Orthodontic awareness amongst middle school teachers and parents of twin cities
Asma Mansoor, Mishaal Arshad Kasana, Rozina Nazir, Tania Arshad Siddiqui, Saad Mansoor, Shoaib Rahim

Abstract
Objective: To compare the level of awareness towards orthodontic treatment among parents and teachers of middle school children.
Method: The cross-sectional study was conducted from July 2021 to May 2022 in the middle schools of Rawalpindi and Islamabad, Pakistan, after approval from the ethics review committee of the Foundation University College of Dentistry and Hospital, Foundation University, Islamabad. Those included were middle school teachers and parents of students studying in middle schools. Data was collected using a validated questionnaire that had 6 demographic and 5 survey questions. The form was digitized for easy dissemination among parents. Data was analysed using SPSS 23.
Results: Of the 240 subjects, 120(50%) each were parents and teachers. Overall, there were 165(68.75%) females and 75(31.25%) males. Level of education and professional exposure were not significantly different between teachers and parents (p>0.05). There was no difference in the level of education and professional work experience between the parents and teacher (p>0.05). Teachers showed a higher level of awareness than parents towards the role of orthodontist in tooth alignment (p=0.013), associated habits with malalignment of teeth (p=0.003), and that the most appropriate age for treatment was 10-15 years (p≤0.001). Teachers were more likely of the opinion that facial disharmony is treatable than parents (odds ratio: 1.599, 95% confidence interval: 0.572-4.467).
Conclusion: Teachers showed a higher level of awareness than parents regarding orthodontic treatment of children.
Keywords: Awareness, Orthodontics, Middle school Teachers, Parents, Attitude. (JPMA 74: 480; 2024)
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Introduction
Orthodontics is a specialty of dentistry that addresses the diagnosis, prevention, correction of malocclusion, and modification of facial growth. Malocclusion affects quality of life, and studies have shown a positive correlation between oral health related quality of life (OHRQoL) and malocclusion.1 Studies have found that Grade 4 Index of Orthodontic Treatment Need-Dental Health Component (IOTN-DHC) highly influences OHRQoL2 and that patients who seek orthodontic treatment experience an improvement in overall quality of life.3

Children in middle school spend most of their time with teachers and parents, and orthodontic awareness among these groups can help in identifying developing malocclusions.4 It has been shown that counselling by teachers for oral health promotion has a positive impact on behaviour of children.5 This is important for middle school children as they are experiencing changes in their physical and biological self that impact their self-esteem.

The relationship between teachers and orthodontic awareness has been seldom investigated. Questionnaire-based studies conducted among teachers in Iran and southern India found that teachers believed that orthodontic treatment should commence at an early age.6,7 According to Bhadauria et al.,8 teachers were of the opinion that malocclusion affects a child’s personality. After parents, teachers play an important role in shaping the personality of a child. Children in middle school are at an important stage of personality development through acceptance among their peers. Teachers play a crucial role at this stage as they are able to observe the acceptance of children among their peers. They can facilitate and help students by educating parents to seek treatment when needed.

The current study was planned to compare orthodontic awareness among middle school teachers and the parents of children studying in middle schools, and to correlate the level of awareness with their respective level of education.

Subjects and Methods
The analytical, cross-sectional study was conducted from July 2021 to May 2022 in the middle schools of Rawalpindi and Islamabad, Pakistan, after approval from the ethics review committee of the Foundation University College of Dentistry and Hospital, Foundation University, Islamabad.
Data was collected using a modified version of the questionnaire used earlier in a study. The original questionnaire consisted of 17 questions divided into 3 sections, while the modified questionnaire contained 15 questions divided into 2 sections; 6 demographic questions and 9 survey questions related to orthodontic awareness. The demographic questions focused on the gender of the participants, occupation, education level, and work-related data. The survey questions assessed basic knowledge regarding orthodontics (Annexure 1). The questionnaire was validated for content by two dentists and one orthodontist. A pilot study with 30 participants was conducted for reliability of the questionnaire. Cronbach's alpha test was used. Item, scale and inter-item analysis using correlations were done to identify the best questions for the research tool. The Cronbach's alpha improved from 0.36 to 0.60. The final questionnaire consisted of 6 demographic and 5 survey questions. This was comparable to the original tool which had Cronbach's alpha value 0.62.

### Results

Of the 240 subjects, 120 (50%) each were in the parent and teacher groups. Overall, there were 165 (68.75%) females and 75 (31.25%) males. Among the mothers, there were 37 (53.6%) housewives, while among the fathers, 28 (54.9%) were working in the private sector. The highest level of education among the males was postgraduate (49.7%) and females (49.7%) was postgraduate. The professional experience among the males exceeded 20 years in 44 (59%) cases, while among the females it was ≤10 years in 42 (25%) cases and ≤5 years in 39 (24%) (Table 1). Level of education and professional exposure were not significantly different.

### Table 1: Descriptive data.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level</th>
<th>Female n (%)</th>
<th>Male n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parents</td>
<td>Government Employee</td>
<td>4 (5.8)</td>
<td>13 (25.5)</td>
</tr>
<tr>
<td></td>
<td>Healthcare professional</td>
<td>5 (7.2)</td>
<td>2 (3.9)</td>
</tr>
<tr>
<td></td>
<td>Housewife</td>
<td>37 (53.6)</td>
<td>0 (0)</td>
</tr>
<tr>
<td></td>
<td>Self employed</td>
<td>10 (14.5)</td>
<td>8 (15.7)</td>
</tr>
<tr>
<td></td>
<td>Private job</td>
<td>13 (18.8)</td>
<td>28 (54.9)</td>
</tr>
<tr>
<td>Teachers</td>
<td>Public Sector</td>
<td>47 (63.8)</td>
<td>13 (25.5)</td>
</tr>
<tr>
<td></td>
<td>Private Sector</td>
<td>49 (62.5)</td>
<td>13 (25.5)</td>
</tr>
<tr>
<td>Level of education</td>
<td>SSC</td>
<td>37 (22.4)</td>
<td>2 (6.2)</td>
</tr>
<tr>
<td></td>
<td>HSSC</td>
<td>7 (4.2)</td>
<td>2 (6.2)</td>
</tr>
<tr>
<td></td>
<td>Graduate</td>
<td>38 (23)</td>
<td>28 (37.3)</td>
</tr>
<tr>
<td></td>
<td>Post Graduate</td>
<td>82 (49.7)</td>
<td>40 (53.3)</td>
</tr>
<tr>
<td></td>
<td>Post doctorate</td>
<td>1 (0.6)</td>
<td>3 (4)</td>
</tr>
<tr>
<td>Professional work experience</td>
<td>N/A</td>
<td>33 (20)</td>
<td>- (--)</td>
</tr>
<tr>
<td></td>
<td>≤5 years</td>
<td>39 (24)</td>
<td>5 (7)</td>
</tr>
<tr>
<td></td>
<td>≤10 years</td>
<td>42 (25)</td>
<td>14 (19)</td>
</tr>
<tr>
<td></td>
<td>≤20 years</td>
<td>29 (18)</td>
<td>12 (16)</td>
</tr>
<tr>
<td></td>
<td>≥20 years</td>
<td>22 (13)</td>
<td>44 (59)</td>
</tr>
</tbody>
</table>

Parents showed more awareness than teachers that “alignment of teeth” is performed by orthodontists (OR: 2.310, p=0.396) and that orthodontic treatment should be done at the age of ≥20 years (OR: 7.543, p=0.006). Teachers, however, had better awareness than parents that “facial disharmony is treatable” (Table 4).

Discussion
The current study suggests parents’ contribution is the single most important factor in initiating orthodontic care. Earlier studies found moderate level of awareness among parents for orthodontic treatment. Improvement in aesthetics was reported as the main reason for pursuing orthodontic treatment by parents (87.2%).

Teachers have been shown to have an important role in oral health promotion. A study proposed teachers as individuals influencing children in every aspect, including oral health maintenance. Fair knowledge among teachers has been reported related to oral hygiene practices indicating that oral health maintenance should be a part of the curriculum in order to increase awareness among...
There was a lack of studies assessing baseline orthodontic and oral health knowledge levels between parents and teachers simultaneously. The current study tried to fill the gap in literature, suggesting that a collaborative approach involving parents and teachers can be used for timely orthodontic care to prevent the onset of malocclusion. Delays in orthodontic treatment can lead to severe skeletal discrepancies with limited or no treatment options.

Aldweesh et al. found that 79% parents expressed more orthodontic concern for their children as they believed it affected their personality. Other factors included the educational level of parents, and parents with a history of orthodontic treatment. A cross-sectional study in Iran assessed parental knowledge and attitude toward early orthodontic treatment for their primary school children, and showed that highly educated parents had a considerably better attitude and higher level of knowledge.

Similarly, education level may lead to differences in the experience, and knowledge of the teachers. The current results negated the correlation between education and the extent of awareness because there was no significant difference between teachers and parents regarding their level of education and professional experience.

The aetiology of malocclusion is influenced by several genetic and environmental conditions, including dietary consistency, tongue thrusting, and thumb-sucking which negatively contribute to dental arch dimensions. Teachers’ and parents’ knowledge regarding the implications of para-functional habits and their critical role in increasing awareness among children and adolescents can prevent malocclusion onset at the earliest age. In the current study, teachers were less likely than parents to have knowledge of the impact of para-functional habits on teeth malalignment.

The present study observed that 43.3% of the teachers thought that treatment should commence at age 10-15 years, unlike 27.5% of the parents. A research found that 52.8% of the teachers believed that treatment should commence at an early age as it reduces the treatment time and severity of the malocclusion. This is significant as delayed treatment can lead to deterioration of oral-tooth health and malocclusion.

Tabbaa et al. found that parents were of the opinion that orthodontic treatment can commence at any age, but in the current study, parents were 7 times more likely to be of the opinion that treatment should start at age 20 years and above.

The current study has its limitations. It was conducted in the twin cities of Pakistan, and the findings cannot be generalised to the whole population. The forms to be filled by the parents were taken home by the students. Although they were instructed to fill the forms independently, there was no method to ascertain if the instructions had been followed.

**Conclusions**

There was a discrepancy in the knowledge of orthodontic treatment between parents and teachers. Although the parents showed more awareness of the impact of orthodontic treatment, this was not statistically significant when compared to the teachers. Parents were more likely of the opinion that treatment should start after the age of 20 years. This is a cause of concern as delayed treatment of certain conditions may not always produce the desirable outcome.

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**References**


Author Contribution:
AM, MAK: Conceptualization, investigation, resources, writing, original draft preparation
AM and TAS: Methodology
TAS: Software, Project administration
AM, MAK, TAS and RN: Validation
TAS: Formal analysis
TAS and SM: Data curation
RN and SR: Writing, review and editing
AM: Visualization
RN: Supervision