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Psychosocial Impacts of Malocclusion among Adolescents in Kedah, Malaysia: A Qualitative Study

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ABSTRACT

Dental malocclusion can affect the psychological and social aspects of adolescents. However, the knowledge of this condition has been limited in the Malaysian population. This study aims to explore the psychosocial impacts of dental malocclusion among adolescents in Kedah state, Malaysia. A qualitative study was conducted at two public specialized dental clinics. Focus group discussion (FGD) and in-depth interview (IDI) were conducted among adolescents aged between 11 and 19 years, who received orthodontic treatment for moderate to severe dental malocclusion. All the FGD and IDI sessions were video-recorded, transcribed verbatim, and translated into English. The thematic analysis method was used for the data analysis. A total of 32 adolescents participated in six sessions of FGD and five sessions of IDI. Four themes emerged from the data analysis: (i) pressure to seek treatment, (ii) negative feelings about one's dentofacial image, (iii) negative influences on interpersonal relationship, and (iv) negative impacts on school performance. The findings indicate that adolescents with dental malocclusion had been receiving pressure from different parties and generally had low self-esteem, which eventually affected their relationship with family and friends and their involvement in school

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activities. Therefore, public education and interdisciplinary collaboration to address their psychosocial needs are required.

Keywords: Adolescent, Malaysia, malocclusion, orthodontics, psychosocial

INTRODUCTION

Dental malocclusion is defined as an abnormal position of adjacent teeth on the same jaw or opposing teeth as the jaws are closed (Houston et al. 1992). It has increasingly become a public dental health problem worldwide, mainly occurring in children and adolescents (Akbari et al., 2016; Gudipaneni et al., 2018). Commonly, patients with dental malocclusion are driven to seek orthodontic care because of its physical, psychological and social impacts. Similarly, children and adolescents with the similar condition were found to seek treatment, mainly because of their dissatisfaction with the dentofacial deformities, recommendations from dentists and the influence of schoolmates who wear braces (Chambers & Zitterkopf, 2019; Ernest et al., 2019). Gatto et al. (2019) also reported that school bullying took place in 12.8% of adolescents with dental malocclusion, greatly affecting their self-esteem and oral health-related quality of life.

In Malaysia, studies on dental malocclusion among children and adolescents are scarce. A study on 560 patient who received orthodontic treatment from dental specialist clinic in Pahang revealed that more than 70% of them were aged between 7 and 17 years with 73.4% had moderate to severe stage of dental malocclusion (Ismail et al., 2017). Meanwhile, another study performing a dental check-up on 700 schooled adolescents with dental malocclusion showed that 27% and 22% of them required treatment for oral health and aesthetic reasons, respectively (Zamzuri et al., 2014). However, only 3.2% of the students from the same study believed that they needed treatment, while the reasons for such a low level of self-perceived need for treatment were yet to be explored.

Generally, dental care providers and policymakers depend on sufficient information of patient-related psychosocial factors to improve oral health education and treatment (Bittencourt et al., 2017). Therefore, the understanding of malocclusion and its management should go beyond its clinical aspects in order to meet the psychosocial needs of patients, especially those who are younger. To gain information on this issue, a qualitative study was conducted to explore the psychosocial impacts of dental malocclusion among adolescents in Kedah state, Malaysia.

METHODS

Study Design and Setting

This study used a qualitative design, facilitated by a semi-structured interview guide. As adolescents are more likely to have less patience and lose attention to a series of verbal questions in a one-to-one session (Adler et al., 2019), focus group discussion (FGD), which is more lively and interactive in nature, was selected as the main strategy

for data collection in this study. In addition, in-depth interview (IDI) was used to validate the findings and enhance data richness (Lambert & Loiselle, 2008). Both the FGD and IDI were conducted at the Alor Setar and Changlun dental clinics, which are the two of three public specialized dental clinics providing orthodontic services for the population of Kedah state, Malaysia. On average, both clinics have been providing treatment for 30 to 40 patients daily. At the time of this study conducted, only a few private dental clinics across the state offered orthodontic services. Thus, most of the orthodontic cases were seen at the public dental clinics. Furthermore, the two selected dental clinics represent different geographical location; Changlun dental clinic was located in the rural area while Alor Setar dental clinic served mainly the urban population. Therefore, the selection of participants with different geographical background would provide rich information on personal experience related to dental malocclusion.

Participants

The purposive sampling method was used to select respondents, who were aged between 10 and 19 years, received orthodontic treatment for moderate to severe dental malocclusion, and were able to communicate in the Malay language. The selected age group was in line with the definition of adolescent by the World Health Organization (2020). The diagnosis and grading of malocclusion were performed by experienced orthodontists (HIS, SK) stationed at the participating dental clinics, guided by the Index of Orthodontic Treatment Need. After considering both the oral health and aesthetic aspects of the condition, the patients who were diagnosed with mild dental malocclusion were excluded from the study. All the participants were approached at the waiting areas of the dental clinics. They received verbal explanation on the objectives and methodology of the study. Their parents or guardians were also informed of the study. Written informed consent was obtained from both parties.

Data Collection

The participants were grouped and given a date to participate in the FGD. They were also allowed to opt for an IDI if they were unable to visit the clinics on the scheduled dates. The interview guide was constructed by a panel of dental care providers including orthodontists, and was pilot-tested with a patient with dental malocclusion. One of the investigators (MAMS), who was a medical doctor and had an experience with qualitative research, led both the FGD and IDI. Meanwhile, another investigator (NSM) was tasked with video- and audio-recording all the sessions and taking field notes.

Each session of FGD or IDI took approximately 30 to 60 minutes, conducted in a private room at one of the clinics without the presence of parents or guardians. Both the FGD and IDI were conducted in the Malay language. All authors did not know the participants prior to interview session

and introduced themselves to the participants before commencing the interview. Each session started with gathering information on the demographic information, including gender, family background and education level. Subsequently, the participants were encouraged to share their experiences regarding the psychosocial impacts of dental malocclusion. All sessions were video- and audio-recorded, transcribed verbatim and translated into English. Transcribing was performed immediately after each session. Constant comparison was made between sessions, and the recruitment of new participants continued until there is 'no new data' or 'no new themes' emerges during interviews.

Data Analysis

Data analysis was conducted using the thematic analysis method by two investigators (MAMS, HKC) independently (Nowell et al., 2017). Both the FGD and IDI transcripts and filed notes were carefully studied. Codes were generated from the transcripts, and the similar codes were subsequently grouped into themes and subthemes. The discrepancies in the outcomes of analysis were discussed among the investigators and resolved by consensus. The study methods and findings were reported according to the Consolidated Criteria for Reporting Qualitative Research (COREQ; Tong et al., 2007).

Ethical Approval

The Medical Research Ethics Committee, Ministry of Health Malaysia had approved this study (NMRR-16-1069-31043).

RESULTS

A total of 32 participants participated in five IDI (IDI_{1-5}) and six FGD (FGD_{1-6}) sessions. Each FGD session had 4–5 participants (P_{1-5}). The majority of the study participants were female (n=23). At the time of the study, eight of them were studying at a university or college, 23 at a secondary school and 1 at a primary school. All participants completed the interview sessions, none withdrew consent or dropped out. Four themes and four sub-themes emerged from the data analysis: (i) pressure to seek treatment, (ii) negative feelings about one's dentofacial image, (iii) negative influences on interpersonal relationship (family relationship and peer relationship), and (iv) negative impacts on school performance (classroom activities and extracurricular activities).

Pressure to Seek Treatment

Most of the participants reported that they received pressure to seek treatment for their conditions from different sources and teasing from friends emerged as the most common source of pressure.

> *'At the school, my friends always tease me because of my (teeth) problem. It has been happening for 3 years. When I came back from the school, I told my father, and I cried. We discussed this (problem), and he took me to a dental clinic.'* ($FGD_{2;}$ $P_{4,}$ 17 years, female)

'*Initially my parents didn't think that I need treatment because they said my teeth looked normal. But after repeatedly being teased by my friends, I insisted my parents bring me here (dental clinic) to get treatment.'* (IDI_5; 19 years, female)

Family members had also been another source of pressure which led the patients to the treatment.

'My aunt wears braces because of dental malocclusion. So, when she saw me having the same problem with my teeth, she urged me to seek treatment.' (FGD_1; P_3, 17 years, male)

'I can't close my mouth because these teeth are protruding. My family noticed it and brought me to the clinic for treatment.' (FGD_2; P_3, 16 years, male)

Besides, some participants were referred for treatment following a dental check-up at schools.

'When the dental nurse checked my teeth, she strongly suggested that I seek treatment from an orthodontist. It is very likely that I need to wear braces. (FGD_4; P_5, 19 years, female)

Negative Feelings About One's Dentofacial Image

Dental malocclusion influenced how the participants viewed themselves. They were found to have generally low self-esteem arising from constant self-criticism of their dentofacial images, leading them to the feelings of embarrassment, shame or guilt. Such negative feelings were also found to limit smiling and speaking.

'*I do not enjoy taking photos. I feel bad when I am looking at myself in the picture.'* (IDI_3; 19 years, female)

'I don't want people to know my (teeth) problem. To hide it, I just nod my head and don't talk much with people…' (FGD_6; P_5, 17 years, male)

Negative Influences on Interpersonal Relationship

Family Relationship. Although most of the participants were able to communicate their conditions and sought help from their parents, a small number of them felt that the responses of their family members to their dentofacial images were completely unacceptable.

'I have been frequently quarrelling with my brother because he keeps saying that my teeth look like anchors.' (IDI_3; 19 years, female)

'My grandmother is a bit chatty. She even compares my teeth with her other grandchildren! I don't like it' (FGD_4; P_3, 19 years, female)

To keep themselves away from being the centre of attention or a laughing stock, some participants also avoid visiting their family members.

'Each time I meet my aunt, she will start talking about my mouth and teeth. I would rather stay at home rather visiting her even during the festive seasons.' (IDI_3; 19 years, female)

Peer Relationship. Furthermore, a number of participants pointed out that name-calling had affected their relationship and interaction with friends.

> *'I do not like to chat with my friends. I feel that I need to talk less to them, or else they will start noticing my problem (dental malocclusion) and calling me by different names.'* ($FGD_{1;}$ $P_{5,}$ 19 years, female)
>
> '*My teeth problem becomes apparent when I'm in secondary school. My friends call me all sorts of names! I'm feeling down because of them.'* (IDI_5; 19 years, female)

As a result, they had tried to avoid group activities whenever possible.

> '*Most of the time, I have been trying not to join them at the park.'* ($FGD_{5;}$ $P_{4,}$ 19 years, male)
>
> '*During recess time at school, I always look for a hidden spot to be alone. I feel relieved not hearing them (friends) teasing me.'* ($FGD_{2;}$ $P_{4,}$ 17 years, female)

A participant even found that the tension between her and her friends, who had been making fun at her condition, was intolerable. Therefore, she requested a transfer to another school.

> '*Most of the time, I'm alone…Because they always make fun of my teeth. All of them do that to me! (starting to cry). I had requested a transfer to another school from my mother, but she said this would not solve the problem. She advised me to stay strong and ignore what others have to say about my look.'* (IDI_4; 11 years, female)

Negative Impacts on School Performance

Classroom Activities. In general, most participants agreed that dental malocclusion did not affect their academic performance. However, two participants admitted they had been trying not to make an oral presentation in front of the class whenever possible.

> *'We had group works in our language class. Even though my team members always selected me to make an oral presentation in front of the class, I had been trying my best not to accept the tasks.'* (FGD_6; P_3, 15 years, female)
>
> *'I've been called by my teacher to present in front of the class. When I stand-up at the front, I think that my classmates are focusing on my teeth. I feel embarrassed.'* (FGD_1; P_1, 17 years, female)

Extracurricular Activities. Nearly half of the participants did not actively participate in extracurricular activities, mainly to avoid teasing from friends. One of them also had an experience with withdrawing from the school band due to the difficulty in playing a music instrument.

> *'I would like to be a trumpet player for the school band, but my protruding tooth causes pain when I was playing. Therefore, after a few training sessions, I withdraw from the band team.'* (FGD_3; P_5, 17 years, female)

DISCUSSION

The present study revealed that dental malocclusion had noticeable negative psychosocial impacts on adolescents in Malaysia. Although similar findings have been reported worldwide (Bittencourt et al., 2017; Dalaie et al., 2018; Gatto et al., 2019), the present study applied a qualitative design, specifically focusing on patients presenting to two specialized dental clinics. Therefore, in addition to the negative influences of dental malocclusion on the emotion, social interaction and quality of life of patients in general, the present study provides insight into the pressure they received from different parties because of their conditions, which eventually resulted in their treatment-seeking decisions. Such findings are helpful not only to dental care providers but also to policymakers and other stakeholders in better understanding the psychosocial needs of young patients with similar conditions.

Similar to the previous findings (Baram et al., 2019), teasing from friends was found to be the major source of pressure driving the treatment-seeking behaviours of adolescents with dental malocclusion. In fact, it has been reported that being the target of teasing is particularly common among adolescents with an abnormal body weight or physical appearance (Bacchini et al., 2015). In order to make themselves more socially acceptable, this group of adolescents would try changing how they look when they grow older, including accepting invasive cosmetic surgery (Nerini et al., 2019). Apart from that, consistent with several studies (Imani et al., 2018; Tuncer et al., 2015), the participants were shown to receive pressure from their family members to seek treatment for malocclusion problem. However, this was not necessarily undesirable, as parental awareness of their conditions was important to prevent the delay in treatment. Nevertheless, some participants did express disappointment with family member's responses towards their dental appearance. This conflict likely arises from limited knowledge on malocclusion among family members as well as the community. Relevant stakeholders such as dental professional body and health educators, are proposed to design an educational aid in a printed material (e.g. pamphlet), practical demonstration or audio-visual form (e.g. short video) to improve adolescent and public awareness on dental malocclusion. It is also suggested that such educational materials should include the contact number of the dental clinic with orthodontic services if any queries regarding malocclusion arise. Intervention using audio-visual aids, lecture presentation and educational demonstration during oral health program has been shown to significantly improve knowledge and behaviour among children and their parents in Saudi Arabia and Bangladesh (Halawany et al., 2018; Haque et al., 2016).

Participants also shared their unpleasant experience in interaction with their friends, especially at school. While peer acceptance is crucial for social, emotional and behavioural development of adolescents (Nerini et al., 2019), these participants claimed that they had been bullied, mainly through

name-calling. This is a form of verbal bullying, which is common among school children with dentofacial abnormalities (Al-Hummayani & Taibah, 2019; Baram et al., 2019). On the bright side, peers could also be the helpful hand to assist their affected friend. In an interventional study conducted in Mexico, a peer-led dental education program was introduced at several schools with aim to improve oral self-care among their friends (Villanueva-Vilchis et al., 2019). Selected students with good academic performance and ability to socialise received short-course dental training and later was assigned to small group of younger peers to teach them on oral health and self-care. A similar program can be adopted in local schools in which the lead students are not only can disseminate information on dental malocclusion to other peers, but also help their friends with malocclusion to deal with such condition and indirectly prevent bullies at school.

The reasons behind negative feelings about one's own dentofacial image were also explored. A few participants felt that their conditions were more noticeable when they smiled. This would be expected as well-aligned teeth are one of the important elements of facial aesthetics, which is associated with one's popularity and social success (Jawad et al., 2015). Smiling is also regarded as an important authentic feature of an individual (Stiller et al., 2015). Such low self-esteem and embarrassment have limit these participants from smiling and talking to others. Those affected adolescents may be benefited from counselling session either at school or at the dental clinic where they received orthodontic treatment. It is recommended that a counsellor be integrated into the dental team as educator for the team and for direct counselling on referral.

Dental malocclusion was also shown to directly have an impact on school performance. However, unlike those in the previous study (Basha et al., 2016), the participants in the present study denied the negative influences of dental malocclusion on their academic performance. Rather, they pointed out that the condition had hindered their involvement in both the classroom and extracurricular activities. Such experiences had been found to disrupt the social interaction between the adolescents and their friends in the present study, resulting in social isolation most of the time. Within this context, school teachers could play an important role in recognizing their behavioural, corresponding mood changes, or academic performance that may be affected from having malocclusion and subsequently offer help and guidance as necessary. However, literature discussing on the role of school teacher in managing psychosocial impact of malocclusion among adolescent is scarce. Thus, it can be a potential area to explore in future study.

One of the study limitations is that the female participants considerably outnumbered the male participants. However, the gender distribution of the participants is reflective of that of the adolescents seeking treatment at both the dental clinics selected. In addition, there were no noticeable

differences in the responses between the male and female participants. Second, despite the encouragement of the facilitator, some participants appeared to be less active during the FGD. Hence, their views might not be reflected in the study findings. Third, the exploration of the psychosocial impacts of dental malocclusion was limited to self-reporting of the patients. Therefore, future studies should also involve dental care providers, parents and school teachers in order to understand this issue in greater depth.

CONCLUSION

In conclusion, moderate to severe dental malocclusion was shown to have negative psychosocial impacts on adolescents in Kedah state, Malaysia. The pressure to seek treatment and negative emotion arising from low self-esteem were commonly seen among them. Besides, such a condition was also shown to affect their social interaction and hinder their involvement in school activities. Hence, in addition to conventional orthodontic treatment, an interdisciplinary collaboration between dental care providers, parents and school teachers to address their psychosocial needs is required.

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