

Abstract

Prevalence of malocclusion among children, the perceived impact and the knowledge on malocclusion provide useful background information that can aid in future planning for the provision of orthodontic treatment.

A cross sectional descriptive study was undertaken to assess the prevalence of malocclusion in a representative sample of children aged 12 and 15 from school population in Gampaha District. Prevalence of malocclusion was obtained by using Dental Aesthetic Index. Information on knowledge and perceived impact of malocclusion was obtained using a self administered questionnaire, which was developed and validated using measures of content validity and internal consistency. In addition orthodontic material expenditure was calculated in a sub sample of treated children in the university setting.

The prevalence study comprised of 526 twelve year old children and 540 fifteen year old children. Most of the children, (72%) of the 12- year-olds and (70%) of the 15-year-olds had no malocclusion or minor malocclusion which do not require orthodontic treatment. There were 16%(0.16, CI=0.191-0.129) of 12- year-old children and 14%(0.14, CI=0.169-0.111) of 15-year-old children had definite malocclusion where treatment considered as elective and there were 4% (0.04, CI=0.054-0.023) of 12-year-old children and 7% (0.07 CI= 0.083-0.061) of 15-year-old children had severe malocclusion where treatment considered as highly desirable. Only 7.8% (0.078, CI=0.745-0.695) of 12 year-olds and 8.7%(0.087, CI=0.114-0.066) of 15-year-olds had handicapping malocclusion that needed mandatory treatment.

Malocclusion levels, as defined in this study were not significantly associated with location of the school, sex, and parent's occupational status. The mean DAI score for 12 year old children was 22.94 ± 7.93 and the mean DAI score for 15 year-old children was 24.13 ± 8.66 . There was no significant difference in the mean DAI score for 12 and 15 year old children ($P > 0.05$).

The results of the individual variables of DAI showed missing teeth occurred only 0.6% and 1.9% among 12 and 15 year old children respectively. There were 39.5% of 12 year olds 46% of 15 year olds had crowding in the incisal segment and spacing was present among 17% of 12 year old and among 21% of 15 year olds. Maxillary midline diastema was present among 9.5% of 12 year olds and 11.7% of 15 year old children. Anterior maxillary irregularity was present in 24% and 22% of 12 and 15 years old children respectively. Mandibular irregularity was present in 29.1% and 63% among 12 and 15 year olds respectively. There were 21.8% of 12 years and 18.8% of 15 years had over jet more than 3mm. Mandibular over jet was present among 6.7% of 12 year olds and 6.9% of 15 year old children which is considered as a great treatment need. Open bite was present among 1.5% and 3.1% in 12 and 15 year old children respectively. There were 80.8% and 65% of 12 and 15 year old s respectively had normal antero posterior molar relationship

When considering different DAI components, significant association was found between diastema and sex among 12 year old children. A further significant association was seen between antero posterior molar relationship and sex among 15-year old children ($P < 0.05$).

The study revealed a significant relationship between age and the scores of following DAI components; crowding, anterior irregularity mandible and antero posterior molar relationship ($P < 0.05$).

Standardized score was developed for knowledge scores and impact scores. As the scores were highly skewed, quintiles were used to group the children by their knowledge and perceived impact. Children were ranked according to their total score and divided into four quintiles (as knowledge very poor, poor, good very good and impact very low, low, high, very high). Knowledge level was significantly associated with DAI severity levels ($P < 0.05$) among 15 year old children and this was not seen among 12-year-old children.

Impact of malocclusion was significantly associated with the location of the school, fathers' employment status and DAI ($P < 0.05$) severity among 12-year-old children. Among the 15-year-olds impact of malocclusion was significantly associated with sex and DAI severity ($P < 0.05$). DAI severity level among 12-year-old children was significantly associated to satisfaction with the own arrangement of teeth, getting comments by others, getting teased and avoid smiling. It was further significantly related to cover face when smiling, worried due to malocclusion, avoid social function and difficulty in brushing. Among the 15-year-old children DAI severity was significantly associated to above all variables and it was further associated to difficulty in biting and difficulty in speaking.

Impact of malocclusion was found to be significantly associated with diastema and maxillary irregularity among 12 year old children. It was observed the impact

of malocclusion among 15-year-old children was significantly associated to crowding in the incisal segment, maxillary irregularity, mandibular irregularity, maxillary over jet, and mandibular over jet.

The present study looked into the orthodontic material expenditure for 50 treated orthodontic patients in the University orthodontic clinic. The mean expenditure estimated for an orthodontic patient treated using removable appliance was Rs. 1230.74 (SD \pm 750.31) and the mean expenditure for a patient treated by using fixed appliance was Rs.9224.71 (SD \pm 3460.28).

In conclusion this study provide base line data on the prevalence and severity of malocclusion among 12 and 15-year-old children in a selected District. It further provides data on the level of knowledge on malocclusion and perceived impact of malocclusion. The finding will be useful to assess service need of malocclusion among children of 12 years and 15 years of age, and to plan the future service programme.