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Oral Health-Related Quality of Life in Orthodontics: A Cross Sectional Study on Adolescents and Adults in Orthodontic Treatment in Kuantan, Pahang

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Abstract:

Objective: This study aimed to assess the impact of the OHIP subscale on OHRQoL and compare the OHRQoL of adolescents and adults.

Material and Methods: A total of 160 subjects (60 adolescents and 100 adults) undergoing orthodontic treatment completed the Malaysian Oral Health Impact Profile (S-OHIP(M)) to assess OHRQoL. The instrument consisted of 14 items, grouped into 7 subscales, which were: (i) functional limitation, (ii) physical pain, (iii) psychological discomfort, (iv) physical disability, (v) psychological disability, (vi) social disability, and (vii) handicap. Mann-Whitney U and Kruskal Wallis tests were applied to compare the OHRQoL between both age groups and demographic characteristics.

Results: There was a statistically significant difference in median score for quality of life between adolescents 12(9) and adults 16(8). Physical pain had the highest impact on OHRQoL in both groups; whereas, social disability had the least impact for both groups.

Conclusion: This study showed that adult groups reported a higher score of impact on OHRQoL compared to adolescent groups. In addition, adolescents and adults reported physical pain as having the highest impact on OHRQoL during orthodontic treatment, with social disability being the least affected factor in OHRQoL.

Keywords: adolescent, adult, oral health-related quality of life, orthodontics

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Introduction

The World Health Organisation (WHO) defined health as a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity[1]. Traditionally, evaluation of health has been centred on clinician-based outcome measures rather than patient-based measures, such as perceived functional status and psychological well-being[2]. Clearly, health contributes to quality of life, and the true impact of health and disease on quality of life is known as health-related quality of life (HRQoL)[3]. Quality of life can be defined as a subjective assessment of an individual's health status, which includes various elements of life that can lead to satisfaction or dissatisfaction in life[4]. Many aspects of an individual's life are not accessible to the clinician; thus, it can be argued that the patient is definitely the best person to assess their own HRQoL[3].

Certainly, clinical indicators of oral diseases, such as dental caries or periodontal diseases, were not sufficient to represent the new concept of health declared by the WHO, particularly the aspects of mental and social well-being. Consequently, researchers have worked to establish alternative methods that would assess the physical, psychological, and social impact of oral conditions on an individual. These alternative measures are typically in the form of patient-completed questionnaires, such as the Oral Health Impact Profile (OHIP)[3]. The OHIP is a commonly used instrument for assessing a patient's subjective perception of oral well-being[5]. It was developed with the aim of providing a comprehensive measure of self-reported dysfunction, discomfort, and disability attributed to oral conditions[6]. In the Malaysian scenario, the validated short version of the Malaysian Oral Health Impact Profile (S-OHIP(M)) is one of the most suitable measures currently available for the Malaysian population. It is reliable regardless of the mode of action; being it mail questionnaires or interview administered questionnaires, and is valid in terms of discriminating between groups, such as adolescents and adults[7].

Orthodontic treatment is always complementary to oral health-related quality of life (OHRQoL). The desire to have a good aesthetic, better orofacial function, and improved psychosocial well-being were cited by the majority of patients as main reasons for seeking orthodontic care[2]. These benefits are relevant in patients with dental malocclusion or facial disharmony. Malocclusion is associated with malalignment of individual teeth in each arch, or malrelationship of the dental arches relative to the normal occlusion, which can be corrected with orthodontic treatment[8]. Therefore, evaluating these components is critical in understanding patients' impressions of the treatment and could be related to identified treatment needs. Oral disease and conditions may cause physical, social, and psychological disturbances by negatively affecting function, appearance, interpersonal relationships, socialising, self-esteem, and psychological well-being, leading to impaired day-to-day living and quality of life[9,10].

Orthodontic treatment, in most cases, is carried out during adolescent and early adulthood[11,12]. One of the treatments includes the wearing of fixed orthodontic appliances to align crowded teeth or correcting inter arch relationship, such as overjet, overbite and centreline discrepancy[13]. Hence, malocclusion and orthodontic treatment have become a quality of life (QoL) issue in adolescents and adults. Many studies have been conducted in Germany[14], Saudi Arabia[15] and China[16] to assess the relationship between orthodontic treatment and OHRQoL. To the best of our knowledge, there is a scarcity of information with regard to OHRQOL during orthodontic treatment among Malaysian adolescents and adults. Additionally, most of the investigators focused on one intervention group only[16–19], with few comparing OHRQoL between adolescents and adults[16,17,19,20]. Therefore, the OHRQoL between adolescents and adults with fixed appliances can be evaluated to shed some light on the effects of the treatment, subsequently helping evaluate the influence of different factors that could impact OHRQoL in these two groups. By informing patients

as to the consequences of orthodontic treatment, they can definitely assess the benefits and drawbacks of the treatment[21]. Clinicians on the other hand are able to gain insights related to treatment compliance and information gained that is useful in medicolegal situations[22]. This information can be valuable to improve patient's compliance, as patients will be informed of what is to be expected from wearing fixed appliances. This study aimed to assess the oral health-related quality of life (OHRQoL) in adolescents and adults with fixed appliances. The main objectives were to determine the OHIP subscales impact and to compare the OHRQoL between adolescents and adults.

Material and Methods

Study design

This study was a cross-sectional study on adolescents aged 12-18 years old and adults aged over 18 years of age. This research was performed according to the protocol, which was accepted and approved by the IIUM Research Ethics Committee (IREC 2021-012).

Sample size and subjects

The sample size was calculated using G*Power software version 3.1.9.7[23]. The calculated sample size was based on post hoc computed achieved power, using the Mann-Whitney test with power=0.84, Alpha=0.05 and effect size=0.5, which led to the minimum sample size required for the adolescent group as 60 and the adult group as 100. The samples was recruited from three orthodontic clinics: 1. The Department of Orthodontics, Kulliyyah of Dentistry, International Islamic University Malaysia (IIUM) Kuantan Campus; 2. Dr Fatain's Dental Clinic Taman Tas, Kuantan, and 3. Dr Fatain's Dental Clinic Indera Mahkota 3, Kuantan. Sample recruitment was conducted from February 2021 to January 2022. Inclusion criteria for both groups were patients in active orthodontic treatment that had been fitted with upper and lower pre-adjusted edgewise fixed appliances (MBT prescription, 0.022"x0.028" slot size). Exclusion criteria were subjects with any medical problems, syndromes, craniofacial abnormalities, orofacial clefts, or previous orthognathic surgery.

Instrument and measure

The participants were given a physical copy of the information leaflet as well as a consent form before participating in the research. After the participants agreed to partake, a written questionnaire was given to the participants. The questionnaire was prepared in the Malay and English languages separately. During the interview, participants provided information concerning the socio-demographic profile on the questionnaire, which included participants' names, genders, ages, races, household incomes, reasons for orthodontic treatment, and duration of treatment. The instrument used was the validated short Malay version of the Malaysian Oral Health Impact Profile (S-OHIP(M)): translated by Saub (2005)[7]. This instrument is valid and reliable and was developed for use in the previous cross-sectional studies within Malaysian populations[24,25]. The instrument consisted of 14 items grouped into 7 subscales, which were: (i) functional limitation, (ii) physical pain, (iii) psychological discomfort, (iv) physical disability, (v) psychological disability, (vi) social disability, and (vii) handicap. Every item was measured as a Likert Scale based on the frequency of the problem faced by the participants. The scales used were from code 0 to code 4. Code 0 indicated "Never", code 1 indicated "Hardly Ever", code 2 indicated "Occasionally", code 3 indicated "Often", and code 4 indicated "Very Often". The OHIP score of each participant was determined by the cumulative score from the OHIP questionnaire. The minimum achievable score for the participants was 0, which indicated no impact on OHRQoL, and the maximum achievable score was 56, indicating a huge impact on OHRQoL.

Statistical analysis

IBM Statistical Package for the Social Sciences (SPSS) Statistics Software for Windows, version 25.0 was used for the data analysis. For the descriptive analysis, median, frequency and, percentage were used for ordinal data. For statistical analysis, the Mann–Whitney U and the Kruskal Wallis tests were applied to compare the OHRQoL between both age groups and demographic characteristics.

Results

A total of 60 adolescents and 100 adults were recruited for analysis, with a total response rate of 100%. Demographic profiles for all age groups are listed in Table 1. Percentages for gender in the adolescent group were 36.7% for males and 63.3% for females. When compared to the adult group, there were 19.0% of males and 81.0% of females. Malay and Chinese percentages in the adolescent group were 93.3% and 6.7%, respectively, whilst Malay and Chinese in the adult group were 94.0% and 4.0%, respectively. Indian and other races consisted of 1.0% each in the adult group. Household income of RM5,000 and more per month in the adolescent group (56.7%) had a higher percentage than the adult group (26.0%). More adolescents had income between RM5,000–RM9,999, with a percentage of 31.7%, while most adults had an income between RM1,000–RM2,999, with a percentage of 35.0%. Aesthetic alone (45.0%), followed by function alone (40.0%) were the most occurring reasons for the patients seeking orthodontic treatment. From this 45.0% of adolescent patients and 44.0% of adult patients sought treatment for aesthetics alone, which were the highest in both groups. There was a high percentage of patients (68.8%) that had undergone orthodontic treatment for less than 2 years and below. Additionally, 38.3% of adolescents had received orthodontic treatment for less than 1 year, while 39.0% of adults had undergone orthodontic treatment in 1 year to 2 years, which was the highest in both respective groups.

The median score for overall quality of life for adolescents was 12, and for the adults, it was 16, and there is a significant difference in the overall OHIP scores, as shown in Table 2. Analysis of the OHIP subscales showed that within the adolescent group, physical pain and psychological discomfort recorded the highest score value of 3, followed by functional limitation and physical disability with a score of 2. Psychological disability, social disability, and handicap recorded the lowest score for the adolescent group, having a score of 0. For the adult group, physical pain had the highest score value of 4, followed by functional limitation, psychological discomfort, and physical disability having a score of 3. The lowest score value in the adult group was social disability with a score of 0. Handicap and psychological disability subscales scored 1. The analysis of the OHIP subscale between adolescents and adults shows there was a significant difference in functional limitation, psychological discomfort, physical disability, and psychological disability. However, there was no significant difference observed in physical pain, social disability, and handicap between both groups.

The registered frequencies for each question of the S–OHIP(M) for adolescent and adult groups are listed in Table 3. The results showed that there was a significant difference observed in questions 1, 3, 5, 7, 9, 11 and 13 between the adolescent and adult groups. It can be noted that, 67% of the adults described as: 'often' or 'very often' discomfort, due to food getting stuck in between teeth or braces (Question 5; n=67, 67%) compared to adolescents being less than 50% (Question 5; n=30, 49.9%). For the avoidance of certain food due to braces, 48% of adult patients (Question 7; n=48, 48%) described as: 'often' or 'very often,' compared to adolescents at only 31.6% (Question 7; n=19, 31.6%).

Furthermore, among adults, 56% (Question 1) reported experiencing difficulty chewing, while 52% (Question 3) reported discomfort while eating due to braces, both describing these experiences as "occasional," indicating

Table 1 The demographic profiles for adolescent and adult group samples

Demographic categories	Adolescents (n=60) n (%)	Adults (n=100) n (%)	Total n (%)
Gender			
Male	22 (36.7)	19 (19.0)	41 (25.6)
Female	38 (63.3)	81 (81.0)	119 (74.4)
Race			
Malay	56 (93.3)	94 (94.0)	150 (93.8)
Chinese	4 (6.7)	4 (4.0)	8 (5.0)
Indian	0 (0.0)	1 (1.0)	1 (0.6)
Others	0 (0.0)	1 (1.0)	1 (0.6)
Income			
<RM1000	4 (6.7)	12 (12.0)	16 (10.0)
RM1000–RM2999	7 (11.7)	35 (35.0)	42 (26.3)
RM3000–RM4999	15 (25.0)	27 (27.0)	42 (26.3)
RM5000–RM9999	19 (31.7)	17 (17.0)	36 (22.5)
>RM10000	15 (25.0)	9 (9.0)	24 (15.0)
Reason of Treatment			
Aesthetic	27 (45.0)	44 (44.0)	71 (44.4)
Function	25 (41.7)	39 (39.0)	64 (40.0)
Pain	4 (6.7)	2 (2.0)	6 (3.8)
Aesthetic, function	3 (5.0)	10 (10.0)	5 (3.1)
Aesthetic, pain	0 (0.0)	1 (1.0)	13 (8.1)
Others	1 (1.7)	4 (4.0)	1 (0.6)
Duration of Treatment			
<1 Year	23 (38.3)	29 (29.0)	52 (32.5)
1 Year – 2 Years	19 (31.3)	39 (39.0)	58 (36.3)
2 Years – 3 Years	13 (21.7)	24 (24.0)	37 (23.1)
>3 Years	5 (8.3)	8 (8.0)	13 (8.1)

Table 2 OHIP subscales and overall OHIP score for the adolescent and adult groups

S-OHIP(M) subscales	Adolescents (n=60)		Adults (n=100)		p-value
	Median (IQR)	Min-Max	Median (IQR)	Min-Max	
IQR					
Subscale 1: functional limitation	2.0 (2)	0–7	3.0 (2)	0–7	0.003*
Subscale 2: physical pain	3.0 (2)	0–7	4.0 (2)	0–8	0.157
Subscale 3: psychological discomfort	3.0 (1)	0–8	3.0 (2)	1–8	0.004*
Subscale 4: physical disability	2.0 (3)	0–7	3.0 (2)	0–8	0.012*
Subscale 5: psychological disability	0.0 (2)	0–6	1.0 (2)	0–6	0.020*
Subscale 6: social disability	0.0 (1)	0–3	0.0 (1)	0–3	0.792
Subscale 7: handicap	0.0 (2)	0–6	1.0 (2)	0–6	0.068
Total OHIP score	12.0 (9)	3–34	16.0 (8)	5–39	0.001*

S-OHIP(M)=short version of Malaysian oral health impact profile, OHIP=the oral health impact profile, IQR=Interquartile range
*significance at p-value<0.05

Table 3 The registered frequencies for each answer of the S-OHIP(M) for adolescent and adult groups

S-OHIP(M) questions	Adolescent						Adult						p-value
	Never n (%)	Hardly Ever n (%)	Occasionally n (%)	Often n (%)	Very Often n (%)	OHIP Score Median	Never n (%)	Hardly Ever n (%)	Occasionally n (%)	Often n (%)	Very Often n (%)	OHIP Score Median	
Q1	13 (21.7)	17 (28.3)	21 (35.0)	4 (6.7)	5 (8.3)	1.5	3 (3.0)	23 (23.0)	56 (56.0)	13 (13.0)	5 (5.0)	2.0	0.004*
Q2	31 (51.7)	18 (30.0)	9 (15.0)	2 (3.3)	0 (0.0)	0.0	38 (38.0)	33 (33.0)	22 (22.0)	7 (7.0)	0 (0.0)	1.0	0.061
Q3	5 (8.3)	16 (26.7)	23 (38.3)	16 (26.7)	0 (0.0)	2.0	3 (3.0)	9 (9.0)	52 (52.0)	28 (28.0)	8 (8.0)	2.0	0.005*
Q4	12 (20.0)	14 (23.3)	20 (33.3)	11 (18.3)	3 (3.3)	2.0	20 (20.0)	28 (28.0)	34 (34.0)	13 (13.0)	5 (5.0)	2.0	0.554
Q5	1 (1.7)	10 (16.7)	19 (31.7)	22 (36.6)	8 (13.3)	2.5	0 (0.0)	6 (6.0)	27 (27.0)	43 (43.0)	24 (24.0)	3.0	0.010*
Q6	47 (78.3)	7 (11.7)	4 (6.7)	1 (1.7)	1 (1.7)	0.0	65 (65.0)	19 (19.0)	13 (13.0)	2 (2.0)	1 (1.0)	0.0	0.087
Q7	8 (13.3)	16 (26.7)	17 (28.3)	16 (26.6)	3 (5.0)	2.0	7 (7.0)	15 (15.0)	30 (30.0)	27 (27.0)	21 (21.0)	2.0	0.004*
Q8	36 (60.0)	13 (21.6)	5 (8.3)	5 (8.3)	1 (1.7)	0.0	52 (52.0)	22 (22.0)	21 (21.0)	3 (3.0)	2 (2.0)	0.0	0.348
Q9	40 (66.7)	14 (23.3)	3 (5.0)	3 (5.0)	0 (0.0)	0.0	47 (47.0)	31 (31.0)	16 (16.0)	6 (6.0)	0 (0.0)	1.0	0.013*
Q10	40 (66.7)	11 (18.3)	7 (11.7)	2 (3.3)	0 (0.0)	0.0	48 (48.0)	38 (38.0)	9 (9.0)	5 (5.0)	0 (0.0)	1.0	0.062
Q11	57 (95.0)	2 (3.3)	0 (0.0)	1 (1.7)	0 (0.0)	0.0	84 (84.0)	15 (15.0)	1 (1.0)	0 (0.0)	0 (0.0)	0.0	0.042*
Q12	45 (75.0)	10 (16.7)	4 (6.7)	1 (1.7)	0 (0.0)	0.0	75 (75.0)	22 (22.0)	2 (2.0)	1 (1.0)	0 (0.0)	0.0	0.856
Q13	37 (61.7)	13 (21.7)	7 (11.7)	3 (5.0)	0 (0.0)	0.0	41 (41.0)	35 (35.0)	14 (14.0)	6 (6.0)	4 (4.0)	1.0	0.018*
Q14	45 (75.0)	9 (15.0)	5 (8.3)	1 (1.7)	0 (0.0)	0.0	73 (73.0)	21 (21.0)	2 (2.0)	3 (3.0)	1 (1.0)	0.0	0.878

S-OHIP(M)=short version of Malaysian oral health impact profile, *significance at p-value<0.05

Q1; Have you experienced difficulty chewing any food because of your braces?, Q2; Have you felt problems related to your braces causing bad breath?, Q3; Have you experienced discomfort eating any food because of braces?, Q4; Have you experienced ulcers in your mouth?, Q5; Have you felt discomfort due to food getting stuck between your teeth or braces?, Q6; Have you felt shy because of your braces?, Q7; Have you avoided eating certain foods because of braces?, Q8; Have you avoided smiling because of braces?, Q9; Has your sleep been disturbed because of braces?, Q10; Has your concentration been disturbed by problems with your braces?, Q11; Have you avoided going out because of problems with braces?, Q12; Have you experienced problems in carrying out your daily activities because of problems with braces?, Q13; Have you had to spend a lot of money due to problems with your braces?, Q14; Have you felt less confident of yourself due to problems with your braces?

a comparable level of discomfort. In contrast, adolescents reported a lower prevalence, with 35% and 38.3% experiencing these issues, respectively. Both adolescents (Question 9, n=54, 90%; Question 13, n=50, 83.4%) and adults (Question 9, n=78, 78%; Question 13, n=76, 76%) reported "never" or "hardly ever" experiencing sleep disturbances and incurring significant financial expenses due to problems with braces. In addition, in the adolescent group, feeling less confident (Question 14, n=54, 90%), problems in carrying out daily activities (Question 12, n=55, 91.7%), and avoidance of going out (Question 11, n=59, 98.3%) were the least frequently experienced issues, as the majority of this group reported them as "never" or "hardly ever". Likewise, among adults, feeling less confident (Question 14, n=94, 94%), problems in carrying out daily activities (Question 12, n=97, 97%), and avoidance of going out (Question 11, n=99, 99%) were also less frequently experienced, with most reporting these as "never" or "hardly ever".

The association of demographic characteristics with OHRQoL is listed in Table 4. Males scored higher than females in total OHIP scores, with a median score of 16 and 14; respectively. The Indian group had the highest median score of 18 compared to other races, while the other groups reported the lowest median score of 11. Household income per month showed that the low-income group had a higher median score compared to the high-income

Table 4 Association of demographic characteristics with OHRQoL

Demographic categories	Total OHIP score (n=160)		p-value
	Median	Min-Max	
Gender			
Male	16.0	3-35	0.477[a]
Female	14.0	3-39	
Race			
Malay	15.0	3-39	
Chinese	15.5	3-26	0.744[b]
Indian	18.0	18-18	
Others	11.0	11-11	
Income			
<RM1000	16.5	8-20	
RM1000-RM2999	15.0	7-34	
RM3000-RM4999	15.5	3-35	0.950[b]
RM5000-RM9999	14.0	5-35	
>RM10000	13.5	4-39	
Reason of treatment			
Aesthetics	15.0	3-39	
Function	15.0	4-35	
Pain	11.0	8-19	0.740[b]
Aesthetics, function	16.0	11-32	
Aesthetic, pain	16.0	16-16	
Others	14.0	10-18	
Duration of treatment			
<1 Year	14.5	4-35	
1 Year - 2 Years	15.5	3-35	0.260[b]
2 Years - 3 Years	13.0	5-34	
>3 Years	20.0	3-39	

OHRQoL=oral health-related quality of life, OHIP=oral health impact profile, [a]Mann Whitney test; [b]Kruskal Wallis test

group. Meanwhile, patients that were seeking orthodontic treatment due to pain had the lowest median score of 11 compared to other reasons of treatment. Furthermore, patients having undergone orthodontic treatment for more than 3 years had the highest median score of 20 compared to patients undergoing treatment for 3 years and below. It can be observed that there was no association between demographic factors on OHRQoL.

Discussion

The purpose of this study was to assess the impact of fixed appliances on OHRQoL among Malaysian adolescent and adult populations. S-OHIP(M) allowed for the assessment of OHRQoL in orthodontics of adolescents and adults in the Malaysian population. The OHRQoL of 60 adolescents and 100 adult orthodontic patients was analysed in this study, which included various variables. The registered median OHIP score amounted to 16 for adults and 12 for adolescents. These findings were similar to previous studies, wherein adults had a higher impact than adolescents in OHRQoL[17,19,26,27].

S-OHIP(M) was used in this study because the validated short version of the Malaysian Oral Health Impact Profile (S-OHIP(M)) is one of the most suitable measures currently available for the Malaysian population. It has been proven to be reliable in terms of mode of action, whether done through mail questionnaires or interview-administered questionnaires, and valid for differentiating between groups, such as adolescents and adults[7]. A short version of the Malaysian oral health-related quality of life measure is used because of the research setting. Locker and Allen[28] identified four reasons as to why the long version of the Oral Health Impact Profile is not suitable in some settings. Firstly, a measure that takes a long time to finish and assess is not practical in a clinical setting. Secondly, a lengthy questionnaire raises data management costs. Thirdly, it may also put a burden on the respondent to complete the questionnaire, and lastly, longer surveys may lead to item non-response. Thus, the short form of the OHIP(M) was employed for this study. The S-OHIP(M) has been successfully applied to adolescents and adults[25,29], and in this study, the age groups involved were adolescents (aged 12–18 years) and adults (aged >18 years). For adolescents, most orthodontic patients were between the ages of 12 to 18 years old, which is similar to other research[29]. It demonstrated that most of the patients were in the age range when their main concern is their facial appearance and social acceptance[30-32]. This is also regarded as the optimal time to treat malocclusions with fixed appliances, as most patients are in permanent dentition. On the other hand, the proportion of adults seeking orthodontic treatment has been on the rise[33,34]. Adults who seek orthodontic treatment are more concerned about their facial appearance and social acceptance[14,35]. Clearly, adults are those who seek orthodontic treatment contributing to the rising trend of adults in orthodontic treatment. A systematic review on the use of the OHIP in orthodontics by Andiappan et al.[36] found multiple high-quality articles that used the OHIP on patient groups with similar ages to ours. Furthermore, numerous, recent studies have been found that used OHIP with younger patients, particularly adolescents[2,18].

Physical pain was recognized as having the biggest influence on OHRQoL, followed by psychological discomfort in both the adolescent and adult groups, therefore negatively impacting their OHRQoL: this finding is in conformity with reports from other studies[17,19,26]. According to a number of clinical literature-pain is a common occurrence during orthodontic treatment. The main reason for the experienced pain appears to have been the application of orthodontic forces inducing a tooth movement[37,38]. According to Bergius et al.[39] pain in the surrounding tissues during orthodontic tooth movement may be caused by a combination of pressure, ischemia, inflammation, and oedema. The periodontal ligament has a dense nerve supply, with

pressure receptors concentrated in the root's apical two-thirds. The increasing pain to pressure suggests apical inflammation and moderate pulpitis. These typically occur shortly after orthodontic pressures are applied and are likely to contribute to pain[12]. As known, the most common side effect during orthodontic treatment is pain. In addition, pain also has been identified as the worst element that has to be faced by patients in orthodontic treatment[38].

In both the adolescent and adult groups, discomfort from food being trapped between teeth or braces and avoidance of certain foods owing to braces were characterised as: 'often' or 'very often'. Few studies have found that fixed appliances cause discomfort and suffering in patients receiving orthodontic treatment[16,18,22]. Adults reported higher difficulties and discomfort in chewing and eating as well as avoidance of certain foods. Chewing impairment is typically caused by the presence of orthodontic devices; such as orthodontic brackets, wires, and ligatures[16]. Treatment complexity in adult patients to fullfill their functional and aesthetic preferences leads to more usage of orthodontic components and auxiliaries, which could be attributed to the impairment in chewing and food stuck between braces[40].

In orthodontic treatment, aesthetic issues, function, and pain were found to be common reasons for seeking orthodontic treatment. In this study, aesthetics was found to be the most prominent reason for seeking orthodontic treatment in both adolescent and adult patients, whereas pain was highlighted as a less significant reason in both groups. As such, orthodontic therapy seeks to enhance a person's orofacial look and function[33]. However, one of the key goals of orthodontic treatment is not to improve aesthetic alone, but also orofacial function, pain issues, and psychological well-being. Our study found that aesthetics, in conjunction with function and pain was paramount in this patient group to seek orthodontic treatment.

Limitations

Response rates were lower in adolescents than in adults. This is because some patients could not attend dental appointments because they did not meet the inclusion criteria. Additionally, the majority of adolescent patients could only be recruited from the Department of Orthodontics, Kulliyyah of Dentistry, International Islamic University Malaysia (IIUM).

Conclusion

This study revealed a significant difference between adolescents and adults in OHRQoL. Orthodontic treatment had a higher impact on OHRQoL in the adult group compared to the adolescent group. However, both groups showed that the impact of orthodontic treatment on OHRQoL is low. The following are some remarkable findings from the S-OHIP(M) subscales impact on OHRQoL. Physical pain showed the highest values for both adolescents and adults, which negatively impact the OHRQoL. Social disability recorded the lowest values for both adolescents and adults, which had the least impacts on OHRQoL. Handicap and psychological disability recorded second and third lowest values, respectively; in both adolescents and adults.

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Conflict of interest

All authors declare no conflicts of interest.

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