

It was lower than reported by Oredugba, et al.\(^{(4)}\) Bhowate, et al.\(^{(7)}\) Ajami, et al.\(^{(10)}\) and Nallegowda et al.\(^{(9)}\) Al-Sarheed et al.\(^{(8)}\) found an orthodontic treatment need of 20-30% while Oredugba, et al.\(^{(4)}\) found that 7.4% subjects required orthodontic treatment.

Conclusion

The three institutions surveyed were privately managed and patronized by individuals from upper and middle class families. Still, a high prevalence of unmet need existed among the study population. These findings underscore the need for detailed local research on feasible and effective oral disease control programmes for the disabled.

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