Malocclusion, orthodontic treatment and peer relationships in adolescents: a qualitative study

Abstract

Objective: To explore the relationship between malocclusion, orthodontic treatment and peer relationships in adolescents.

Design: A cross-sectional qualitative study.

Setting: Three secondary schools in the XXXX

Participants: Fourteen schoolchildren aged 14 – 16 years old (mean age 15.7 years range 14.4 – 16.5 years).

Methods: In-depth one-to-one semi-structured interviews carried out online. All interviews were transcribed verbatim and analysed thematically according to Braun & Clarke ‘s model of thematic analysis (2006).

Results: The central finding of this research was that adolescents are self-conscious of their dental appearance, it impacts on social interactions, and peers and friends are both a source of pressure and support with regards to dental appearance and treatment. Two main themes were identified: 1) Impact of malocclusion on peer relationships 2) Social expectations and experience of orthodontic treatment. Participants reported being self-consciousness of their teeth prior to treatment, and this increased with age. They feared being judged based on their dental appearance, undertaking behaviour to hide their teeth in social situations, in photographs or online. All participants reported either being teased personally about their teeth or witnessing this happening to someone else although they mostly did not see this as bullying. This had a negative impact on self-confidence. No one reported being teased following starting orthodontic treatment. Orthodontic treatment was

seen as desirable and normal within this age group with an expectation it would improve self-confidence particularly in social settings. Friends and peers were a source of support and information during treatment.

Conclusion and Implications: Young people are self-conscious of their dental appearance which impacts of their peer relationships and is a target for teasing and bullying. Orthodontic treatment is seen as a normal with peers and friends providing support.

Keywords: Malocclusion, peer relationships, qualitative

Introduction

Peer relationships are interpersonal relationships established and developed as a result of social interactions among peers or individuals with similar levels of psychological development (La Greca et al 2005). They are shaped by numerous factors both individual and environmental and are crucial for healthy social and psychological development (Mitic et al 2021). Poor peer relationships in adolescence are associated with higher levels of social anxiety, loneliness, depression, poor academic achievement and poorer quality of life (Kochel et al 2017; Ranøyen et al 2019; Schwartz-Mette et al 2020; Woodward and Ferguson 2000).

Malocclusion has been shown to impact peer relationships. Patients with an aesthetically handicapping malocclusion report higher levels of loneliness, particularly females (DiBiase et al 2025). Teenagers fear being judged by their peers, are aware of other people's teeth and often judge themselves negatively against others (Taghavi Bayat et al 2013; Trulsson et al 2002). This can affect their behaviour, for example by trying to avoid showing their teeth when smiling and in photographs (Jossefsson et al 2010; Prado et al 2022). While most young people seek orthodontic treatment primarily to improve their dental aesthetics, there is also an expectation that having straight teeth and a nice smile will improve peer relationships, self-esteem and dental health (Geoghegan et al 2019; Jossefsson et al 2010; Prabakaran et al 2012; Prado et al 2022; Shah et al 2019; Trulsson et al 2002).

To date despite anecdotal reports from patients there is little quantitative evidence of any long-term dental health, social and psychological benefits of orthodontic treatment. This may be because we are using the wrong outcome measures rather than reflecting what our patients want or patient related outcome measures (PROMs). As most of our patients seek orthodontic treatment to improve their dental aesthetics and to improve peer relationships,

we would propose that the main impact of having a malocclusion and therefore the benefits of orthodontic are primarily social, improving an individual's confidence in group situations and their perception of their peer relationships.

Ontologically the majority of research in orthodontics has focussed on treatment mechanics and morphological outcomes. While these are useful in measuring the success of treatment from a clinician's perspective, they are often mean very little to the patient.

Epistemologically therefore in the last two decades there has been a move to more patient centred research. Following a neo-positivist approach, this has primarily been through the questionnaire-based quantitative research using oral health related quality of life (OHRQoL). This research has shown that while there is a relationship between malocclusion and OHRQoL, OHRQoL is also affected by other factors including age, gender, socioeconomic status, self-esteem and peer relationships (Agou et al 2008; Alfrashed et al 2021; Benson et al 2015; DiBiase et al 2025: Dimberg et al 2015; Goranson et al 2023).

However, epistemologically it is difficult to quantify and measure patients' experiences and expectations as every one of our patients is unique and do not necessarily regress to the mean of quantitative data. Therefore, we have less of an understanding about the individual experience of having a malocclusion and undergoing orthodontic treatment and the impact these have on peer relationships. This is an area where qualitative can play an important role. It can be used to gain an in-depth understanding of a person's experiences especially in a complex area such as orthodontic treatment that occurs over an extended time usually during adolescence a period of physical, emotional and social change. It can give contextual insight allowing understanding of expectations and behaviour while putting the participant at the centre of the research. In orthodontics much of the qualitative research to date has focussed on individual motivation, expectations and experience of treatment (Aded Al Jawad

et al 2012; Almeida et al 2018; AlQuraini et al 2019; Kettle et al 2020; Mohammed et al 2022; Mohammed et al 2024). Less is known about the social aspects of malocclusion and treatment particularly in how this is influenced by, and influences, peer relationships. Approaching this from an ontological position that the main impacts of malocclusion and orthodontic treatment are social, the aim of this study was to explore the relationship between having a malocclusion, undergoing orthodontic treatment and peer relationships. More specifically, the research examined whether malocclusion impacts on social interactions and can make an individual a target of bullying or victimisation, the desire and expectations of orthodontic treatment in terms of peer relationships and the perceived social benefits of treatment.

Methodology

This was a cross-sectional qualitative study, involving participants originally recruited to a study investigating the relationship between bullying, peer relationships and malocclusion in schoolchildren aged 10 -14 years in the XXX (XXXX et al 2024). Ethical approval was obtained from the XXXX Research Ethics Committee (no. 17/LO/0791). Further ethical approval was sought from the same committee to allow follow up of the original sample group. This was granted on 2nd May 2020 coinciding with school closure due to the COVID 19 pandemic. As this had significant impact on potential recruitment to this study a further amendment and ethical approval was applied for to undertake of consent, data collection and the interviews on-line which was granted on the 8thJuly 2021.

Participants

Participants were recruited from the original sample group of 698 recruited from 16 schools in the XXXX. The schools were contacted initially to see if they were willing to participate in

this follow up study (Fig 1). Out of the original 16 schools, while six initially agreed to participate, three ultimately took part. A letter of invitation was sent out via the school to all the parents or guardians of the students who had taken part in the original study including information on the study for both the student and the parent/guardian followed by with a second letter four weeks later. These included contact details of the research team and a letter of interest to be completed by the parent/guardian and returned if they interested to in participation in the study. When a potential participant contacted the research team they were contacted directly and screened for interview based on the following criteria:

- Had undergone/were currently undergoing orthodontic treatment
- Awaiting orthodontic treatment
- Wanted orthodontic treatment but unable to access it

The participants selected for interview were contacted directly by the research team, consented and a mutual time was set up for interview.

Interviews

One-to-one interviews were conducted online using Microsoft Teams 1.3.00.13565 (Microsoft Corporation, Redmond, Washington, USA). The interviews were semi-structured in which the participants were encouraged to talk about anything they felt was significant in relation to their experiences of having a malocclusion and orthodontic treatment but focussing on the impact on, and influence of, peer relationships. Interviews were based on a topic guide, which included a list of relevant questions, prompts and probes for follow up questions to encourage participants to elaborate on their thoughts, experiences and perceptions. Questions in the topic guide were developed by the research team based on previous research findings. The interviews took place from August 2021 to February 2022

and were carried out by a psychology research assistant with training in interview techniques related to qualitative research (Qualitative Research Methods in Health, University College London 2022) (XX). A psychology research assistant was selected to undertake the interviews due to similarity with the participants in terms of age and recent experience of orthodontic treatment but with limited technique understanding of orthodontics to try and reduce bias and bringing personal assumptions to the interview. Pilot interviews were carried out online with first year university students supervised by a senior psychology researcher with extensive experience of qualitative research methodology (XX) prior to commencing the study to allow the interviewer to gain experience. The participants were informed at the start of the interview of the purpose and nature of the interview and also that the interviewer had herself undergone a course of orthodontic treatment in adolescence. They were advised they could have someone with them when they underwent the interview although all opted to be interviewed alone. With consent of the participants the interviews were recorded and transcribed verbatim by two research assistants (XX and XX) and cross checked for accuracy. The transcripts were saved and coding conducted in Nvivo 14 (Lumivero, Denver, USA).

Analysis of the interviews

Transcripts were coded using thematic analysis. Analysis was conducted using the six-phase analytic process set out by Braun and Clark (Braun and Clarke 2006) (Table 1). We applied a reflexive approach accounting for the epistemological/ontological beliefs and expectations of the researchers, in light of research questions we set ourselves and the intended audience(Braun and Clarke 2019). The analysis was primarily theoretical or deductive in nature This was undertaken at a semantic level, focussing on the interpretation of the

explicit meaning expressed in the data. This means that while hopefully we have explored the research questions we set ourselves, the data set no doubt contains other themes or underlying ideas that have not been explored. We adopted an essentialist/realist approach to the analysis focussing on the individual responses and themes. Values and beliefs that pertain to malocclusion and orthodontic treatment are also socially and culturally constructed which have only been partially explored in this study.

Analysis

One hundred and forty three individuals contacted the research team from which 20 were consented, 14 participants ultimately being interviewed (Fig 1). The average age was 15.7 years (range 14.4 – 16.5) and majority of the participants were female (11 out of 14) and currently undergoing orthodontic treatment (10 out of 14) (Table 2). Of the four who were not undergoing treatment, P1 and P7 were currently waiting to start treatment, P11 reported high levels of anxiety and was awaiting restorative work under sedation prior to orthodontic treatment, while P14 wanted treatment but did not qualify for NHS treatment. The interviews lasted approximately 45 mins each.

Three inter-related themes were generated that create a narrative about the intricate relationship between malocclusion, dental appearance and peer relationships.

Theme 1: Impact of malocclusion on peer relationships

The participants all reported how having a malocclusion and subsequent orthodontic treatment impacted on their peer relationships both in positive and negative ways. An overriding subtheme of this that developed from the data concerning young people being self-conscious and feeling judged by their peers, on the basis of their dental appearance

which they felt impacted on their self-esteem, and confidence. This they reported affected their behaviour, trying to avoid showing their teeth in social interactions. Young people also felt pressured by their peers both implicitly and explicitly to get orthodontic treatment. Participants reported not liking their teeth before orthodontic and being very elf-conscious or embarrassed about their dental appearance especially in social situations, with several participants reporting they felt people were staring at their teeth:

"I don't like pictures of me when I smile or just like whenever I look in the mirror or like brushing my teeth." (P12).

"I don't really like people looking at my mouth when I smile kind of thing" (P10).

"People would look at my teeth quite a lot. That's why I don't smile because I know, they noticed that." (P7).

Participants reported this led to a lack of confidence in social situations and social anxiety especially when meeting new people even if nothing was said:

"Well, I definitely felt more shy because I didn't want anyone to look at me. I wasn't really confident into going up to people." (P8)

"I worry what other people think about my teeth especially if I'm with someone that I don't know. I really like worry what they might think" (P14).

Participants reported becoming more self-conscious of dental appearance with age with a corresponding greater impact on social confidence.

"Well, I mean, I didn't like them, and stuff like in primary school though, I like, I don't really care. And then in like secondary school, I think I started to care more about what I looked like and stuff and then like I didn't like my teeth" (P2).

As well as being self-conscious about their teeth participants reported that they felt they were being judged on their dental appearance, even if not overtly, and they worried about what other people thought of them. They were at the same time aware that appearance-based judgement was a universal behaviour and they in turn judge people in the same way:

"I guess that you're scared other people will judge you for that (appearance of teeth)*, because your kind of judging other people"* (P13)

"I really try to not judge people on how they look. And yeah, you can try as hard as you want, but it always happens" (P3).

"I just always thought that people would like, treat me differently. But I know that was in my head, so I kind of just let it go" (P7).

This included broader moral and socioeconomic judgements with having good teeth and a nice smile being associated being a good person and affluence while having a malocclusion and poor smile to being a bad person and poverty:

“In some people's minds subconsciously, they would perceive you as a better person. Depending on your teeth, because if you had really awful teeth, I think it would change their view on you.” (P4).

“Some people, like, couldn't afford to have braces and stuff. So, then you might think, oh, they're poor or something by having like wonky teeth. If you have really straight white teeth like ones that almost look like composite bonding and stuff like that, then you definitely would look like you're rich” (P13).

Participants reported they felt under pressure socially from peers to have orthodontic treatment:

'You have that extra added pressure of people saying things like oh their teeth are wonky or making jokes and things like that so its preventable by getting braces’ (P5).

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“It's mainly just people around me being just like, oh, you're gonna need braces. Or else people want like you to have stuff like that. So, it's kind of like subliminal messaging that has gotten me to the point I'm at [deciding to have orthodontic treatment)*”* (P1).

“Once, I wanted to start crying because the boys are like, 'you should get braces treatment', before I got braces” (P2).

Participants, however, did not feel judged by *friends* who they felt were more accepting:

"With my friends, I like to think at least that they get along with me well because of how I act, how I am, not just how I look" (P1).

Participants reported actively trying hide their teeth in social situations and online, avoiding smiling and showing their teeth, for example in photographs.

"I, like, take a selfie on my phone and so you can only see the top half of my face. it's just like my eyes and forehead" (P3).

"Well, I didn't smile ever like in pictures or anything. Even when I talk to people I would never smile" (P7).

This all highlights the increased level of self-consciousness and embarrassment this age group feel about their dental appearance and how this increases from childhood to adolescence. While this has been previously reported we specifically explored the impact this had on peer relationships both negative and positive (Prado et al 2022). This included affecting behaviour in social interactions with participants actively trying to hide their teeth most notably avoiding smiling, which again supports previous research (Josefsson et al 2010; Mohammed et al 2023; Prado et al 2022; Taghavi Bayat et al 2013: Trulsson 2002).
The influence of peers as a motivating factor to seek orthodontic treatment has also previously been highlighted (Longstaff et al 2021; Prado et al 2022). Advertising, television and social media appear to reinforce this (Josefesson et al 2010: Longstaff et al 2021; Taghavi Bayat et al 2013).

The current research was conducted in the aftermath of the Covid-19 pandemic with so much of young people's ocial and academic world moving online, and young people's responses revealed a number of perceptions and experiences related to their teeth that are specific to that point in time. Most preferred not to have the camera on during online lessons and discussed the use of lighting and filters to enhance their appearance. A number of participants reported they found face masks, and online lessons in which they could turn their cameras off, provided a means of escape from the self-consciousness they would normally experience, related to their teeth, and provided some relief from the fear of negative responses from peers they would normally experience.

"I have the mask on all the time. That brings a little comfort to me, like when I'm at school. So, I very much appreciated masks because it kind of made me look like it made me feel like I was less like a bunny" (P12).

The impact of the pandemic on this generation's mental health, which may have heightened negative concerns about appearance particularly in girls, has previously been reported but it remains to be seen if the effects are long term (Choukas-Bradley et al 2022; Holt et al 2022). In relation to orthodontic patients, previous research has investigated issues relating to treatment progression and psychosocial effects but not in relation to potential perceived positive benefits such as mask wearing (Wafaie et al 2022).

Several participants currently in fixed appliance treatment highlighted the problems they had eating socially as food got stuck in the appliance and they were not able to clean their teeth. One participant actively avoided eating at school because of this:

"Sometimes I didn't eat at school. I don't have lunch at school. Because if it's something if I see my teeth because on the toilets, there are no mirrors so I can't see my teeth, if they're dirty. So I prefer just to not eat" (P2).

"To do like with smiling and stuff, especially like it's quite difficult to clean the braces right. especially if you're in school and like you have lunch" (P3).

One of the main issues that was discussed was the prevalence of bullying and teasing directly related to dental appearance which in part reflects the nature of the interview and research aims of the study. All participants reported being either being victims or witnessing bullying or teasing related to dental appearance (DiBiase et al 2024). This was primarily non-physical in nature being verbal, mostly making mean comments behind someone's back or online usually as a comment on photographs that the participant had posted on social media sites:

"From a young age, I was suffering a bit of bullying in school because of my teeth. At the time I don't think it really bothered me that much at the time. I suppose it only really bothered me when people started saying things" (P8).

"There was some girl who said some really nasty stuff about my teeth, and I think that like definitely made it worse. What she said wasn't very nice, but it wasn't to me. It was behind my back to quite a few other people. I obviously felt more insecure about how they looked" (P14).

“I’ve had it before like a photo of me being sent to a group chat, people have been talking about me and not in the most like particularly nice way.” (P5).

An association between bullying and certain traits of malocclusion has previously been found, the incidence varying greatly dependent on the definition of bullying used, the sample group and the geographic location (DiBiase et al 2024; Seehra et al 2011; Tristao et al 2020). While not all participants reported being bullied or teased personally about their teeth, without exception all had observed it happening to other people and were aware of the impact this could have on the victim:

“Well, there was this one person, and her teeth were very well all over the place. And she would get called things like a rabbit and stuff" (P8).

“Even if she wasn't insecure about her teeth someone making a comment like that, you know, that would affect me” (P5).

“Like, this girl had her front teeth, were more like what do you call it like, you know, like, forward, yeah. So, they would like call bunny teeth and stuff” (P9).

While most of the participants claimed, or were not aware of, being affected by insults or comments made about their dental appearance, some did talk about how this impacted them in the longer term. One participant observed that their experience had stayed with

them, suggesting it had impacted them in a way they were not able to fully process or articulate:

“I think they got to me like because as much as I can try the right things like that not to get to me, it's hard to stop them completely, so they definitely like got me a little bit” (P3).

'No, not really (when asked if a comment made about their teeth bothered them) *but I just think it’s kind of weird that I’ve held that one comment in my head for like six years'* (P12).

There is a wealth of research showing the long term negative effects of bullying including depression, anxiety, relationship problems and social isolation, poor physical health and life outcomes (Arseneault 2018; Copeland et al. 2013; Gladstone et al. 2006).A number of participants were sanguine about comments based on dental appearance. They did not interpret them to be malicious, seeing them as not meant to cause insult or believed these comments to be an attempt at humour, particularly if it was made by someone they liked, or this was acceptable behaviour within their friendship group:

'The most creative insult I think I ever got was someone called me a vending machine, they were like they were like are you a vending machine? Can I put some coins? I was like OK?' (P3).

“Like I do remember though, like one of my friends and somebody said like it was her best friend though, but he was like “Oh gappy” or something. And then she was just like “Oh

stop". Like it wasn't like deep. Like, it's not like she was getting upset like it was just like funny thing because they were her friends" (P12).

Participants reported discussing their treatment with friends who had also gone through the same experience. Dental treatment was therefore creating connections and binding young people in a new way: friends were viewed as a source of support and information without judgement which has previously been reported (McNair et al. 2006).

"Yes, I had a small friendship group. And well, they all had some sort of treatment to their teeth as well. All of my friends. And they didn't really judge me because, they knew how it was" (P8).

"Like, I suppose it's probably just nice to talk to people who have like, gone through and experienced the same thing that you have. And it's just nice to know that there are people like that" (P6).

This may be in part indicative of other factors such as the age of the participants and the school environment, but it also would imply the implementation of orthodontic treatment in itself has a positive impact in children and adolescents who are experiencing bullying due to their dental appearance (Seehra et al 2013; Shah et al 2019).

Theme 3: Social expectations and experience of treatment

The majority of participants were undergoing or waiting to start treatment and they discussed how this had impacted on peer relationships, as well as how their friendships were a source of support for them during treatment. Orthodontic treatment was universally seen as 'normal' and acceptable by the participants and a part of growing up accompanied by an expectation that treatment should ideally be carried out in childhood or adolescence when a lot of their peers were undergoing the same experience, normalising it and making it socially acceptable:

"I didn't think of them as cool, I just kind of thought of them like a normal thing you would get when your teenager is like. You get, you get the braces, and you get them off when you're an adult" (P3).

"Loads of people have braces, I think, and stuff. You'll get them at different times. A lot of people got them on in like year seven and year eight. But it's not like nobody really cares if you have braces." (P13)

It was considered unusual and less socially acceptable to have orthodontic treatment as an adult:

"I think, but I think if anyone's got them at any age, it's fine. But it's just a bit more odd, but sort of, oh, you've got braces at 25, that's a bit different. Because you know, you're at work at that age. Not many people do have them at that age. You're not really with a community, that're going through the same thing as you. So yeah, I think it's a bit different" (P7).

The acceptance and desirability of treatment in adolescent patients and their parents/guardians has previously been reported (Geoghegan et al 2019; Longstaff et al 2021; Patel et al 2010). Overwhelmingly, there was a belief among participants that treatment would improve social and emotional well-being and self-confidence in social situations allowing them to smile without embarrassment and worrying about being judged:

"But I know that once it's over, I know I will be way more confident" (P8).

"I think I'll be able to like, smile and laugh (after orthodontic treatment). *Not covering my mouth and like worrying what other people would think of me, even when I'm eating and stuff like. I worry what other people think about my teeth"* (P14).

"I think I'll stop hearing comments, like negative comments or have more positive comments. Yeah, I think I will feel more confident" (P2).

This finding again supports previous research that a major incentive to pursue treatment is social with an expectation that it will reduce social anxiety and improve peer relationships (AlQuraini et al 2019; McNair et al 2006; Mohammed et al 2022; Twigge et al 2016).

Discussion

The results of this study show that dental appearance causes a high degree of self-consciousness that increases from childhood to adolescence with a belief that it results in being judged by their peers, with most participants reporting undertaking behaviour to try and hide their teeth in social situations or photographs. All participants reported being

teased or having nasty comments made about their teeth or witnessing it happening to others. While many stated that this did not upset them, several reported that they were still affected by the comments, even though they may not have been able to articulate the specific impact this had. There was also a tendency not to see this behaviour as malicious especially if it came from someone they considered a friend. Orthodontic treatment was seen as desirable and normal at this age with an expectation it would improve confidence in social situations. Peers and friendship groups were a source of support and information during treatment.

This study shows that dental appearance matters socially to young people and it can affect their peer relationships. This reinforces the importance of our teeth in social interactions and the impact that having a malocclusion can have. Similarly, it would imply that ultimately the main benefits of orthodontic treatment are social, which is an important finding as poor relationships are related to negative psychosocial outcomes (Woodward and Ferguson 2000; Deater-Deckard 2002; Kochel et al 2017; Schwartz-Mette et al. 2020; Ranøyen et al 2019; Pickering et al 2020).

A concerning finding in this study is that all participants had either experienced or witnessed what would be considered bullying in relation to dental appearance which shows how prevalent it is. This is consistent with previous research showing a relationship between certain traits of malocclusion and being a victim of bullying (Seehra et al. 2011; Tristao et al 2011). However, most of the young people in this study did not see it as bullying but rather as normal behaviour in this age group, often trying to make light of it, saying it had little impact on them, or that it was meant in humour. This strategy arguably allows young people to maintain face within their peer group and friendships with those making comments. Despite trying to minimise the impact of such comments, several participants reported

being affected in the longer term, still thinking about what had been said: clearly these instances were memorable, as participants recalled them easily, and in detail, despite the incidents in some cases happening a number of years ago.

In this study orthodontic treatment was universally seen as normal or indeed desirable, a belief that is driven both by the judgements of individuals with untreated malocclusion, and the prevalence of orthodontic treatment in this age group. During treatment participants found friends supportive. This consisted of feeling they were part of a community with everyone having treatment at the same time, they were able to be themselves among friends without fear of judgement and talking with friends about treatment. Overall, the experience of this group socially in relation to orthodontic treatment was very positive.

The age of orthodontic treatment was also an important issue: treatment was seen as normal in adolescence but not in adulthood. Teenagers have a strong desire for social proof, to be like everyone else leading them to seek treatment at a time their peers are undergoing it (Trulsson et al 2002). Access to treatment also reflected an underlying social judgement on a person's financial status, despite the majority of individuals in this study receiving their treatment on the NHS meaning there was no direct personal cost. The one participant who did not receive NHS treatment because her malocclusion fell below the acceptance criteria remained unhappy with the appearance of her teeth. Meanwhile a participant who was undergoing treatment specifically supported the provision of orthodontic treatment by the NHS because of its positive psychosocial benefits and felt it should be eligible to more people. This however is not reflected in the current funding model in the UK which is defined on morphological features on the malocclusion not its psychosocial impact.

Limitations

The COVID 19 pandemic had a significant impact on the design and recruitment to this study. This reflected in the number of schools that were ultimately recruited from, the sample used and the nature of the interviews. The online interviews although they are more convenient that face to face in terms of scheduling, may arguably have impacted the development of a rapport between the interviewer and participants and the ability to pick up and react to non-verbal ques (Lobe at el. 2022). However, recent research suggests that online interviews (as opposed to face-to-face) with young people may be less detrimental to interview quality and rapport than one may expect. Itdoes not appear to affect conversational involvement and it does not seem to impact on the quality of the data that can generated (Anthony et al 2025). The social restrictions that the pandemic caused may have impacted on the participants perceptions and experiences which to a degree are reflected in the findings of this study. This may make effect how the generalisability of the results of this study. However, as the results are supported by the findings of previous research making we feel it appropriate to apply to adolescents in the U.K. and other similar countries.

In qualitative sample size is highly debated. The concept of data saturation has previously been used to provide a cut off when no further recruitment is required. However, the appropriateness this practice has been questioned in terms of what it actually means and its neo-positivist epistemological approach which is inconsistent with the principles of reflexive thematic analysis (Braun and Clarke 2019). The original plan was to recruit 20 participants but ultimately due to primarily non-attendance 14 were interviewed. However, we feel that due to the depth and nature of the interviews the data set collected contained enough information power to address the research question.

Qualitative research methodology is incredibly varied and diverse (Holloway & Todres 2003). In a speciality like orthodontics that is patient driven, with individuals actively seeking treatment to address specific concerns, qualitative research can add depth to our understanding. Through its theoretical freedom, thematic analysis provides a flexible and useful research tool, which can potentially provide a rich and detailed, yet complex account of data. While not associated with a particular epistemological position such as analyses like grounded theory, the use of thematic analysis is still tied to the theoretical framework that prompted the research question both from the perspective of the team carrying out the research and the broader society in which it occurs. It is important to acknowledge that this will no doubt influence the direction and content of the interviews.

A common finding in this study was the experience of or witnessing of teasing or name calling in relation to dental appearance. This study represents a follow up study to a quantitative study looking specifically at the relationship between malocclusion and bullying. The initial aim was to follow up the participants who reported being bullied in the original study. This was not possible due to the high attrition experienced primarily as a result of the COVID-19 pandemic and the limited number of schools we ended up working with. However, despite the majority of the sample having not previously been identified as being bullied, it was concerning how common the experiencing or witnessing of teasing or name calling due to dental appearance was, implying it is universal behaviour.

The sample consisted of mostly adolescent girls. Gender differences have previously been reported in relation to OHRQoL, with females having a stronger relationship between OHRQoL and malocclusion (Ranavuori et al 2023; Twigge et al 2016). With a sample mainly consisting of adolescent females, this may have led to a greater emphasis on the psychosocial impact of a malocclusion than we would find if our sample included more

males. Future research should look more closely at the nature of the relationship between peer relations, malocclusion and orthodontic treatment in adolescent males.

Conclusions

Adolescents have a high level of self-consciousness about their dental appearance and this is reflected in behavioural strategies they will undertake to try and hide their teeth in social situations, online and in photographs. They judge and fear being judged based on their dental appearance. Most have experienced or witnessed teasing or having negative comments made about them regarding their teeth and this has a long-term psychological impact. They see orthodontic treatment as desirable, even with a mild malocclusion with the expectation as well as improving dental aesthetics it will improve their confidence socially. Their friends and peers are a source of support during treatment and no one reported being bullied or teased for having braces.

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Figure legend

Figure 1 Flow chart showing participant recruitment and drop-out.