

Teenage Dental Alignment, Self-Esteem, Parental Stress and Performance in Schools in Kenya: A Case of Dentplan Dental Surgeons in Kenya

Dr. Domeniter Naomi Kathula*

Senior Lecturer, The Management University of Africa

* Corresponding Author

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ABSTRACT

The adolescent period is marked by significant physical and psychological transformations, during which dental appearance can play a pivotal role in shaping self-perception and social interactions. This issue extends beyond the individual to affect the family unit, where parental concern for their child's wellbeing and the financial implications of orthodontic treatments contribute to heightened stress levels. This, in turn, can disrupt the supportive environment crucial for a teenager's educational journey. By employing a descriptive research design, this study aimed to conduct an analysis of the current state of teenage dental alignment issues in Kenya, exploring their correlation with self-esteem levels and the subsequent effects on parental stress and academic performance. This study was anchored on Social comparison theory. The target population for the study comprised learners with dental misalignment, their parents or guardians and dental surgeons at Dentplan Dental surgeons in Kenya. The study purposively selected 20 learners with dental misalignment and 3 surgeons to take part in the study. The study used both structured questionnaire and Key Informant Interview (KII) for purposes of collecting primary data. The questionnaires was administered to the learners or their parents, while KII was administered to the surgeons. The quantitative data collected using the questionnaire was analyzed with the aid of SPSS using both descriptive and inferential statistics. The qualitative data gathered using KII was analyzed thematically using content analysis. The findings were presented in tables and narratives. The findings revealed that dental alignment significantly affects self-esteem and school performance among teenagers treated at Dentplan Dental Surgeons in Kenya, with an R squared value of 0.566, indicating that dental alignment explains 56.6% of the variation in these outcomes. The regression coefficients results revealed a significant positive effect of dental alignment on self-esteem and school performance, with a coefficient ($B = 0.653$, $p\text{-value} = 0.000$). The study concludes that dental alignment significantly affects self-esteem and school performance among teenagers treated at Dentplan Dental Surgeons in Kenya. In view of the findings, the study recommends that dental practitioners should prioritize comprehensive and individualized treatment plans that address both the physical and psychological impacts of dental alignment issues and they should partner with schools for dental check-ups and education early in learners life.

Keywords: Teenage dental alignment, self-esteem in adolescents, parental stress, orthodontic care in Kenya, academic performance

BACKGROUND TO THE STUDY

The performance of schools is an important aspect of educational systems around the world, as it directly

impacts the quality of learning and development opportunities available to students (Díez, Villa, López & Iraurgi, 2020). A school's performance can be measured in various ways, including academic achievements, student engagement, teacher effectiveness, and the availability of resources and facilities. According to Paudel (2021), high-performing schools tend to provide a conducive learning environment that nurtures intellectual curiosity, critical thinking, and personal growth among students. These schools often adopt innovative teaching methods, offer a wide range of extracurricular activities, and maintain high standards of discipline and academic excellence. As a result, students from such schools are generally better prepared for higher education and the challenges of the modern workforce (Abbad, 2021). Moreover, the performance of schools plays a significant role in shaping the future prospects of students. Academic success in well-performing schools can open doors to prestigious universities, scholarships, and rewarding career opportunities. In addition, schools that foster a positive learning environment contribute to the holistic development of students, equipping them with essential life skills such as communication, teamwork, and problem-solving (Calleros, García & Calleros, 2024). These skills are invaluable not only in academic settings but also in personal and professional life, enhancing an individual's ability to navigate complex situations and adapt to changing environments.

During adolescence, a critical period of physical and psychological development, teenagers are acutely aware of their appearance and how they are perceived by their peers (Tabassum, Qiang, Abbas, Amjad & Al-Sulaiti, 2024). Dental alignment issues, such as crooked teeth or malocclusion, can significantly impact a teenager's self-confidence and body image. This is particularly relevant in today's society, where social media and cultural standards often emphasize aesthetic perfection. The psychological impact of perceived physical imperfections can lead to social anxiety, reluctance to participate in school activities, and even depression, all of which can adversely affect a student's engagement and performance in school (Hughes, Taylor, Beckett, Lindner, Martin, McCulloch & Stark, 2024). Parents of teenagers facing dental alignment problems may experience significant stress due to concerns about their child's well-being, self-esteem, and academic success (Madalena, Loureto, Santos, Santos, Fortes & Freires, 2024).

The relationship between teenage dental alignment, self-esteem, and school performance is further complicated by the social dynamics within school settings. Teenagers are in a stage of life where peer opinions are highly valued and often internalized (Ellakany, Fouda, Alghamdi & Bakhurji, 2021). Bullying or teasing related to dental appearance can exacerbate feelings of low self-worth and alienation among affected teenagers. This social stigma can lead to decreased participation in class, avoidance of school activities, and a decline in academic motivation and performance. The school environment, intended to be a space for learning and growth, can thus become a challenging environment for teenagers struggling with dental alignment issues and associated self-esteem concerns (Tabassum, Qiang, Abbas, Amjad & Al-Sulaiti, 2024). Schools can play a pivotal role by creating an inclusive and supportive environment that values diversity and discourages bullying.

Studies have consistently shown that teenagers with dental alignment issues are more prone to experiencing lower self-esteem compared to their peers with aligned teeth (Smyth, 2021; Shahzad, Awais, Kazmi, Arshad, Manzar, Rashid & Ahmad, 2023). This correlation is partly due to societal and media-driven standards of beauty, which often emphasize straight, perfect teeth as an ideal. Adolescents, being at a stage where peer approval is highly sought after, can find themselves at a disadvantage, leading to feelings of inadequacy and lowered self-worth. This negative self-perception can, in turn, affect their social interactions, willingness to participate in school activities, and overall engagement in the classroom (Tabassum *et al.*, 2024). Furthermore, the psychological impact of dental misalignment on teenagers extends into their home lives, contributing to parental stress. Parents may feel anxious about their child's social and emotional well-being, in addition to the pressures of securing and financing orthodontic treatment (Imani, Jalali, Nouri & Golshah, 2021).

Other researchers have delved into the impact of aesthetic dental concerns on academic performance more directly (Campos, Costa, Bonafé, Marôco & Campos, 2020). For example, studies have found that teenagers who are self-conscious about their teeth are less likely to participate in class discussions, engage with their peers, and pursue leadership opportunities (Beckett & Callus, 2024). This withdrawal from active participation in the educational environment can lead to a decline in academic achievements. Additionally, the distraction caused by concerns about dental appearance can hinder concentration on studies, further exacerbating the issue (Al-Abyadh, Alatawi, Emara, Almasoud, Alsetoohy & Ali, 2024). In terms of interventions, research suggests that corrective orthodontic treatment can have a positive impact on a teenager's self-esteem and, by extension, their academic performance. Improvement in dental aesthetics often leads to enhanced social interactions and increased confidence, which are crucial for success in school (Stojilković, Gušić, Berić, Prodanović, Pecikozić, Veljović & Đurić, 2024). However, the timing of the intervention is critical, as the benefits need to be balanced against potential disruptions to school work and activities due to orthodontic appointments and adjustments.

The psychological theories underpinning these findings also provide valuable insights. Social comparison theory, for instance, explains how teenagers compare their physical appearance, including their dental alignment, with that of their peers (Fornefeld, Fricke, Schulte & Schmidt, 2024). Such comparisons can result in feelings of inferiority when discrepancies are perceived, particularly in environments like schools where peer groups play a significant role. Self-determination theory further elaborates on the basic psychological needs of competence, autonomy, and relatedness, all of which can be impacted by one's self-esteem and social standing, influenced by dental appearance (Teraoka & Kirk, 2024). Moreover, the concept of body image and its relation to self-esteem has been explored in the context of dental alignment. Researchers have found that body image is not limited to weight and body shape but extends to other aspects of physical appearance, including teeth (Josephine, Sukanto & Redita, 2024).

In the United States, the issue of teenage dental alignment is particularly pronounced due to the high value placed on appearance and the significant costs associated with orthodontic treatments (Tanne, 2020). The societal pressure for a perfect smile is intense, often mirrored in media portrayals and social expectations, leading to heightened self-consciousness among teenagers with dental misalignments. This concern is compounded by the fact that not all families can afford orthodontic care, given the substantial out-of-pocket expenses not always covered by insurance (Jedliński, Belfus, Milona, Mazur, Grocholewicz & Janiszewska-Olszowska, 2024). The resulting parental stress over financial burdens and concern for their child's well-being creates a tense home environment, indirectly affecting students' focus and engagement in school. In the academic sphere, the self-esteem issues stemming from dental appearance leads to decreased participation and lower academic achievements, as students might shy away from speaking out or engaging fully in classroom activities (Jedliński *et al.*, 2024). However, the UK National Health Service (NHS) provides orthodontic treatment for under-18s who need it for health reasons, somewhat easing the burden of financial stress on families and making dental care more accessible (Humphreys, 2021). This approach has helped in reducing the disparities in self-esteem and academic performance related to dental alignment issues among schools in UK. However, societal pressures regarding appearance and the stigma attached to dental irregularities still impacts teenagers' self-confidence and school engagement.

In Africa the issue of teenage dental alignment, self-esteem, parental stress, and school performance takes on unique dimensions influenced by cultural, economic, and healthcare system factors (Fisher, Fisher, Arsenault, Jacob & Barnes-Najor, 2020). In Nigeria, for instance, the emphasis on aesthetics is not as evident as in Western cultures, but the availability and high cost of orthodontic treatment creates serious stress for parents wanting to address their children's dental issues. This stress affects the family environment and, by extension, a teenager's ability to perform optimally in school. Additionally, the stigma associated with visible dental issues in Nigeria still impacts a teenager's self-esteem, potentially leading to withdrawal

from social interactions and decreased participation in school activities (Adelabu & Yamanaka, 2020). In contrast, South Africa, with a more developed healthcare infrastructure, provides better access to dental care, but economic disparities mean that not all families are able to afford such treatments, indicating similar issues of accessibility and financial strain as seen in other countries (Northridge, Kumar & Kaur, 2020). In Ghana, communal and familial support systems play a crucial role in buffering the impact of individual challenges, including those related to dental alignment and self-esteem (Oti-Boadi, Andoh-Arthur, Abekah-Carter & Abukuri, 2024). The strong sense of community and emphasis on collective well-being provides a supportive backdrop for teenagers facing self-esteem issues. However, the lack of widespread access to affordable orthodontic care remains a concern for many families in Ghana, leading to parental stress over their children's health and future prospects.

In Kenya, as in many other countries, teenage dental alignment issues such as crooked teeth or malocclusion is common and is significantly impacting adolescents' self-esteem and confidence (Kabimba, 2022). During the teenage years, individuals are particularly sensitive to their physical appearance and how they are perceived by their peers. Research has shown that misaligned teeth can become a source of self-consciousness and social anxiety, as teenagers may fear being teased or excluded based on their appearance (Kabimba, 2022). This heightened concern about looks is exacerbated by globalized media and social networks, where ideals of beauty often emphasize perfect smiles and aligned teeth. Access to affordable and quality dental care is challenging in Kenya, particularly in rural areas or for families with limited resources. The cost of braces or other corrective treatments is prohibitive, leading to significant stress for families who wish to provide the best possible care for their children (Park, Zafeiriadis & Kotsanos, 2022). This stress has ripple effects within the family, affecting the overall home environment and, by extension, the teenager's performance in various aspects of life, including school.

Statement of the Problem

Dental alignment issues during adolescence, a period marked by significant physical and emotional development, often have far-reaching implications on a teenager's psychological well-being (Jansen & Kiefer, 2020). Misaligned teeth or malocclusions not only affect oral health but also become a source of self-consciousness for many teenagers. In a society where aesthetic standards, influenced by global media and cultural norms like Kenya, often prioritize straight, well-aligned teeth, teenagers with dental irregularities may face heightened insecurities about their appearance (Smyth, 2021). This insecurity can manifest as reduced self-esteem, which is a critical psychological aspect that influences various facets of a teenager's life, including their social interactions and academic engagement. In the Kenyan context, the issue of teenage dental alignment and its psychological impacts is compounded by the accessibility and affordability of orthodontic treatments (Richmond, 2023). While urban areas like Nairobi offers more options for dental care, rural and underserved regions faces significant barriers to accessing specialized orthodontic services. The economic burden of such treatments, which are often perceived as costly and elective, places additional stress on families, particularly those with limited financial resources (Naoum, 2023). This financial strain not only affects the parents' decision-making regarding orthodontic interventions but also contributes to a broader context of parental stress. Parents, inherently concerned about their children's well-being and social acceptance, often feel powerless or frustrated by their inability to afford corrective dental treatments, leading to an emotionally charged family environment that further impact a teenager's self-perception and confidence.

For Kenyan teenagers grappling with dental alignment issues, lowered self-esteem translates into diminished participation in class, reluctance to engage in public speaking or group activities, and an overall withdrawal from the academic community (Kobkurkul, Pisankikitti, Rueangkaew, Angkoolpakdeekul, Varothai, Bunyaratavej & Uchida, 2024). This withdrawal not only hinders their educational achievements but also limits their social development and extracurricular involvement, which are essential components of a

holistic educational experience. The role of schools and educational institutions in addressing these issues is pivotal. In the case of Dentplan Dental Surgeons, collaboration with local schools to provide screenings, awareness programs, and affordable treatment options is instrumental in mitigating the impacts of dental alignment issues on students' well-being and performance. However, the effectiveness of such initiatives is contingent upon a broader understanding and acknowledgment of the problem by educators, healthcare providers, and policymakers (Naoum, 2023). There is a need for comprehensive strategies that encompass health education, psychological support, and accessible dental care within the educational framework to address the multifaceted challenges faced by teenagers with dental alignment concerns.

Cultural perceptions of beauty and health, as well as stigmatization of orthodontic treatments, influence teenagers' and parents' attitudes towards seeking care (Tare, 2020). In some communities in Kenya, dental misalignment may be trivialized or not considered a priority, leading to a lack of support for teenagers experiencing related psychological distress. This cultural context points to the importance of community-based awareness campaigns and education to shift perceptions and prioritize adolescent dental health and its implications on mental and academic well-being. Additionally, the role of digital media and social networking sites in shaping teenagers' self-image and perceptions of beauty cannot be overlooked (Armah, Martin, Harder & Deer, 2018). With increased exposure to global standards of aesthetics, Kenyan teenagers, like their counterparts worldwide, are susceptible to the pressures of conforming to idealized images of perfection. Additionally, there is dearth of studies specifically addressing the relationship between teenage dental alignment, self-esteem, parental stress, and school performance within the Kenyan context. This gap in research is particularly concerning given the critical nature of these issues and their potential impact on the holistic development of adolescents. The existing body of literature mainly focuses on Western context, hence contextual gap. This study therefore sought to explore the challenges faced by Kenyan teenagers, extending beyond the clinical implications of dental misalignment to encompass the psychological and socio-economic impacts, including self-esteem, parental stress, and academic outcomes.

Research Objectives

1. To explore the effect of dental alignment on self-esteem and school performance among teenagers treated at Dentplan Dental Surgeons in Kenya.
2. To examine the stress levels of parents whose teenagers have dental alignment issues and receive care from Dentplan Dental Surgeons in Kenya.

Research Questions

1. How does dental alignment affect self-esteem and school performance among teenagers treated at Dentplan Dental Surgeons in Kenya?
2. What are the stress levels of parents whose teenagers have dental alignment issues and receive care from Dentplan Dental Surgeons in Kenya?

Research Hypothesis

H₀: Dental alignment does not have statistically significant effect on self-esteem and school performance among teenagers treated at Dentplan Dental Surgeons in Kenya.

THEORETICAL FRAMEWORK

This study was anchored on Social comparison theory which was proposed by Festinger (1954). The theory states that individuals have an inherent drive to evaluate their own opinions and abilities, and in the absence of objective means, they compare themselves to others. As a natural part of human behavior, we engage in this comparison as a way of fostering self-evaluation and self-improvement. According to Festinger (1954),

there are two types of social comparison: upward and downward. Upward comparison involves comparing ourselves to those who we perceive to be better off or superior in some way, which can motivate self-improvement but may also lead to feelings of inadequacy. Downward comparison, on the other hand, is when we compare ourselves to others who are worse off, potentially boosting our self-esteem but also possibly creating complacency or a lack of motivation for self-improvement (Festinger, 1954; Suls, Martin, & Wheeler, 2002; Gibbons & Buunk, 1999; Wills, 1981). Research has expanded on foundational theory to explore the conditions under which individuals are more likely to engage in social comparison and the effects these comparisons can have on well-being. Studies have found that people are more likely to compare themselves to others when they are uncertain about their abilities or opinions and when they are in a competitive environment (Festinger, 1954; Wood, 1989). Moreover, the impact of social comparison on self-esteem and mood has been shown to be significant, with upward comparisons often leading to lower self-esteem and downward comparisons potentially boosting self-esteem but at the cost of long-term personal growth (Collins, 1996; Mussweiler, Rüter, & Epstude, 2004).

The advent of social media has added a new dimension to social comparison, with individuals now having the ability to compare themselves to a much wider network of peers as well as to idealized representations of others. Studies suggest that frequent use of social media platforms can exacerbate feelings of envy and inadequacy, particularly when users engage in upward comparisons with the often idealized lives presented online (Chou & Edge, 2012; Feinstein et al., 2013). This phenomenon underscores the potential negative psychological impacts of digital age social comparison, highlighting the need for individuals to cultivate awareness and resilience in the face of pervasive online comparison opportunities (Appel, Gerlach, & Crusius, 2016; Vogel, Rose, Roberts, & Eckles, 2014).

However, social comparison theory also posits potential positive outcomes, suggesting that comparisons can serve as a motivational tool and a means for self-enhancement when approached constructively. For example, upward comparisons can inspire individuals by providing role models and benchmarks for achievement, while downward comparisons can offer comfort during difficult times by putting one's own problems into perspective (Lockwood & Kunda, 1997; Taylor & Lobel, 1989). The key to harnessing the positive aspects of social comparison lies in the individual's ability to engage in reflective rather than reflexive comparison, focusing on growth and learning opportunities rather than merely measuring oneself against others (Buunk & Gibbons, 2007; Gerber, Wheeler, & Suls, 2018). This more nuanced understanding of social comparison theory highlights its relevance not just in explaining human behavior but also in offering pathways toward healthier self-perception and interpersonal relations.

This theory was considered relevant in the context of teenage dental alignment and its impact on self-esteem, especially within the educational settings in Kenya. Teenagers, being in a critical phase of identity development, are highly susceptible to social comparisons, often using their peers as benchmarks for physical appearance, including dental aesthetics. These comparisons can significantly influence their self-perception and self-esteem, which are crucial determinants of their social interactions and academic engagement (Festinger, 1954). It is essential to consider the cultural and social aspects that might influence these comparisons. For instance, the emphasis on physical appearance and the standards of beauty can vary greatly across different cultures. In Kenya, where diverse cultural values intersect with globalized media influences, teenagers experience mixed signals about beauty standards, including those related to dental alignment. These conflicting standards have the ability to exacerbate the impact of social comparisons, potentially leading to higher levels of dissatisfaction and lower self-esteem among adolescents with dental alignment issues (Crocker & Park, 2004).

The role of social comparison extends to the academic environment, where teenagers spend a significant portion of their time. Schools are not just centers for education but are also critical social arenas where students engage in constant social comparisons. Teenagers with dental alignment issues might perceive

themselves as less favorable in these comparisons, which can affect their classroom participation, willingness to engage in public speaking, and overall academic performance. This phenomenon is supported by research indicating that students' perceptions of their physical appearance relative to their peers can influence their academic self-concept and motivation (Marsh & Craven, 2006). Furthermore, parental stress related to their teenager's dental alignment issues, a key focus of the study involving Dentplan Dental Surgeons, can also be framed within the social comparison theory. Parents are likely to engage in social comparisons with other families, evaluating their ability to provide for their children's orthodontic needs. In a society where dental treatments are seen as a marker of socio-economic status, parents unable to afford such care might experience heightened stress and concern for their children's well-being and social acceptance. This stress can, in turn, affect the family dynamics and the support system available to the teenager, further influencing their self-esteem and academic performance (Wood, 1989).

Social comparison theory was considered relevant to this study, particularly when examining Dentplan Dental Surgeons' case. Teenagers, who are at a crucial stage of developing their self-identity and self-esteem, are likely to engage in social comparisons regarding physical appearance, including dental alignment. Such comparisons is likely to influence their self-esteem and, by extension, their academic performance and parental stress levels. For instance, positive or negative perceptions of their dental alignment in comparison to their peers might impact teenagers' confidence levels, social interactions, and how they are perceived by others, which can cascade into their home environments, affecting parental stress. Moreover, the heightened sensitivity to peer opinions and societal standards during adolescence makes this group particularly susceptible to the effects of social comparison in the context of physical appearance and self-esteem, thereby indicating the importance of this theory in understanding the broader implications of dental health on teenagers' psychosocial well-being and academic life in Kenya.

Empirical Review

Dental Alignment, Self-Esteem and School Performance

Ellakany, Fouda, Alghamdi and Bakhurji (2021) evaluated factors affecting dental self-confidence and satisfaction with dental appearance among adolescents in Saudi Arabia: a cross sectional study. A cross-sectional study was conducted in the Eastern Province of Saudi Arabia among 3500 students attending intermediate and high schools. Data was collected from 2637 students using the translated Arabic version of the psychosocial impact of dental esthetics questionnaire (PIDAQ) in addition to questions about smile esthetics satisfaction and demographic variables including; gender, age, school grade, and parental level of education. Statistical analysis was performed by using logistic regression to assess the effect of demographical variables on PIDAQ and its domains at 5% significance level. The study found that 80% of the participants were satisfied or somewhat satisfied with their smiles. Tooth alignment and tooth color were the most cited reasons for adolescents' dissatisfaction about their smile, 34% and 33% respectively. Females and participants' fathers' university education figured in a statistically significant way regarding higher PIDAQ and aesthetic concerns. Females were 70%, and those with fathers' university education were 22% more likely to have a negative psychological impact. Females expressed aesthetic concerns nearly two times more than males. Participants whose fathers possessed university education had an aesthetic concern 1.25 times more compared to those whose fathers had no school or limited school education. Females and those with mothers who had university education were less likely to have positive dental self-confidence. Most adolescents exhibited satisfaction with their own smiles. Smile dissatisfaction in the remaining participants was related to teeth alignment, color and shape. Females were more concerned with dental esthetics and smile satisfaction than males.

A study by Stojilković, Gušić, Berić, Prodanović, Pecikozić, Veljović and Đurić (2024) evaluated the influence of dental aesthetics on psychosocial well-being and self-esteem among students of the University of Novi Sad, Serbia using a cross-sectional study. The study surveyed students of the University of Novi

Sad. Other Universities and private faculties were excluded from participation. Data collection used standardized questionnaires measuring the Psychosocial Impact of Dental Aesthetics (PIDAQ) and the Rosenberg Self-Esteem Scale (RSES). Questionnaire (an online GoogleForms) was sent to the students via official Facebook groups of the faculties, student's e-mails and Instagram profiles. Data analysis included descriptive statistics, Students T-test, ANOVA, multiple linear regression analysis and Spearman coefficient. The findings revealed a statistically significant difference in the total PIDAQ score and SI subdomain in relation to the academic year. In terms of self-esteem, results of multiple linear regression analysis showed that the academic year and the average point grade were significant predictors of greater self-esteem. Moreover, the Spearman coefficient value confirmed a statistically significant negative correlation between PIDAQ and self-esteem. Only 34% of respondents expressed satisfaction with their teeth. Financial constraints were identified as the main barrier for seeking interventions to improve smile satisfaction (39.5%).

Kragt, Wolvius, Jaddoe, Tiemeier and Ongkosuwito (2018) conducted a study to determine the influence of self-esteem on perceived orthodontic treatment need and oral health-related quality of life in children. This cross-sectional study was embedded in the Generation R Study, a multi-ethnic population-based cohort. In total, 3796 10-year old children participated in the present study. OHRQoL, measured with the Child Oral Health Impact Profile-ortho, and subjective orthodontic need were assessed within parental questionnaires. SE was measured with a modified version of the Harter's self-perception profile rated by the children. Higher subjective orthodontic need was associated with lower OHRQoL scores. Children with lower SE scores showed a stronger relationship between borderline and definite subjective orthodontic need with OHRQoL than children with higher SE scores did respectively. The relationship between subjective orthodontic need and OHRQoL is not based on the SE of children. However, SE modifies the relationship between subjective orthodontic need and OHRQoL. Work still needs to be done to find an explanation for the effect modification by SE in the relationship between subjective health perceptions and OHRQoL.

Lukandu, Koskei and Dimba (2020) evaluated motivations for a career in dentistry among dental students and dental interns in Kenya. The purpose of the study was to determine motivations for a career in dentistry among dental students and dental interns in Kenya. The study was a cross-sectional one where 293 individuals participated by filling and returning self-administered questionnaires. The mean age of all respondents was 22.3 years. Overall, 59.5% of the respondents had selected dentistry as their preferred career at the end of high school. Majority (76.1%) of the respondents agreed that personal interest in dentistry was an important motivating factor for them. This was followed closely by a desire to help or serve people (74%), a desire for a flexible work schedule (63%), and an aspiration to be self-employed (61.8%). The study found that there was no difference between males and females regarding these as motivating factors. On the other hand, among factors that the respondents felt had the lowest influence on their choice of dentistry was parental influence, where only 22% of the respondents indicated that this was a motivating factor for them. Other potential motivating factors such as influence by friends and siblings (30.3%) as well as career talk and guidance (41.3%) were also ranked low. In general, the respondents indicated that they were motivated much more by personal and humanitarian factors, when compared to financial and societal factors.

Stress Levels of Parents and Teenage Dental Alignment Issues

Sheethal, Shiva and Manju (2023) conducted a systematic review of the relationship between parental stress and early childhood caries. A comprehensive web-based search identified 12 studies that examined parental stress and Early Childhood Caries. The research examined several areas related to parenting, including satisfaction with parenting, parenting-related stress, the parent-child relationship, and specific parenting practices. Out of 12 studies, 10 studies showed that there was a correlation between parental stress and the occurrence of early childhood caries, and 2 studies showed there is no association. The systematic review

focuses on the work of researchers who have studied parental stress and how it is related to the occurrence of early childhood caries. A consistent association between parental attitude and oral health outcomes in children has been demonstrated by these studies. Despite several studies on the relationship between parental stress and early childhood caries (ECC), the overall literature is limited by methodological constraints that hinder the ability to establish a causal link between parental stress and ECC. Further study is also needed to advance our current understanding of the association of Early Childhood Caries and Parental Stress.

Lally, Maliq, Schreiber, Wilson and Tiwari (2023) assessed the association of parental social support and dental caries in hispanic children. A cross-sectional study design was utilized to assess the 157 parent-child triads recruited from the Children's Hospital Colorado Dental Clinic. The Basic Research Factors Questionnaire (BRFQ) survey was utilized to assess parents' oral health knowledge, attitudes, behavior, and other psychosocial measures with social support as the main predictor variable. Bivariate associations between the independent variables and dmfs were conducted. Independent variables with a bivariate association of $p \leq 0.2$ for the outcome variable were included in the multivariable linear regression model. Dental caries in children was significantly associated with less overall parental social support. Overall social support was divided into four sub-categories: errand help, money help, childcare help, and transportation help. Dental caries decreased by 7.70 units for every 1-unit increase in transportation help. A significant association was observed between parental knowledge on dental utilization and dmfs. In the multivariable linear regression model, caries was significantly associated with social support and knowledge on dental utilization. The study concludes that a higher level of social support and knowledge on dental utilization for Hispanic parents is correlated with lower rates of dental caries in their children.

Sari, Uysal, Karaman, Sargin and Üre (2015) sought to understand if orthodontic treatment affect patients' and parents' anxiety levels. The aims of this study were to determine and compare the anxiety levels of two groups of patient and parents, to identify possible gender differences between male and female subjects and to evaluate any changes in anxiety levels after 1 year of treatment. The first group consisted of 40 subjects with a mean age of 15.6 +/- 1.2 years awaiting orthodontic treatment, plus one parent of each subject (mean age 43.4 +/- 2.3 years). The second group comprised 43 patients with a mean age of 16.0 +/- 1.1 years who had been undergoing treatment for a period of 1 year, plus one parent of each patient (mean age 41.0 +/- 1.9 years). Personal information forms and Spielberger's 'State and Trait Anxiety Inventory' (STAI) were applied to both groups. To compare the two groups and to determine the differences between males and females, independent-sample t-tests were used. Internal consistencies for the two scales of the STAI were evaluated with Cronbach's alpha coefficient. Trait anxiety levels of parents (51.05 +/- 5.1) and state anxiety levels of subjects (58.57 +/- 6.73) who were about to start orthodontic treatment were both high. The difference between the groups was statistically significant ($P < 0.05$). In patients who had undergone treatment for 1 year, the scores were found to be normal (43.28 +/- 5.91). However, their parents' high levels of trait anxiety remained unchanged (50.41 +/- 4.2).

Townsend and Wells (2019) assessed behavior guidance of the pediatric dental patient. The study indicated that successful treatment of pediatric dental patients depends on effective communication and developing customized behavior guidance plans dependent on the patient's treatment needs and the skills of the dentist. Behavior guidance was a continual process from basic to advanced techniques, using non-pharmacological and pharmacological options. Basic behavior guidance includes communication guidance, positive pre-visit imagery, direct observation, tell-show-do, ask-tell-ask, voice control, non-verbal communication, positive reinforcement and descriptive praise, distraction, and desensitization. For anxious patients and those with special health care needs, additional behavior guidance options include sensory adapted dental environments, animal assisted therapy, picture exchange communication systems, and nitrous oxide-oxygen inhalation. Advanced behavior guidance includes protective stabilization, sedation, and general anesthesia. Each option should be assessed for objectives, indications, contraindications, and precautions. Knowledge

of these options will aid healthcare professionals in providing appropriate patient specific and family-centered behavior guidance for infants, children, adolescents, and persons with special health care needs. This document was developed through a collaborative effort of the American Academy of Pediatric Dentistry Councils on Clinical Affairs and Scientific Affairs to offer updated information and recommendations to inform health care providers, parents and others about the behavior guidance techniques used and behavioral influences impacting contemporary pediatric dental care.

RESEARCH METHODOLOGY

This study employed a descriptive research design. This design was considered suitable to this study because as it allowed for a detailed observation and description of the current status of these phenomena without altering the environment. It enabled the collection of data that provides insights into the prevalence and characteristics of dental alignment issues among teenagers, their correlation with self-esteem levels, and the subsequent impact on parental stress and school performance. The target population for the study comprised learners with dental misalignment, their parents or guardians and dental surgeons at Dentplan Dental. The study purposively selected 20 learners with dental misalignment and 3 surgeons to take part in the study. The small sample size was chosen to enable an in-depth analysis of the specific experiences of learners with dental misalignment, their parents or guardians, and dental surgeons at Dentplan Dental. Given the specialized nature of the study, a purposive sampling approach ensured that the participants selected were directly relevant and provided rich, detailed data essential for understanding the effect of dental misalignment treatments. The study used both structured questionnaire and Key Informant Interview (KII) for purposes of collecting primary data. The questionnaire was administered to the learners and their parents, while KII was administered to the dental surgeons. The quantitative data collected using the questionnaire was analyzed with the aid of SPSS using both descriptive and inferential statistics. The qualitative data gathered using KII was analyzed thematically using content analysis. The findings were presented in tables and narrative.

FINDINGS AND DISCUSSION

Response Rate and Demographic Information

The purpose of this study was to explore the challenges faced by Kenyan teenagers, extending beyond the clinical implications of dental misalignment to encompass the psychological and socio-economic impacts, including self-esteem, parental stress, and academic outcomes. The specific objectives of the study were; to explore the effect of dental alignment on self-esteem and school performance among teenagers treated at Dentplan Dental Surgeons in Kenya and to examine the stress levels of parents whose teenagers have dental alignment issues and receive care from Dentplan Dental Surgeons in Kenya. The target population for the study comprised learners with dental misalignment, their parents or guardians and dental surgeons at Dentplan Dental. The study purposively selected 20 learners with dental misalignment and 3 surgeons to take part in the study. Out of the 20 learners and parents, 19 responded to the questionnaire, yielding a response rate of 95 percent. In addition, 2 of the 3 surgeons were successfully interviewed translating into a participation rate of 66.7%. Table 1 shows demographic characteristics of the respondents.

Table 1: Demographic Characteristics

Category	Frequency	Percentage
Gender		
Female	10	52.6
Male	9	47.4

Age		
Less than 18 years	8	42.1
18-24 years	3	15.8
25-31 years	1	5.3
41 years and above	7	36.8
Education Level		
Bachelors	6	31.6
Diploma Level	1	5.3
Masters	3	15.8
Primary Level	3	15.8
Secondary Level	6	31.6

Demographic information results in Table 1 shows that there was a balanced gender representation among the participants, with a slight female majority (10, 52.6%) compared to males (9, 47.4%). The age distribution of the respondents showed that most of the respondents were under 18 years (8, 42.1%), indicating that the most of the participants in the study were primarily younger teenagers. A smaller group of respondents were aged between 18-24 years (3, 15.8%), and only one respondent fell within the 25-31 years age bracket (1, 5.3%). Additionally, a considerable number of respondents were aged 41 years and above (7, 36.8%), likely representing the parents or guardians of the teenage participants. In terms of educational attainment, the respondents demonstrated a varied academic background. There was an equal representation of individuals holding Bachelor’s degrees (6, 31.6%) and those who had completed secondary education (6, 31.6%). A smaller proportion had attained a Master’s degree (3, 15.8%) or primary level education (3, 15.8%). Only one respondent had a diploma (1, 5.3%). These findings suggest that the study included a diverse group in terms of age and education levels, providing a comprehensive perspective on the challenges faced by teenagers with dental misalignment and their families.

Descriptive Analysis

Descriptive analysis was used to describe the basic features of the data under study as they provide summaries about the sample and its measures because they provide simple summaries about the sample and the measures. Descriptive analysis simply forms the basis of every quantitative analysis of data and includes the mean and standard deviation (Conradie & Paduri 2014). Descriptive statistics of the study variables are presented and discussed below.

Descriptive Statistics on Dental Alignment, Self-Esteem and School Performance

The study sought to explore the effect of dental alignment on self-esteem and school performance among teenagers treated at Dentplan Dental Surgeons in Kenya. Table 2 shows the descriptive statistics results.

Table 2: Descriptive Statistics on Dental Alignment, Self-Esteem and School Performance

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev.
I feel confident about my dental appearance when interacting with my peers at school.	10.50%	5.30%	10.50%	47.40%	26.30%	3.74	1.24

My dental alignment has never made me feel inferior to my classmates.	5.30%	26.30%	21.10%	31.60%	15.80%	3.26	1.19
I actively participate in class and school activities despite concerns about my dental appearance.	0.00%	10.50%	21.10%	36.80%	31.60%	3.89	0.99
I believe my academic performance is unaffected by how I feel about my dental alignment.	5.30%	10.50%	10.50%	26.30%	47.40%	4.00	1.25
My self-esteem is high, and it is not influenced by my dental alignment.	10.50%	21.10%	21.10%	21.10%	26.30%	3.32	1.38
I think my peers judge me based on my dental appearance.	15.80%	15.80%	15.80%	36.80%	15.80%	3.21	1.36
I am satisfied with the dental treatment I received at Dentplan Dental Surgeons.	0.00%	5.30%	26.30%	31.60%	36.80%	4.00	0.94
The improvement in my dental alignment has positively impacted my participation in school.	0.00%	5.30%	31.60%	47.40%	15.80%	3.74	0.81
I feel that improving my dental alignment has boosted my confidence in academic settings.	0.00%	5.30%	26.30%	42.10%	26.30%	3.89	0.88
Overall Mean						3.672	

The results in Table 2 indicate that majority of respondents agreed (73.7%) that they feel confident about their dental appearance when interacting with peers at school, resulting in a mean score of 3.74 and a standard deviation of 1.24. This suggests that many teenagers treated at Dentplan Dental Surgeons experience a boost in self-esteem related to their dental appearance. However, 26.3% of respondents were neutral or disagreed indicating that dental alignment may still pose a challenge to some individuals' confidence in social settings. Similarly, most of the participants (47.4%) agreed that their academic performance was unaffected by their feelings about dental alignment, yielding a high mean score of 4.00 with a standard deviation of 1.25, indicating a prevailing belief that academic abilities are largely independent of dental appearance concerns.

Regarding active participation in class and school activities, 68.4% of the respondents agreed that they engaged in these activities despite concerns about their dental appearance, with a mean score of 3.89 and a standard deviation of 0.99. This suggests that while dental alignment issues might be present, they do not significantly hinder participation in school activities for most teenagers. Nevertheless, 31.6% of respondents who remained neutral or disagreed highlight that for a minority, dental appearance may still be a barrier to full participation. The statement on the positive impact of dental treatment received at Dentplan Dental Surgeons also garnered a high level of agreement (68.4%), reflected in a mean score of 4.00 and a standard deviation of 0.94, indicating satisfaction with the dental services provided and their positive effects on the students' school involvement.

Furthermore, the results show that 68.4% of the respondents agreed that improving their dental alignment

has boosted their confidence in academic settings, with a mean score of 3.89 and a standard deviation of 0.88. This demonstrates a significant perceived benefit of dental alignment improvements on academic confidence. However, the responses to whether peers judge them based on their dental appearance were more varied, with only 52.6% agreeing, resulting in a mean score of 3.21 and a standard deviation of 1.36. This indicates a less uniform perception among students regarding peer judgment, suggesting that dental alignment may still influence social dynamics to some extent. The descriptive statistics reveal that dental alignment influences self-esteem and school performance for many teenagers treated at Dentplan Dental Surgeons. The combined mean score of 3.672 reflects a generally favourable outlook on the impact of dental appearance improvements on both social and academic aspects of students' lives. However, the variations in responses and the presence of notable percentages of neutrality or disagreement highlight that individual experiences may differ, and some students may still face challenges related to their dental appearance. According to Ellakany, Fouda, Alghamdi and Bakhurji (2021), Females were 70%, and those with fathers' university education were 22% more likely to have a negative psychological impact. Females expressed aesthetic concerns nearly two times more than males. Participants whose fathers possessed university education had an aesthetic concern 1.25 times more compared to those whose fathers had no school or limited school education. Females and those with mothers who had university education were less likely to have positive dental self-confidence.

Thematic Analysis

In an interview, dental surgeons were asked to indicate how dental alignment affect the self-esteem of teenagers they treated based on their experiences. They indicated that;

“In my experience, there is an improvement in confidence levels among teenagers post-treatment, which significantly enhances their self-esteem. The positive changes in their dental appearance make them feel better about themselves. Additionally, image is everything for today’s teenagers, and having aligned teeth plays a crucial role in boosting their self-esteem. They often express happiness and satisfaction after seeing the results of the treatment.”

The surgeons were further asked to share observations or feedback from teenage patients about how their dental alignment has influenced their interactions. The two surgeons responded by explaining that;

“Most exhibit improved interaction with their peers and are more willing to participate in social activities. The change in their dental alignment makes them feel more confident. Teenagers with bad alignment will talk less, withdraw from group activities, and often feel embarrassed about their appearance. Post-treatment, they become more social and interactive.”

The KII were further asked to describe how teenagers typically responded to improvements in their dental alignment post-treatment in terms of self-confidence and behaviour in social settings. They stated that;

“There is a positive response and improved confidence. Teenagers become more outgoing and engage better in social settings after their dental alignment issues are corrected. During treatment, these teenagers are very compliant and hopeful about the outcome. Once the treatment is completed, they exhibit noticeable improvements in self-confidence and social behaviour.”

Moreover, the surgeons were asked to indicate if there had been noticeable changes in academic engagement or performance among teenage patients following dental treatment from their perspectives. They responded by saying that;

“During my time as a student, the teenagers undergoing dental treatment showed marked improvements in

their academic engagement and performance. They were more focused and less self-conscious. During alignment treatment, there's marked improvement in students' academic engagement. They participate more actively in class and perform better in their studies."

The above responses imply that dental alignment significantly boosts teenagers' self-esteem and confidence. Post-treatment, teenagers exhibited improved social interactions, becoming more outgoing and engaged in activities more. The positive changes in dental appearance lead to greater satisfaction and reduced embarrassment. This generally indicates that dental treatment enhances both their social behaviour and self-perception.

Descriptive Statistics on Stress Levels of Parents

The study sought to examine the stress levels of parents whose teenagers have dental alignment issues and receive care from Dentplan Dental Surgeons in Kenya. Table 3 shows the descriptive statistics results.

Table 3: Descriptive Statistics on Stress Levels of Parents

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev.
I often worry about the impact of my child's dental alignment on their social interactions.	15.80%	5.30%	21.10%	26.30%	31.60%	3.53	1.43
The cost of dental alignment treatment for my teenager at Dentplan Dental Surgeons causes me stress.	15.80%	26.30%	10.50%	26.30%	21.10%	3.11	1.45
I am concerned about how dental alignment issues affect my child's self-esteem.	5.30%	10.50%	21.10%	42.10%	21.10%	3.63	1.12
My teenager's dental issues and their treatment have not affected our family's stress levels.	10.50%	26.30%	31.60%	10.50%	21.10%	3.05	1.31
I feel relieved and less stressed after seeing improvements in my child's dental alignment.	0.00%	0.00%	21.10%	21.10%	57.90%	4.37	0.83
I frequently discuss the importance of dental appearance with my child, which sometimes stresses me.	21.10%	5.30%	36.80%	31.60%	5.30%	2.95	1.22
The support and care from Dentplan Dental Surgeons for my child's dental issues have reduced my stress.	0.00%	0.00%	36.80%	26.30%	36.80%	4.00	0.88
I am anxious about the long-term effects of dental alignment issues on my teenager's future opportunities.	15.80%	21.10%	21.10%	31.60%	10.50%	3.00	1.29

Managing appointments and follow-ups for my teenager’s dental treatment adds to my stress.	15.80%	5.30%	36.80%	15.80%	26.30%	3.32	1.38
Overall Mean						3.44	

The results in Table 3 shows that a majority of parents (79%) agreed that they felt relieved and less stressed after seeing improvements in their child’s dental alignment, resulting in a mean score of 4.37 and a standard deviation of 0.83. This indicated that the successful treatment of dental alignment issues at Dentplan Dental Surgeons reduced parental stress. However, 21.1% who remained neutral reflected that the stress relief might not have been uniformly experienced among all parents. Similarly, a considerable portion of parents (63.2%) agreed that they were concerned about how dental alignment issues affected their child’s self-esteem, yielding a mean score of 3.63 and a standard deviation of 1.12, underscoring the importance of dental health on perceived self-worth and parental worry. Regarding the impact of treatment costs, 47.4% of the respondents agreed that the cost of dental alignment treatment caused them stress, with a mean score of 3.11 and a standard deviation of 1.45. This indicated financial strain as a significant stressor for many parents, though the presence of 42.1% who disagreed or were neutral 10.5% suggested variability in financial concerns among the parents. Additionally, 42.1% of parents agreed that managing appointments and follow-ups for their teenager’s dental treatment added to their stress, with a mean score of 3.32 and a standard deviation of 1.38, highlighting logistical aspects of dental care as a stress factor.

The support and care from Dentplan Dental Surgeons were seen to reduce stress for many parents, as 63.1% agreed that the support provided lessened their stress levels, resulting in a mean score of 4.00 and a standard deviation of 0.88. This demonstrated the positive impact of professional support on parental well-being. However, concerns about long-term effects on their teenager’s future opportunities were more mixed, with 42.1% of parents expressing anxiety, reflected in a mean score of 3.00 and a standard deviation of 1.29. This indicated ongoing worries about the broader implications of dental alignment issues. The descriptive statistics indicate that while successful dental treatment alleviated stress for many parents, financial and logistical concerns related to treatment persisted. The combined mean score of 3.44 reflected a moderate level of stress among parents, with varied responses indicating that the experience of stress related to their child’s dental alignment and treatment was not uniform across all families. These results agrees with the assertions by Townsend and Wells (2019) that, for anxious patients and those with special health care needs, additional behaviour guidance options include sensory adapted dental environments, animal assisted therapy, picture exchange communication systems, and nitrous oxide-oxygen inhalation. Advanced behaviour guidance includes protective stabilization, sedation, and general anesthesia. Each option should be assessed for objectives, indications, contraindications, and precautions. Knowledge of these options will aid healthcare professionals in providing appropriate patient specific and family-centered behaviour guidance for infants, children, adolescents, and persons with special health care needs.

Thematic Analysis

In an interview, the dental surgeons were asked to indicate some common concerns expressed by parents regarding their teenagers’ dental alignment and its potential impact on their well-being and school life. In response, the surgeons explained that;

“Parents often worry about the time it takes for their teenagers to adapt to the dental appliances and the potential teasing from peers. They are concerned about the impact on their children’s confidence and social interactions. Parents complain of their children being teased at school, which affects their self-esteem and overall well-being. They are anxious about the long-term effects on their teenagers’ mental health and academic performance.”

Additionally, the surgeons were asked if parents had reported any changes in their teenager’s school performance or social interactions as a result of undergoing dental alignment treatment. They said that;

“Yes, parents have reported positive changes in their teenagers’ school performance and social interactions post-treatment. They notice an increase in confidence and participation in school activities.” Also, Parents will comment as early as possible on the positive changes they observe in their teenagers. They often see improvements in both academic performance and social interactions.”

The surgeons were further asked to indicate how they approach consultations and treatment plans for teenagers, considering the potential psychological impacts of dental misalignment. The surgeons asserted that:

“Most teenagers are aware of their teeth malalignment and its effects. I focus on explaining the treatment process and expected outcomes clearly, ensuring they understand the benefits and feel motivated throughout the treatment.” Teenagers recognize that they have a problem and are usually eager to fix it. I make sure to address their concerns, provide reassurance, and involve them in the treatment planning to enhance their commitment and reduce anxiety.”

Finally, the surgeons were asked to explain the role they believed dental health professionals play in addressing the broader socio-economic challenges associated with dental alignment issues in teenagers based on their interactions with both teenagers and their parents. They explained that:

“Dental practitioners are meant to advise, educate, and support both teenagers and their parents. By providing comprehensive care and addressing the socio-economic challenges, we help improve their overall quality of life. Mental and social challenges are increasingly being recognized as part of dental health. We, as dental health professionals, play a crucial role in supporting teenagers to overcome these challenges by providing the necessary treatment and guidance.”

These responses imply that parents are highly concerned about the adaptation period to dental appliances, potential teasing, and the long-term impacts on their teenagers’ self-esteem, mental health, and academic performance. Positive changes post-treatment have been observed, with teenagers showing increased confidence and better school performance. The surgeons emphasize the importance of clear communication and involvement in treatment plans to address psychological impacts and enhance motivation. They also highlight the crucial role of dental health professionals in advising, educating, and supporting families to navigate the socio-economic and mental health challenges associated with dental alignment issues.

Descriptive Statistics on School Performance

Table 4 shows descriptive statistics on school performance among teenagers treated at Dentplan Dental Surgeons in Kenya.

Table 4: Descriptive Statistics on School Performance

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev.
My academic performance has not changed due to my dental alignment issues.	5.30%	21.10%	15.80%	31.60%	26.30%	3.53	1.26

My performance in school has improved after receiving dental treatment.	5.30%	26.30%	31.60%	31.60%	5.30%	3.05	1.03
Concerns about my dental appearance have led to a decline in my school grades.	26.30%	26.30%	36.80%	10.50%	0.00%	2.32	1.00
I have maintained high grades regardless of my dental alignment issues.	10.50%	10.50%	15.80%	31.60%	31.60%	3.63	1.34
Correcting my dental alignment has boosted my confidence and school performance.	5.30%	5.30%	31.60%	36.80%	21.10%	3.63	1.07
My school performance is unaffected by how I feel about my dental alignment.	10.50%	5.30%	36.80%	26.30%	21.10%	3.42	1.22
I feel more inclined to participate in class after improving my dental alignment.	5.30%	0.00%	36.80%	36.80%	21.10%	3.68	1.00
My dental alignment issues have distracted me from my studies.	36.80%	36.80%	10.50%	10.50%	5.30%	2.11	1.20
I am more engaged in school activities now than before correcting my dental issues.	10.50%	5.30%	47.40%	31.60%	5.30%	3.16	1.01
Overall Mean						3.17	

The results in Table 4 shows that a majority of respondents (57.9%) agreed that their academic performance had not changed due to their dental alignment issues, resulting in a mean score of 3.53 and a standard deviation of 1.26. This suggested that, for many teenagers treated at Dentplan Dental Surgeons, dental alignment issues did not significantly impact their academic performance. Regarding improvement in school performance after receiving dental treatment, 36.9% of the respondents agreed, yielding a mean score of 3.05 and a standard deviation of 1.03. This indicated that a notable portion of teenagers experienced academic benefits from dental treatment, though the high percentage (31.6%) of neutral responses suggested mixed experiences among the students. Conversely, a significant majority (52.6%) disagreed that concerns about their dental appearance had led to a decline in their school grades, reflected in a low mean score of 2.32 and a standard deviation of 1.00. This implied that dental appearance concerns did not commonly result in lower academic performance.

A majority of respondents (63.2%) agreed that they maintained high grades regardless of their dental alignment issues, with a mean score of 3.63 and a standard deviation of 1.34. This highlighted a resilience in academic performance among many students despite dental alignment concerns. Additionally, 57.9% of the respondents agreed that correcting their dental alignment boosted their confidence and school performance, resulting in a mean score of 3.63 and a standard deviation of 1.07, indicating a perceived positive impact of dental treatment on both confidence and academic performance. In terms of school performance being unaffected by feelings about dental alignment, 47.4% of respondents agreed, with a mean score of 3.42 and a standard deviation of 1.22. This suggested that for nearly half of the students, their dental alignment did not influence their academic outcomes. Furthermore, 57.9% of respondents agreed that they felt more inclined to participate in class after improving their dental alignment, reflected in a mean score of 3.68 and a

standard deviation of 1.00, indicating an increase in classroom engagement post-treatment.

Regarding distraction from studies due to dental alignment issues, a significant majority (73.6%) disagreed, resulting in a low mean score of 2.11 and a standard deviation of 1.20. This suggested that dental alignment issues were not a major source of distraction for most students. Lastly, 36.9% of respondents agreed that they were more engaged in school activities after correcting their dental issues, with a mean score of 3.16 and a standard deviation of 1.01, showing an overall positive trend in school engagement post-treatment. In general, the descriptive statistics revealed a moderate overall mean score of 3.17, indicating that while dental alignment issues and their correction had varying impacts on school performance, many students experienced positive effects on their academic engagement and performance following dental treatment. The variability in responses highlighted that individual experiences differed, reflecting a range of impacts on school performance among teenagers treated at Dentplan Dental Surgeons.

Regression Analysis

The study conducted regression analysis to explore the effect of dental alignment on self-esteem and school performance among teenagers treated at Dentplan Dental Surgeons in Kenya. Tables 5, 6 and 7 present the model summary, ANOVA, and regression of coefficient results respectively.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.752 ^a	0.566	0.564	0.4892
a. Predictors: (Constant), Dental Alignment				

The results in Table 5 show a coefficient of determination (R squared) of 0.566 and the adjusted R squared is 0.564 at a 95% significance level. This implies that dental alignment explains 56.6 percent of the variation in self-esteem and school performance among teenagers treated at Dentplan Dental Surgeons in Kenya. The remaining 43.4 percent of the variation in self-esteem and school performance can be explained by other factors that were not part of the current model. The standard error of the estimate is 0.4892, indicating the average distance that the observed values fall from the regression line.

Table 6: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	114.003	1	114.003	22.128	.000 ^b
	Residual	87.589	17	5.152		
	Total	201.592	18			
a. Dependent Variable: Self-Esteem and School Performance						
b. Predictors: (Constant), Dental Alignment						

The ANOVA results in Table 6 show that the model was statistically significant in explaining the influence of dental alignment on self-esteem and school performance among teenagers treated at Dentplan Dental Surgeons in Kenya, as indicated by a p-value of 0.000, which is less than 0.05. The F value of 22.128 further confirms the statistical significance of the model. This means that dental alignment significantly contributes to the variance in self-esteem and school performance, validating the model's effectiveness in explaining these outcomes. The regression sum of squares (114.003) compared to the residual sum of squares (87.589) also supports the model's explanatory power. Table 7 shows regression coefficient results.

Table 7: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.924	0.097		9.541	0.000
	Dental Alignment	0.653	0.03	0.752	21.826	0.000

a. Dependent Variable: Self-Esteem and School Performance

The regression model therefore became;

$$Y = 0.924 + 0.653X$$

Where:

Y= Self-Esteem and School Performance

X= Dental Alignment

The regression coefficients results in Table 7 show that dental alignment had a significant positive effect on self-esteem and school performance among teenagers treated at Dentplan Dental Surgeons in Kenya, with a p-value of 0.000 indicating a clear influence (B = 0.653, P-value = 0.000). The constant term (B = 0.924, P-value = 0.000) was also significant. This demonstrates a strong positive relationship between dental alignment and the dependent variables of self-esteem and school performance. This led to the rejection of the null hypothesis (H_0). The study therefore concludes that dental alignment has statistically significant effect on self-esteem and school performance among teenagers treated at Dentplan Dental Surgeons in Kenya.

This finding suggests that improvements in dental alignment are associated with better self-esteem and school performance outcomes, emphasizing the importance of addressing dental alignment issues to enhance teenagers' overall well-being and academic success. The highly significant results highlight the critical role that dental health can play in the psychological and educational development of adolescents. These findings are consistent with the findings of a study by Stojilković et al. (2024) which revealed a statistically significant difference in the total Psychosocial Impact of Dental Aesthetics (PIDAQ) score and SI subdomain in relation to the academic year. In terms of self-esteem, results of multiple linear regression analysis showed that the academic year and the average point grade were significant predictors of greater self-esteem. Moreover, the Spearman coefficient value confirmed a statistically significant negative correlation between PIDAQ and self-esteem.

CONCLUSION

This study concludes that dental alignment significantly affects self-esteem and school performance among teenagers treated at Dentplan Dental Surgeons in Kenya. The regression analysis revealed a substantial positive relationship between dental alignment and the dependent variables, with dental alignment explaining 56.6 percent of the variation in self-esteem and school performance. These findings emphasize the importance of addressing dental alignment issues to enhance teenagers' overall well-being and academic success. The statistically significant results validate the model's effectiveness in explaining the outcomes, demonstrating that improvements in dental alignment lead to better self-esteem and school performance.

Furthermore, the study concludes that parents' concerns about their teenagers' dental alignment issues,

including adaptation to dental appliances, potential teasing, and long-term impacts on mental health and academic performance, are significant. However, positive changes post-treatment, such as increased confidence and better school performance, have been reported by parents, indicating the beneficial impact of dental treatment. The descriptive statistics highlight the critical role of professional support and care from Dentplan Dental Surgeons in reducing parental stress and enhancing teenagers' self-esteem and school performance.

Additionally, dental health professionals play a crucial role in addressing the broader socio-economic challenges associated with dental alignment issues in teenagers. By providing comprehensive care, advising, educating, and supporting both teenagers and their parents, dental practitioners help improve the overall quality of life for these adolescents. The significant positive relationship between dental alignment and self-esteem and school performance underscores the importance of involving dental health professionals in the psychological and educational development of teenagers.

Finally, the study concludes that while individual experiences with dental alignment and treatment vary, the overall impact on self-esteem and school performance is generally positive. The variability in responses points to the need for personalized treatment plans and ongoing support to address the unique challenges faced by each teenager. The findings advocate for a holistic approach to dental care, focusing on both the physical and psychological aspects of dental alignment issues to ensure the best possible outcomes for teenagers' well-being and academic success.

RECOMMENDATIONS

Based on the findings, dental practitioners should prioritize comprehensive and individualized treatment plans that address both the physical and psychological impacts of dental alignment issues. Practitioners should foster open communication with teenagers and their parents, ensuring that they understand the treatment process, expected outcomes, and benefits. Emphasizing the positive effects of dental alignment on self-esteem and school performance can enhance motivation and compliance among teenage patients. Additionally, ongoing support and follow-up care are essential to help teenagers navigate the adaptation period and maximize the benefits of their treatment.

In addition, policymakers should recognize the significant impact of dental alignment on teenagers' self-esteem and school performance and incorporate dental health as a critical component of adolescent health programs. Policies should be developed to increase accessibility to dental care, particularly for teenagers from low-income families, to ensure that financial constraints do not hinder their access to necessary treatments. School-based dental health programs should also be implemented to provide regular check-ups and early interventions, reducing the long-term negative impacts of dental alignment issues on teenagers' academic and social development.

Moreover, future research should explore the long-term effects of dental alignment on various aspects of teenagers' lives, including their mental health, social interactions, and academic achievements. Longitudinal studies could provide detailed analysis on how sustained improvements in dental alignment influence these outcomes over time. Additionally, research could investigate the specific psychological mechanisms through which dental alignment impacts self-esteem and school performance, helping to tailor interventions more effectively. Comparative studies across different demographic groups could also shed light on any disparities in the impacts and inform targeted approaches.

Community engagement initiatives should be developed to raise awareness about the importance of dental health and its broader implications for teenagers' well-being and academic success. Educational programs targeting parents and teenagers can help demystify dental treatments and encourage proactive management

of dental alignment issues. Collaborations between dental health professionals, schools, and community organizations can create a supportive network that promotes regular dental check-ups and timely interventions. Such community-driven efforts can enhance the overall effectiveness of dental health initiatives and contribute to improved outcomes for teenagers.

REFERENCES

1. Abbad, M. M. (2021). Using the UTAUT model to understand students' usage of e-learning systems in developing countries. *Education and information technologies*, 26(6), 7205-7224.
2. Adebajo, S. (2024). The Relationship Between Domestic Violence, Self-Blame, Self-Esteem And Psychological Well-Being Among Female Students.
3. Adelabu, O. S., & Yamanaka, T. (2020). Aesthetic Sensibility and Preference for Handcrafted and Industrially-produced Objects: A Cross-Cultural Kansei Study with Japanese-and African-inspired Products. *International Journal of Designed Objects*, 14(1).
4. Al-Abyadh, M. H. A., Alatawi, M. A., Emara, E. A. M., Almasoud, S. A., Alsetoohy, O., & Ali, A. R. M. (2024). Do Smartphone Addiction and Self-Regulation Failures Affect Students' Academic Life Satisfaction? The Role of Students' Mind Wandering and Cognitive Failures. *Psychology Research and Behavior Management*, 1231-1253.
5. Appel, H., Gerlach, A. L., & Crusius, J. (2016). The interplay between Facebook use, social comparison, envy, and depression.
6. Armah, N., Martin, D., Harder, N., & Deer, F. (2018). Health Research Conference, 2017. *International Journal of Qualitative Methods*, 17, 1-31.
7. Beckett, A. E., & Callus, A. M. (Eds.). (2024). *The Lives of Children and Adolescents with Disabilities*. Taylor & Francis.
8. Buunk, B. P., & Gibbons, F. X. (2007). Social comparison: The end of a theory and the emergence of a field.
9. Calleros, C. B. G., García, J. G., & Calleros, J. M. G. (2024). Addressing the Digital Divide with Educational Systems in Mexico: Challenges and Opportunities. *From Digital Divide to Digital Inclusion: Challenges, Perspectives and Trends in the Development of Digital Competences*, 347-375.
10. Campos, L. A., Costa, M. A., Bonafé, F. S. S., Marôco, J., & Campos, J. A. D. B. (2020). Psychosocial impact of dental aesthetics on dental patients. *International dental journal*, 70(5), 321-327.
11. Careemdeen, J. D. (2024). Evaluating the impact of teacher support for student learning in diverse educational settings: a focus on students' socio-economic statuses. *Muallim Journal of Social Sciences and Humanities*, 8(1), 112-122.
12. Chou, H. T. G., & Edge, N. (2012). *They are happier and having better lives than I am: The impact of using Facebook on perceptions of others' lives*.
13. Collins, R. L. (1996). For better or worse: The impact of upward social comparison on self-evaluations.
14. Crocker, J., & Park, L. E. (2004). The costly pursuit of self-esteem.
15. Díez, F., Villa, A., López, A. L., & Iraurgi, I. (2020). Impact of quality management systems in the performance of educational centers: educational policies and management processes. *Heliyon*, 6(4).
16. Ellakany, P., Fouda, S. M., Alghamdi, M., & Bakhurji, E. (2021). Factors affecting dental self-confidence and satisfaction with dental appearance among adolescents in Saudi Arabia: a cross sectional study. *BMC Oral Health*, 21, 1-8.
17. Feinstein, B. A., Hershenberg, R., Bhatia, V., Latack, J. A., Meuwly, N., & Davila, J. (2013). Negative social comparison on Facebook and depressive symptoms: Rumination as a mechanism.
18. Festinger, L. (1954). *A theory of social comparison processes*.
19. Fisher, A. E., Fisher, S., Arsenault, C., Jacob, R., & Barnes-Najor, J. (2020). The moderating role of ethnic identity on the relationship between school climate and self-esteem for African American adolescents. *School Psychology Review*, 49(3), 291-305.

20. Fisher, E., Gibson, T. L., & Look, C. (2023). Access issues and burden of care in craniofacial orthodontics. *Cleft and Craniofacial Orthodontics*, 630-637.
21. Fornefeld, D., Fricke, O., Schulte, A. G., & Schmidt, P. (2024). Investigation of Dental and Oral Health in Children and Adolescents with Special Support Needs from a Child and Adolescent Psychiatric Perspective. *Children*, 11(3), 355.
22. Gerber, J. P., Wheeler, L., & Suls, J. (2018). A social comparison theory meta-analysis 60+ years on.
23. Gibbons, F. X., & Buunk, B. P. (1999). Individual differences in social comparison: Development of a scale of social comparison orientation.
24. Hari, R. (2022). *Effect of Parental Expectations and Parental Pressure on Self-Esteem and Academic Achievement of Students* (Doctoral dissertation, Pace University).
25. Ho, C. S. M., Lu, J., & Liu, L. C. K. (2024). Advertising a school's merits in Hong Kong: weighing academic performance against students whole-person development. *Asia Pacific Education Review*, 1-13.
26. Hughes, L., Taylor, R. M., Beckett, A. E., Lindner, O. C., Martin, A., McCulloch, J., ... & Stark, D. P. (2024). The Emotional Impact of a Cancer Diagnosis: A Qualitative Study of Adolescent and Young Adult Experience. *Cancers*, 16(7), 1332.
27. Humphreys, S. J. (2021). *Management of Children with Molar-Incisor-Hypomineralisation*. The University of Liverpool (United Kingdom).
28. Imani, M. M., Jalali, A., Nouri, P., & Golshah, A. (2021). Parent's Experiences during Orthodontic Treatment of Their Children with Cleft Lip and Palate: Phenomenological Study. *The Cleft Palate-Craniofacial Journal*, 58(9), 1135-1141.
29. Jansen, K., & Kiefer, S. M. (2020). Understanding brain development: Investing in young adolescents' cognitive and social-emotional development. *Middle School Journal*, 51(4), 18-25.
30. Jedliński, M., Belfus, J., Milona, M., Mazur, M., Grocholewicz, K., & Janiszewska-Olszowska, J. (2024). Orthodontic treatment demand for fixed treatment and aligners among young adults in middle Europe and South America—a questionnaire study. *BMC Oral Health*, 24(1), 292.
31. JF, Dowden, T., Pullen, D., Opoku, P. M., & Garate, P. (2024). High performing male and female engineering students in Chile: accounting for mental health and well-being from a developmental paradigm. *European Journal of Engineering Education*, 1-18.
32. Josephine, A. F., Sukamto, M. E., & Redita, N. E. (2024). The role of body appreciation and boredom on married men's sexual satisfaction. *International Journal of Public Health Science (IJPHS)*, 13(1), 353-361.
33. Kabimba, A. W. (2022). *Evidence-based Teenage Health Education: an Approach to Reduce Neonatal Morbidity and Mortality Among Teenage Mothers, Busia County Referral Hospital, Kenya* (Doctoral dissertation, University of Nairobi).
34. Kobkurkul, P., Pisankikitti, C., Rueangkaew, J., Angkoolpakdeekul, N., Varothai, S., Bunyaratavej, S., ... & Uchida, T. (2024). Enhancing Adolescent Self-Esteem: A Pilot Randomized Controlled Trial of the Online Mindfulness-Based Intervention Program (MBSI Online). *Siriraj Medical Journal*, 76(2).
35. Kragt, L., Wolvius, E. B., Jaddoe, V. W., Tiemeier, H., & Ongkosuwito, E. M. (2018). Influence of self-esteem on perceived orthodontic treatment need and oral health-related quality of life in children: the Generation R Study. *European journal of orthodontics*, 40(3), 254-261.
36. Lally, C., Maliq, N. N., Schreiber, M., Wilson, A., & Tiwari, T. (2023). Association of parental social support and dental caries in hispanic children. *Frontiers in Oral Health*, 4.
37. Lockwood, P., & Kunda, Z. (1997). Superstars and me: Predicting the impact of role models on the self.
38. Lukandu, O. M., Koskei, L. C., & Dimba, E. O. (2020). Motivations for a career in dentistry among dental students and dental interns in Kenya. *International journal of dentistry*, 2020.
39. Madalena, A. P., Loureto, G. D. L., Santos, J. A. G., Santos, L. C. D. O., Fortes, G., & Freires, L. A. (2024). Psychological Well-Being Among Adolescents: The Role of Parenting Styles, Causal Attributions of Academic Success/Failure, and Perceived School Performance. *Journal of*

- Psychoeducational Assessment*, 07342829241245462.
40. Mussweiler, T., Rüter, K., & Epstude, K. (2004). *The ups and downs of social comparison: Mechanisms of assimilation and contrast*.
 41. Naoum, Z. (2023). *Understanding the Effectiveness of Peer Coaching Training on Antiracism for Teacher Leaders of Color: A Qualitative Analysis* (Doctoral dissertation, Roberts Wesleyan College (Rochester)).
 42. Northridge, M. E., Kumar, A., & Kaur, R. (2020). Disparities in access to oral health care. *Annual review of public health*, 41, 513-535.
 43. Oti-Boadi, M., Andoh-Arthur, J., Abekah-Carter, K., & Abukuri, D. N. (2024). Internalized stigma: Social support, coping, psychological distress, and mental well-being among older adults in Ghana. *International Journal of Social Psychiatry*, 00207640241227128.
 44. Park, K., Zafeiriadis, A. A., & Kotsanos, N. (2022). Orthodontic Knowledge and Practice for the Pediatric Dentist. In *Pediatric Dentistry* (pp. 207-246). Cham: Springer International Publishing.
 45. Parkes, S. (2024). *Feasting on Emotions: The Psychology of Binge Eating*. eBookIt. com.
 46. Paudel, P. (2021). Online education: Benefits, challenges and strategies during and after COVID-19 in higher education. *International Journal on Studies in Education (IJonSE)*, 3(2).
 47. Richmond, D. N. (2023). *The Medical Necessity of Orthodontic Care: A Qualitative Study* (Doctoral dissertation, University of Toronto (Canada)).
 48. Sari, Z., Uysal, T., Karaman, A. I., Sargin, N., & Üre, Ö. (2015). Does orthodontic treatment affect patients' and parents' anxiety levels?. *The European Journal of Orthodontics*, 27(2), 155-159.
 49. Shahzad, H. B., Awais, F., Kazmi, F., Arshad, A. I., Manzar, S., Rashid, S., ... & Amir W Ahmad, W. M. (2023). Dental aesthetic related popularity and peer pressure, a survey of adolescents in Pakistan. *International journal of adolescent medicine and health*, 35(3), 283-290.
 50. Sheethal, K., Shiva, K. B., & Manju, P. M. (2023). A Systematic Review of The Relationship Between Parental Stress and Early Childhood Caries. *Dent Oral Sci*, 5(2), 1-15.
 51. Smyth, J. P. R. (2021). Adolescent and parent perceptions of expected benefits of orthodontic treatment: a mixed-methods study.
 52. Stojilković, M., Gušić, I., Berić, J., Prodanović, D., Pecikozić, N., Veljović, T., ... & Đurić, M. (2024). Evaluating the influence of dental aesthetics on psychosocial well-being and self-esteem among students of the University of Novi Sad, Serbia: a cross-sectional study. *BMC Oral Health*, 24 (1), 277.
 53. Suls, J., Martin, R., & Wheeler, L. (2002). *Social comparison: Why, with whom, and with what effect?*
 54. Tabassum, U., Qiang, X., Abbas, J., Amjad, A. I., & Al-Sulaiti, K. I. (2024). Students' help-seeking mediates the relationship between happiness and self-strength: a comparative study on Chinese and Pakistani adolescents. *Kybernetes*.
 55. Tanne, K. (2020). Current status of clinical orthodontics in European and American countries. *APOS Trends Orthod*, 10(4), 204-223.
 56. Tare, J. (2020). *Psychological determinants of teacher-pupil relationship and academic achievement in public primary schools in Kesses Sub County, Uasin Gishu county, Kenya* (Doctoral dissertation, Africa Nazarene University).
 57. Taylor, S. E., & Lobel, M. (1989). Social comparison activity under threat: Downward evaluation and upward contacts.
 58. Teraoka, E., & Kirk, D. (2024). Exploring physical education teachers' awareness of observed teaching behaviour within pedagogies of affect. *Physical Education and Sport Pedagogy*, 29(1), 38-50.
 59. Townsend, J. A., & Wells, M. H. (2019). Behavior guidance of the pediatric dental patient. In *Pediatric dentistry* (pp. 352-370). Elsevier.
 60. Vogel, E. A., Rose, J. P., Roberts, L. R., & Eckles, K. (2014). Social comparison, social media, and self-esteem.
 61. Wills, T. A. (1981). *Downward comparison principles in social psychology*.
 62. Wood, J. V. (1989). Theory and research concerning social comparisons of personal attributes.