

Self-perception and Awareness of Orthodontic Treatment Needs among Libyan Adults

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Abstract

This study investigates the awareness and self-perception of orthodontic treatment among Libyan adults. Utilizing a comprehensive survey, we assessed both the general knowledge of orthodontic care and individuals' perceptions of their dental aesthetics using the Index of Orthodontic Treatment Need (IOTN) Aesthetic Component (AC). Our findings indicate a high level of awareness, with 93.7% of respondents recognizing orthodontic treatments. However, only 9.9% had undergone such treatments, suggesting potential barriers to access. Self-perception of dental appearance was largely positive, with 64.1% of participants very satisfied and 27.8% satisfied with their dental aesthetics. The study shows the need for enhanced educational initiatives

and policy interventions to bridge the gap between awareness and treatment uptake, and highlights the importance of addressing dental aesthetics in public health strategies to improve overall well-being.

Keywords: orthodontic awareness; self-perception; dental aesthetics; orthodontic treatment.

1- INTRODUCTION

While orthodontic treatment is commonly associated with children and adolescents, there is a growing recognition of the importance of addressing malocclusion among adults (Neely et al., 2017). The prevalence of malocclusion and the corresponding orthodontic treatment needs among adults is an area of interest that requires further investigation. This paper aims to explore the prevalence of malocclusion and orthodontic treatment needs among Libyan

adults, utilizing the Index for Orthodontic Treatment Need (IOTN) as a diagnostic tool. Orthodontic disorders, if untreated, can have significant impacts on an individual's oral health, function, and overall quality of life. The prevalence and nature of these disorders vary across populations due to numerous factors, including genetic, environmental, and lifestyle factors (De Ridder et al., 2022). Therefore, understanding the orthodontic treatment needs of a specific population is essential to develop effective public health policies and programs, allocate resources efficiently, and ensure accessible and appropriate care.

The orthodontic treatment needs among adults in Libya remain largely unexplored. Most of the existing studies on orthodontic treatment needs are conducted in Western and Asian countries, with minimal data from African and Middle Eastern countries. Within Libya, previous studies have primarily focused on children and adolescents, overlooking the adult population. As adults constitute a significant portion of the Libyan population, and their orthodontic treatment needs can substantially impact the healthcare system, this gap in knowledge is concerning. For instance, Abraheem & Mohamed

(2020) assessed the orthodontic treatment need among Libyan children using the IOTN and evaluated their perception of their own orthodontic status. The sample included 511 students (260 females and 251 males) randomly selected from public schools in Benghazi, within the age group of 12-14 years. To determine orthodontic need, the authors applied the Dental Health Component (DHC) of the IOTN. They also used the Aesthetic Component (AC) of the IOTN along with a questionnaire to assess the participants' perception of their orthodontic status. The findings revealed that the majority of participants (79.5%) were satisfied with their smiles, although there were significant gender differences in smile satisfaction. In terms of teeth appearance, 39.7% of respondents were satisfied, while 60.3% expressed dissatisfaction, citing reasons such as the color of their teeth (9%) and the arrangement of their teeth (34.8%). More than half of the participants (55%) believed that well-aligned teeth were crucial for overall facial appearance. Regarding treatment need, there was strong agreement between the researcher's assessment and the respondents' perceptions. The researcher found that 10% of participants definitely

needed treatment, compared to the 6.2% who self-perceived a need for treatment. Similarly, 71.4% of respondents were categorized by the researcher as not needing treatment, which aligned with the 71.4% who self-perceived no treatment need. The findings indicate a high level of satisfaction with smiles but a significant proportion of dissatisfaction with teeth appearance. The IOTN assessment revealed that the majority of children had no or slight treatment need, aligning with their self-perceived need.

Erfida (2018) assessed the orthodontic treatment need among Libyan schoolchildren using the IOTN and determined the contribution of various occlusal traits to the rating of the children on the IOTN scale. The study included a cross-sectional examination of school-going children aged 14-15 years in Misurata. The study found that 27% of the children were classified in Dental Health Component grade 5 and 4, indicating a definite need for orthodontic treatment. Less than 24% of children fell into the borderline treatment need category (grade 3), while 49% had little or no treatment need (grade 2 and 1). The analysis further examined the contribution of various occlusal features to the definite treatment need

category. The main occlusal features responsible for definite treatment need included severe contact displacement (34.3%), overjet greater than 6 mm but less than or equal to 9 mm (17.3%), crossbite with displacement greater than 2 mm (14.1%), impeded eruption (14.1%), less extensive hypodontia (7.1%), overjet greater than 9 mm (6%), partially erupted, tipped, and impacted teeth (4.6%), submerged deciduous teeth (1.1%), reverse overjet greater than 3.5 mm with reported difficulties in chewing and speech (0.7%), extreme lateral or anterior open bite greater than 4 mm (0.4%), and presence of supernumerary teeth (0.4%).

Elhassan et al., (2017), This study aimed to investigate the motivation factors for seeking periodontal care in the Libyan community by analyzing the chief complaints (CCs) of patients seeking periodontal treatment in a dental clinic. A total of 121 Libyan patients with periodontitis, ranging from 20 to 80 years old, were examined. The severity of periodontitis among the patients varied, with most having moderate-to-severe chronic periodontitis. The study concluded that the main motivation factor for seeking periodontal care among Libyan patients was being informed

about having gum disease. This highlights the important role of healthcare providers in diagnosing and raising awareness of periodontal diseases in the Libyan population.

Bugaighis & Karanth (2013), investigated the prevalence of malocclusion and its distribution among urban Libyan schoolchildren aged 12-17 years. A total of 343 subjects (169 males and 174 females) were included in the study. The researchers examined various occlusal parameters including molar relationship, overjet, overbite, midline deviation, crossbite, and crowding/spacing. The findings revealed a high prevalence of malocclusion among the study population, with 95.6% of the subjects exhibiting some form of malocclusion. Among the different types of malocclusion, Class I malocclusion was the most prevalent, accounting for 66.5% of the total sample. Class II division 1 and division 2 malocclusions were found in 21.9% and 3.5% of the subjects, respectively, while Class III malocclusion was present in 3.7% of the sample. The prevalence of malocclusion among urban Libyan schoolchildren in this study was found to be one of the highest reported in the literature. Crowding was the least reported manifestation

of malocclusion, while increased overjet and increased overbite were more prevalent. These findings provide valuable insights into the prevalence and distribution of malocclusion in this population.

Gaballah & Elerbi (2002), conducted a prospective survey involving 160 patients who were referred to the clinic. The findings revealed that women accounted for more than 75% of the patients seeking treatment for TMD. The main age group presenting with TMD symptoms was between 21 and 30 years for both sexes. Pain was the primary complaint in more than one-third of the patients, while trismus (restricted mouth opening) was reported by only 9% of the patients. History of past trauma was reported in 42% of the patients, including incidents such as falls, road traffic accidents, prolonged dental visits, and orthodontic treatment. Being single was the most commonly reported marital status among females. Among different professions, students were the most affected, followed by housewives, and teachers were identified as a vulnerable profession. Parafunctional habits, such as teeth grinding or clenching, were reported by 119 patients (81%). Additionally, other

associated symptoms were elicited in 67% of the patients.

Bugaighis (2013), conducted observational study aimed to assess primary dentition parameters and investigated differences in these parameters among preschool children in Benghazi city. The sample included 500 children aged 3 to 5 years. The study revealed that the prevalence of bilateral Class I canine relationship was 69.6%, while Class II and Class III canine relationships were found in 22.4% and 4.4% of the children, respectively. Asymmetric canine relationship was observed in 3.6% of the sample, with no significant differences between genders or age groups. Regarding spacing and crowding, 81.6% of children had spacing in the upper arch, while 58.5% had spacing in the lower arch. Closed dentition was present in 13.4% of the upper arch and 24.8% of the lower arch. Crowding was observed in 5% of the upper arch and 16.7% of the lower arch. For overjet and overbite, the majority of children (82.6%) had values ranging between 1 and 3 mm for overjet, and 56.5% had values within the same range for overbite. Overjet greater than 3 mm was found in 11.4% of the children, while overbite greater than 3 mm was observed in 35% of the children.

Anteroposterior and vertical edge-to-edge incisal relationships were noted in 4.6% and 6% of the children, respectively. Anterior crossbite and anterior openbite were present in 1.4% and 2.6% of the children, respectively. No significant correlation was found between overjet and overbite values and age. There was also no significant difference in overjet values between genders. However, the mean overbite value was significantly greater in boys compared to girls. This study provides valuable insights into the prevalence of various occlusal traits among urban Libyan preschool children. The findings emphasize the importance of early detection of malocclusion in order to develop effective and personalized long-term treatment plans.

Majority of the studies in Libya, focused on children and are outdated. Hence, there is an urgent need to carry out a comprehensive study to assess the orthodontic treatment needs among Libyan adults using the IOTN. The study should consider the Aesthetic Component (AC) of IOTN and explore the correlation between professionally assessed and self-perceived orthodontic treatment needs. Such a study will offer valuable insights into the state of orthodontic health among

Libyan adults, contributing to the development of more targeted and effective oral health policies and programs in Libya. Therefore, this paper aims to fill the gap by investigating the prevalence of malocclusion among adults and update the research contributing to the oral health in Libya.

2- MATERIALS AND METHOD

This study employed a cross-sectional design to assess awareness and self-perception of dental appearance among Libyan adults. The survey was conducted using structured questionnaires distributed to participants from various regions in Libya. A total of 410 participants were included in the study. The inclusion criteria were adults aged 18-60 years who consented to participate. The exclusion criteria were individuals with cognitive impairments that could affect their ability to respond to the questionnaire accurately. Data were collected using a structured questionnaire that included sections on demographic information, awareness of dental health, and self-perception of dental appearance. The self-perception of dental appearance was assessed using the Aesthetic Component (AC) of the Index of Orthodontic Treatment Need (IOTN). The questionnaire was divided into three main parts: -

1- Demographic Information: This section collected data on participants' age, gender, education level, socioeconomic status, and marital status

2- Awareness of Dental Health: This section included questions about participants' knowledge of dental health practices and the importance of dental aesthetics.

3- Self-Perception of Dental Appearance: Participants were asked to evaluate their dental appearance using the AC of the IOTN, which includes a set of photographs representing different levels of dental aesthetics as shown in Figure 1.



Figure 1. Photographs of different levels of dental aesthetics

The data were analyzed using SPSS software. Descriptive statistics were used to summarize the demographic characteristics of the participants. Frequencies and percentages were calculated for responses related to awareness and self-perception of dental appearance.

Crosstabulation was used to explore associations between self-perception and various demographic variables. The analysis focused on two main areas: -

1- Awareness of Dental Health: This was measured by the frequency of correct responses to questions about dental health practices and the importance of dental aesthetics.

2- Self-Perception of Dental Appearance: This was assessed using the responses to the IOTN AC questionnaire, categorized into very satisfied, satisfied, and not satisfied. Ethical approval for the study was obtained from the relevant institutional review board. Participants were informed about the purpose of the study, and their consent was obtained before participation. Confidentiality and anonymity of the participants were maintained throughout the study.

3- RESULT AND DISCUSSION

In examining the level of orthodontic awareness among the study's participants, the survey revealed the awareness of orthodontic treatment among the participants which shows a high level of general knowledge, with a significant majority of the sample reporting an understanding of what orthodontic treatment entails. As shown in Figure 1.

Yes: A substantial 93.7% of the respondents (384 out of 410) affirmed their awareness of orthodontic treatment, indicating a broad familiarity with the concept across the sample. This high percentage suggests that the general notion of what constitutes orthodontic treatment is well understood among the adult population surveyed.

IF NO, it is correction of irregular and forwardly placed teeth and improving smile and looks of a person: Conversely, a smaller fraction of the population, 6.3% (26 respondents), did not initially recognize the term 'orthodontic treatment' but could describe it accurately when prompted. This response underscores an interesting facet of public health communication, where specific medical terms may not be universally recognized despite an understanding of the treatment's nature and objectives.

The cumulative percent confirms that all responses were accounted for in these two categories, ensuring the integrity of data interpretation. The findings indicate that while a majority of the adult population in this study is aware of what orthodontic treatment involves, there remains a smaller segment that,

although initially unfamiliar with the term, possesses a latent understanding of its practical applications. This suggests opportunities for targeted educational interventions that could bridge the gap in terminology recognition and enhance the public's understanding of orthodontic health services. This level of awareness is important for public health initiatives aimed at increasing the uptake of necessary orthodontic treatments, suggesting that while foundational knowledge is broadly established, specific outreach could further enhance informed health decisions within the community.

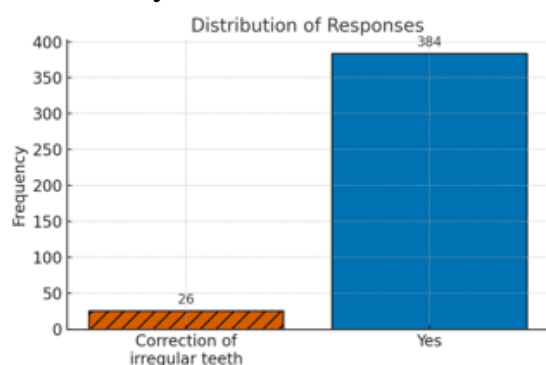


Figure 1. Frequency Distribution of Orthodontic Awareness

Now we look further and investigate the awareness of orthodontic treatment among respondents by exploring their understanding of what orthodontic treatment is. This deeper analysis helps in understanding the nature of awareness among those who initially indicated they were aware of

orthodontic treatments. Figure 2 presents the frequency distribution of responses to the question "IF YES, What is it all about?" which was directed at the 384 respondents who affirmed their awareness of orthodontic treatments. The results show that a significant majority (93.5%) correctly identified orthodontic treatment as the correction of irregular teeth. This high percentage indicates a strong and accurate understanding of the primary purpose of orthodontic treatments among the aware respondents. A small fraction (6.5%) identified orthodontic treatment as the replacement of missing teeth, highlighting a minor gap in specific knowledge within this group.

This analysis is important as it highlights that while a majority of respondents are aware of orthodontic treatments, there are still misconceptions that need to be addressed through educational campaigns. The presence of any misunderstanding among respondents who consider themselves aware suggests the necessity for more precise and widespread information dissemination regarding the scope and purpose of orthodontic treatments.

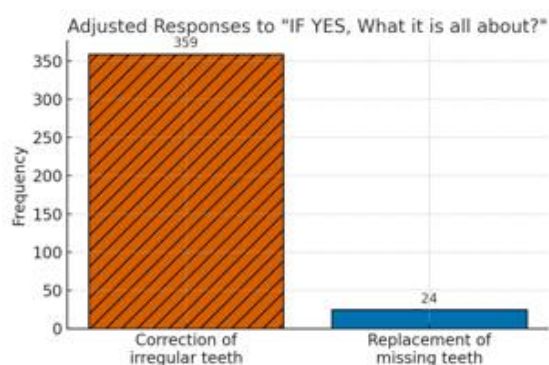


Figure 2. Frequency distribution of responses to the question "IF YES, What it is all about?"

Now, to understand the level of awareness in more depth we look at the actual experience, it is essential to assess how many respondents have undergone orthodontic treatment. This gives a practical dimension to the understanding and provides a basis for comparing perceived needs versus actual experiences. Figure 3 summarize the responses regarding previous orthodontic treatment experiences. Among the respondents, only 9.9% reported having undergone orthodontic treatment, whereas a substantial 90.1% indicated they had not received any orthodontic care. This substantial gap between those aware of orthodontic treatment and those who have actually undergone treatment suggests several barriers to accessing orthodontic care, which could include factors such as cost, availability, or perceived necessity.

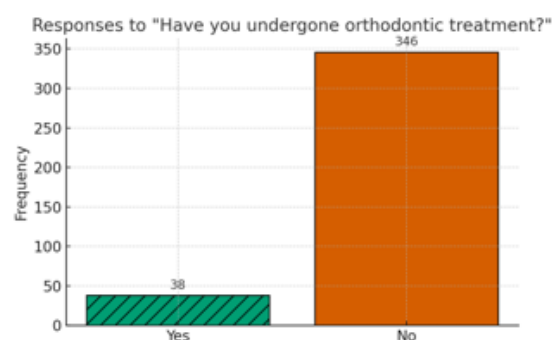


Figure 3. Frequency distribution of responses to the question undergone orthodontic treatment?

To further analyze the awareness and experience of orthodontic treatment among Libyan adults, we examined whether respondents who had undergone orthodontic treatment completed it. Figure 4 present the findings. The data reveals that of the 38 respondents who had undergone orthodontic treatment, a significant majority, 89.5%, completed their treatment, while 10.5% did not complete it. This indicates that once individuals decide to undergo orthodontic treatment, they are highly likely to follow through and complete it.

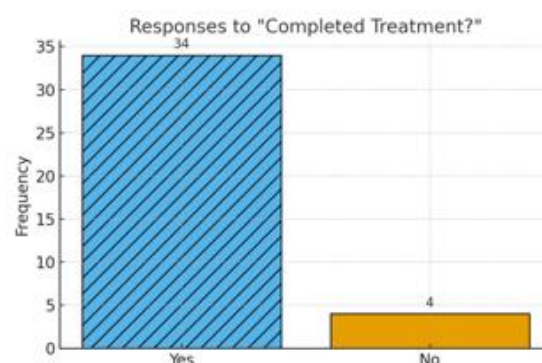


Figure 4. Frequency distribution of responses to the question Completed Treatment?

Continuing the investigation, the survey questions included an inquiry about whether individuals wore removable plates after their treatment was completed. Out of the total 410 respondents, 38 individuals, representing 9.3% of the sample, had completed orthodontic treatment as shown in Figure 5. Among these, 34 respondents (8.3% of the total sample and 89.5% of those who completed treatment) reported wearing removable plates post-treatment. Conversely, only 4 individuals (1.0% of the total sample and 10.5% of those who completed treatment) did not wear removable plates after their treatment was completed. This significant majority wearing removable plates highlights adherence to post-treatment care, which is important for maintaining the results of orthodontic corrections. The compliance rate of 89.5% suggests a high level of awareness and acceptance of post-treatment protocols among those who underwent orthodontic procedures. This finding emphasizes the importance of educating patients about the necessity of removable plates to ensure the long-term success of their orthodontic treatments.

The overall trend, with 90.7% of respondents not having undergone any orthodontic treatment, remains

consistent with earlier observations. These insights reinforce the need for continued awareness campaigns to educate the broader population about the benefits and requirements of orthodontic care, including the critical step of using removable plates post-treatment to preserve the improvements achieved.

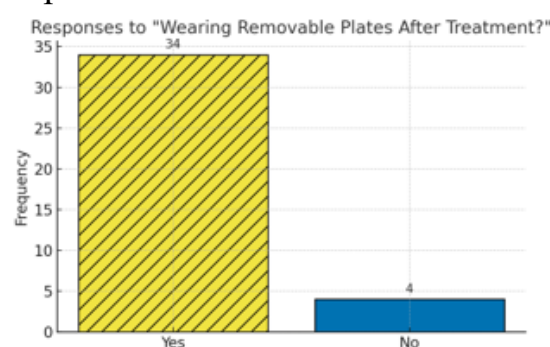


Figure 5. Frequency distribution of responses to the question Wearing Removable Plates After Treatment?

Now, we proceed to examine whether the respondents who completed orthodontic treatment had their teeth maintained in the same position after the completion of treatment. This analysis further investigates the outcomes of orthodontic awareness and treatment experiences among Libyan adults, aligning with research objective one. The results in Figure 6 show that out of the 38 respondents who completed their orthodontic treatment, 33 respondents (86.8%) reported that their teeth were maintained in the same position post-treatment, whereas 5 respondents (13.2%) indicated that their teeth did not

remain in the same position. This observation suggests a high rate of successful retention among those who completed their treatment. However, it also highlights that a small portion of the respondents experienced relapse or shifting of their teeth after the treatment was completed.

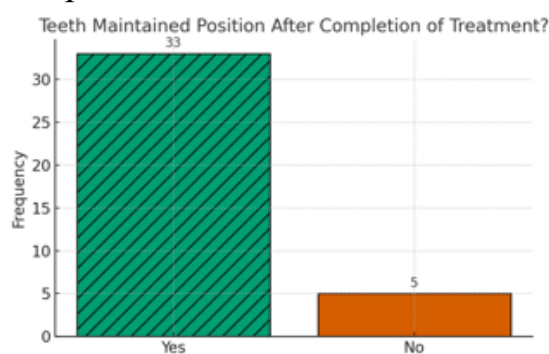


Figure 6. Frequency distribution of responses to the question Were your teeth maintained in the same position after completion of treatment?

Figure 7 illustrate the responses to the question of whether participants discontinued their orthodontic treatment at any point. Out of the 38 respondents who had undergone orthodontic treatment: -
 1- 23 respondents (60.5%) reported that they discontinued their treatment at some point.
 2- 15 respondents (39.5%) indicated that they did not discontinue their treatment and completed it as planned.

This data highlights a significant dropout rate among those who initiated orthodontic treatment, with more than half not seeing their

treatment through to completion. Various factors could contribute to this discontinuation, including financial constraints, discomfort, or other personal reasons. Understanding these factors is crucial for improving patient adherence to orthodontic treatment plans.

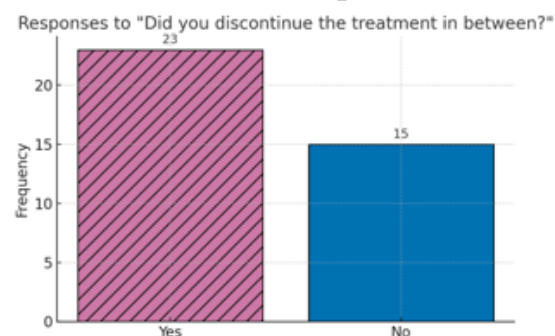


Figure 7. Frequency distribution of responses to the question Did you discontinue the treatment in between?

Following up with respondents who discontinued their orthodontic treatment, it is important to understand the underlying reasons for this discontinuation. Figure 8 present the frequency distribution and percentage of reasons given by the 23 individuals who did not complete their orthodontic treatment. From the data, we observe that a significant portion, 56.5% (13 out of 23), cited "Other reasons" for discontinuing their treatment. This category encompasses a variety of unspecified factors that may have influenced their decision, reflecting a potential area for further qualitative research to uncover specific barriers. Pain or discomfort associated with the

treatment was another prominent reason, reported by 21.7% (5 out of 23) of the respondents. Orthodontic treatments can be physically demanding and uncomfortable, and this finding underscores the importance of pain management and patient comfort in the continuation of treatment. Orthodontists might need to provide better pain relief options or more thorough explanations of what patients can expect during their treatment to mitigate this issue. Another 21.7% (5 out of 23) pointed to the cost factor as a significant barrier. Orthodontic treatment is often expensive, and financial constraints can prevent patients from completing their treatment. This highlights the need for more affordable treatment options or flexible payment plans that can make orthodontic care accessible to a broader population.

Overall, these findings indicate that while the majority of those who start orthodontic treatment complete it, a non-negligible minority face significant barriers that lead to discontinuation. Understanding and addressing these barriers whether they are related to pain, cost, or other unspecified reasons can help improve treatment adherence and outcomes. Furthermore, these results emphasize the importance of comprehensive

patient education and support systems to address the various challenges that may arise during orthodontic treatment. By focusing on these aspects, orthodontic practices can enhance patient satisfaction and improve the overall success rates of their treatments.

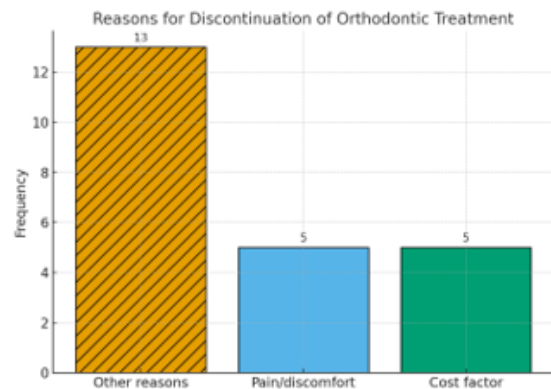


Figure 8. Frequency distribution of responses to the question Reason for Discontinuation of Orthodontic Treatment?

Regarding, other aspects of awareness, the survey results of this study provided a comprehensive understanding of the perceived need for orthodontic treatment among Libyan adults, along with the reasons behind their decisions regarding treatment. This analysis focuses on three key aspects: the perceived need for orthodontic treatment, reasons for perceived need, and reasons for not availing treatment.

*** Perceived Need for Orthodontic Treatment**

The results in Table 9 illustrate the responses to the question, "Do you think you require orthodontic

treatment?" Out of the 410 respondents, 159 individuals (38.8%) indicated that they believe they require orthodontic treatment, while 251 respondents (61.2%) stated that they do not feel the need for such treatment. This distribution highlights a significant portion of the population recognizing a need for orthodontic intervention, which aligns with the awareness and understanding of orthodontic treatments observed earlier in the study.

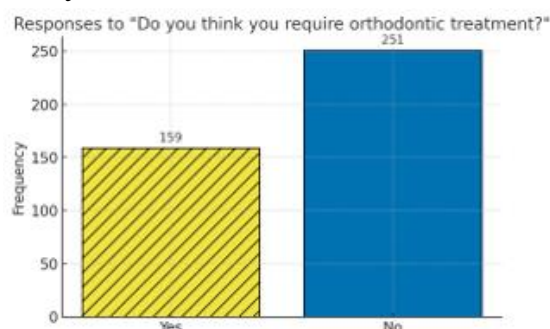


Figure 9. Frequency distribution of responses to the question Do you think you require orthodontic treatment?

* Reasons for Perceived Need

Among those who expressed a perceived need for orthodontic treatment, detailed reasons were gathered and presented in Figure 10. The predominant reason cited was having irregular teeth, with 82 respondents (20.0% of the total sample, 51.6% of those needing treatment) selecting this option. This was followed by the desire to correct their smile, reported by 52 respondents (12.7% of the total

sample, 32.7% of those needing treatment). Forwardly placed teeth were noted by 22 respondents (5.4% of the total sample, 13.8% of those needing treatment), and a few individuals (3 respondents, 0.7% of the total sample, 1.9% of those needing treatment) mentioned difficulties while speaking or eating as the reason for requiring orthodontic treatment.

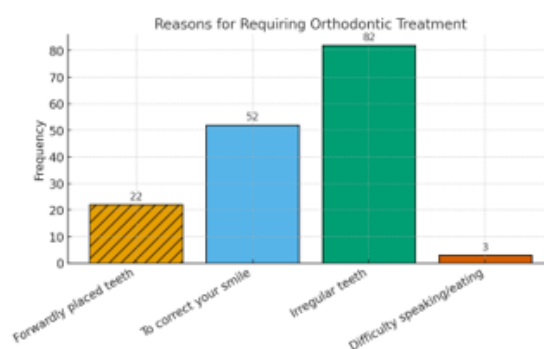


Figure 10. Frequency distribution of responses to the question IF YES, what are the reasons for it?

These findings indicate that aesthetic concerns, such as correcting irregular teeth and improving one's smile, are the primary motivators for seeking orthodontic treatment. Functional issues, while less common, still play a role in the decision-making process for a small fraction of the population. The high percentage of respondents identifying aesthetic reasons suggests a strong influence of social and personal appearance factors in the perceived need for orthodontic care.

* Reasons for Not Availing Treatment

For the respondents who did not perceive a need for orthodontic treatment (251 individuals, 61.2% of the total sample), further investigation into the reasons for not availing treatment was conducted. The results are presented in Figure 11. The most frequently cited reason was the cost factor, with 102 respondents (24.9% of the total sample, 40.6% of those not seeking treatment) identifying this as a barrier. Social acceptance, particularly the concern that wearing braces at their age would be awkward, was mentioned by 61 respondents (14.9% of the total sample, 24.3% of those not seeking treatment). A lack of awareness that such a treatment is available was reported by 54 respondents (13.2% of the total sample, 21.5% of those not seeking treatment). Additionally, 34 respondents (8.3% of the total sample, 13.5% of those not seeking treatment) cited difficulties in managing time for visits due to their daily jobs.

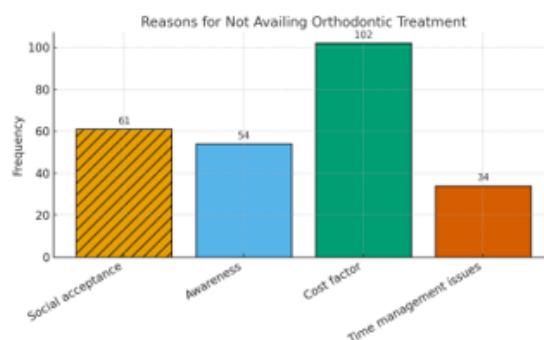


Figure 11. Frequency distribution of responses to the question Reasons for Not Availing Treatment?

These insights reveal that financial constraints are the most significant barrier to seeking orthodontic treatment, followed by concerns about social perceptions and a lack of awareness about available treatments. The challenge of balancing treatment visits with work responsibilities also contributes to the decision against availing orthodontic care. Addressing these barriers through educational campaigns, financial assistance programs, and flexible treatment schedules could potentially increase the uptake of orthodontic treatments among adults who recognize the need but are hindered by these factors.

The barriers to availing treatment, particularly financial constraints, social acceptance, lack of awareness, and time management issues, provide critical areas for intervention. Financial assistance programs, such as subsidies or payment plans, could alleviate the cost barrier, making treatment more

accessible. Enhancing awareness about the availability and benefits of orthodontic treatment through targeted educational campaigns can address the lack of awareness. Addressing social concerns by promoting the acceptance of orthodontic treatments across all age groups and providing flexible treatment schedules to accommodate working adults can further improve treatment uptake.

Therefore, the study highlights a substantial perceived need for orthodontic treatment among Libyan adults, driven primarily by aesthetic concerns. Addressing the identified barriers through comprehensive strategies can enhance the accessibility and acceptance of orthodontic treatment, ultimately improving oral health outcomes in the population. These findings provide a robust foundation for developing targeted interventions and policies to promote orthodontic care and address the needs and concerns of the adult population in Libya.

*** Self-Perception of Dental Appearance**

To evaluate the self-perception of personal dental appearance among Libyan adults, the participants were asked to rate their satisfaction with their dental appearance. The results are summarized in Figure 12. The

results reveals that a significant majority of the respondents are very satisfied with their dental appearance. Specifically, 263 out of 410 participants, which accounts for 64.1%, reported being very satisfied. This high level of satisfaction suggests that a large portion of the surveyed population feels confident and pleased with the appearance of their teeth. Following this, 114 participants, representing 27.8% of the sample, indicated that they are satisfied with their dental appearance. While this group does not express the highest level of satisfaction, it still reflects a positive perception of their dental aesthetics. Together, the very satisfied and satisfied groups constitute an overwhelming 92% of the respondents, indicating a generally positive self-perception of dental appearance among the majority of the participants.

On the other hand, 33 respondents, or 8% of the total sample, reported not being satisfied with their dental appearance. This minority group highlights the need for further investigation into the reasons behind their dissatisfaction, which could range from specific dental issues to personal preferences regarding aesthetics. These findings provide a clear insight into how Libyan adults perceive their dental

appearance, with the majority expressing satisfaction. The high percentage of very satisfied and satisfied respondents suggests that dental health and aesthetics are generally well-maintained within this population, or that cultural and personal standards of dental aesthetics are met satisfactorily for most individuals.

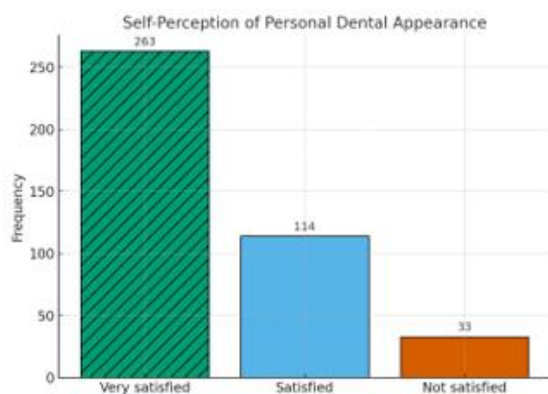


Figure 12. Frequency distribution of responses to the self-perception of personal dental appearance

The data indicates that the self-perception of personal dental appearance among Libyan adults is predominantly positive, with a significant majority feeling very satisfied or satisfied with their teeth. The minority of respondents who are not satisfied may require more targeted dental care or aesthetic treatments to improve their perception of their dental appearance. This analysis underscores the importance of understanding patient satisfaction to better address the needs of those who are not fully content with their dental aesthetics.

To further understand the relationship between self-perception of dental appearance and other variables, we look first at the marital status, in which we performed a cross-tabulation analysis. The results are presented in Figure 13 and Table 1. From the cross-tabulation, it can be seen that among those who are single, 62.1% are very satisfied with their dental appearance, 31.9% are satisfied, and 6.0% are not satisfied. For those who are divorced, 66.9% are very satisfied, 22.3% are satisfied, and 10.9% are not satisfied.

The Chi-Square test (Table 14) indicates a significant relationship between marital status and self-perception of dental appearance ($\chi^2(2) = 6.686$, $p = .035$). This significance suggests that marital status might influence how individuals perceive their dental appearance. Divorced individuals have a slightly higher percentage of being very satisfied compared to single individuals but also a higher percentage of being not satisfied. This variability might be due to different social and psychological factors affecting divorced individuals' self-perception, which warrants further exploration.

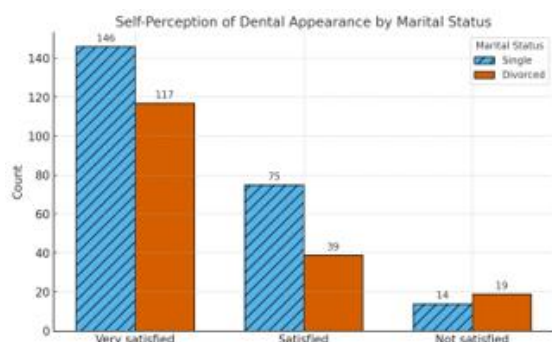


Figure 13. Self-perception and marital status Crosstabulation.

Table 1. Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.686 ^a	2	.035
Likelihood Ratio	6.718	2	.035
Linear-by-Linear Association	.001	1	.979
N of Valid Cases	410		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.09.

The distribution of self-perception of dental appearance among different educational levels is shown in Figure 14. Participants with a primary level of education reported the highest percentage of being very satisfied with their dental appearance (68.8%). This high level of satisfaction was also observed among participants with a master's degree (71.2%). In contrast, those with a secondary level of education had a lower percentage of very satisfied individuals (57.6%). Participants holding a diploma, a degree, or a doctorate showed varied levels of satisfaction: 65.6% of diploma

holders, 64.4% of degree holders, and 59.7% of doctorate holders reported being very satisfied. The data indicates that while there is some variation, the majority of respondents across all educational levels reported being very satisfied with their dental appearance. When examining those who were satisfied with their dental appearance, 34.1% of respondents with secondary education fell into this category, followed by 28.8% with a degree and 28.1% with primary education. The lowest percentage of satisfied individuals was found among master's degree holders (22.7%). For participants who were not satisfied with their dental appearance, the highest percentage was found among those with a doctorate (12.5%), followed by secondary education (8.2%), and diploma holders (10.9%). The lowest dissatisfaction was reported by primary education holders (3.1%).

The chi-square test results (Table 2) show that there is no statistically significant association between educational level and self-perception of dental appearance ($\chi^2 = 8.630$, $p = .568$). This lack of significance indicates that educational level does not have a strong influence on how individuals perceive their dental aesthetics. The analysis of self-perception based on

educational level reveals interesting patterns. While a majority of respondents across all educational levels reported being very satisfied with their dental appearance, there is no significant statistical association between educational level and self-perception. This suggests that factors other than education, such as personal experiences, access to dental care, and cultural influences, may play a more crucial role in shaping individuals' perceptions of their dental aesthetics.

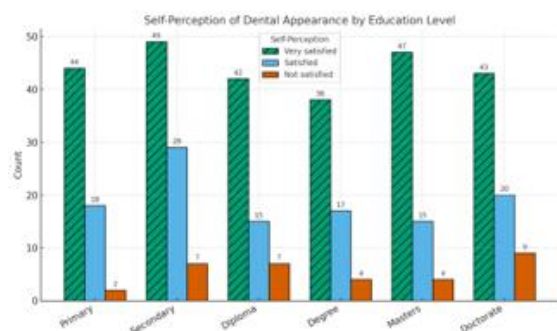


Figure 14. Self-perception and education level Crosstabulation.

Table 2. Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.630 ^a	10	.568
Likelihood Ratio	8.916	10	.540
Linear-by-Linear Association	.330	1	.565
N of Valid Cases	410		
a. 1 cells (5.6%) have expected count less than 5. The minimum expected count is 4.75.			

The high satisfaction levels among primary education and master's degree holders may reflect different socio-economic backgrounds, access to dental care, and cultural attitudes towards dental

health. The higher dissatisfaction rates among doctorate holders could be attributed to greater awareness and higher expectations of dental aesthetics due to their advanced education. Overall, these findings highlight the complex nature of self-perception of dental appearance and suggest that interventions to improve dental aesthetics and satisfaction should consider a broader range of factors beyond educational attainment. Further research could explore these additional factors to develop a more comprehensive understanding of what influences dental self-perception among different demographic groups.

Figure 15 and Table 3 present the cross-tabulation and Chi-Square test results for self-perception of personal dental appearance by socioeconomic status. The data show that across different socioeconomic classes, the majority of respondents are very satisfied or satisfied with their dental appearance.

For respondents in the lower class, 59.7% reported being very satisfied, 28.6% were satisfied, and 11.7% were not satisfied. This indicates that a significant portion of lower-class individuals are content with their dental appearance, though a notable minority are not satisfied. In the lower middle class, 66.3% were

very satisfied, 28.1% were satisfied, and 5.6% were not satisfied. This group shows a slightly higher satisfaction level compared to the lower class. Respondents in the upper lower class reported 64.9% being very satisfied, 27.3% satisfied, and 7.8% not satisfied. The upper middle class showed 66.7% very satisfied, 24.7% satisfied, and 8.6% not satisfied, indicating a high level of satisfaction similar to the lower middle class. Finally, in the upper class, 62.8% were very satisfied, 30.2% were satisfied, and 7.0% were not satisfied. This group has the highest percentage of satisfied individuals, which might reflect better access to dental care and maintenance.

The Chi-Square test results reveal no significant association between socioeconomic status and self-perception of dental appearance ($\chi^2 = 2.986$, $df = 8$, $p = 0.935$). This lack of significant difference suggests that socioeconomic status does not play a crucial role in influencing how satisfied individuals are with their dental appearance. Despite potential differences in access to dental care and education, satisfaction levels remain relatively consistent across different socioeconomic groups.

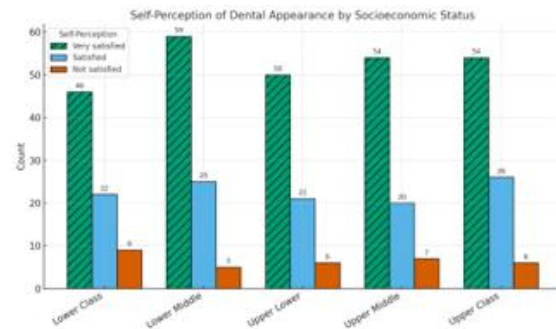


Figure 15. Self-perception and socioeconomic status Crosstabulation.

Table 3. Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.986 ^a	8	.935
Likelihood Ratio	2.922	8	.939
Linear-by-Linear Association	.263	1	.608
N of Valid Cases	410		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.20.			

The findings indicate that the self-perception of dental appearance among Libyan adults is generally high, with most respondents being either very satisfied or satisfied across different socioeconomic statuses. These results suggest that factors such as socioeconomic status do not significantly influence personal satisfaction with dental appearance. This high level of satisfaction could be due to cultural norms, personal expectations, or the general dental health status within the population. It is also noteworthy that there is a small percentage of respondents who are not satisfied with their dental appearance. Addressing the concerns of this

minority could involve further investigation into specific dental issues they face and improving access to dental care and education about orthodontic options.

The analysis of the self-perception of dental appearance based on age groups reveals interesting insights into how different age groups perceive their dental aesthetics. The cross-tabulation between self-perception and age categories (AGECAT) is presented in Figure 16, and the associated Chi-Square test results are shown in Table 4. From Figure 16, we observe the distribution of self-perception responses across five age categories: 18-25 years, 26-35 years, 36-45 years, 46-55 years, and 56-60 years. Overall, a significant majority of respondents in each age category reported being "very satisfied" with their dental appearance. Specifically, 64.5% of respondents aged 18-25 years, 69.1% of those aged 26-35 years, 60.0% of those aged 36-45 years, 63.1% of those aged 46-55 years, and 66.7% of those aged 56-60 years fell into this category. This indicates a general trend of high satisfaction with dental appearance across all age groups.

The proportion of respondents who were "satisfied" with their dental appearance was also notable, though

less pronounced than the "very satisfied" category. The 26-35 years and 36-45 years age groups had the highest percentages of "satisfied" respondents at 26.8% and 32.2%, respectively. Meanwhile, the 18-25 years, 46-55 years, and 56-60 years age groups had slightly lower percentages of "satisfied" respondents, with figures of 25.8%, 25.2%, and 27.3%, respectively. Conversely, the "not satisfied" category showed lower percentages across all age groups. The highest dissatisfaction was observed in the 46-55 years age group, with 11.7% of respondents indicating they were not satisfied with their dental appearance. This was followed by the 18-25 years age group at 9.7%, the 36-45 years age group at 7.8%, the 56-60 years age group at 6.1%, and the 26-35 years age group at 4.1%.

The Chi-Square test results in Table 4 reveal that there is no statistically significant association between age and self-perception of dental appearance (Pearson Chi-Square value = 5.777, $df = 8$, $p = .672$). This suggests that age does not significantly impact how individuals perceive their dental appearance, with high satisfaction levels being consistent across all age groups. The data indicates that a majority of Libyan adults, regardless of age, are

either very satisfied or satisfied with their dental appearance. While there is a small portion of respondents who are not satisfied, this dissatisfaction does not significantly vary across different age groups. This consistent high level of satisfaction suggests that factors other than age may play a more critical role in influencing self-perception of dental aesthetics among Libyan adults.

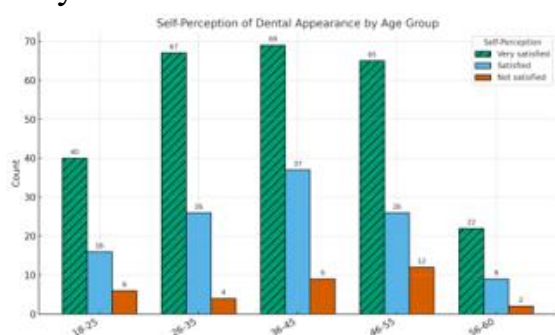


Figure 15. Self-perception and age crosstabulation.

Table 4. Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.777 ^a	8	.672
Likelihood Ratio	5.953	8	.652
Linear-by-Linear Association	.333	1	.564
N of Valid Cases	410		

a. 2 cells (13.3%) have expected count less than 5. The minimum expected count is 2.66.

The analysis of self-perception of personal dental appearance by sex, as shown in Figure 16 and Table 5, reveals some intriguing insights into how males and females perceive their dental aesthetics. In terms of the self-perception of dental appearance among different sexes, 67.5% of males reported being "very satisfied"

with their dental appearance, while 57.1% of females reported the same level of satisfaction. This indicates a higher level of satisfaction among males compared to females. The percentage of respondents who were "satisfied" with their dental appearance was 24.5% for males and 34.6% for females. This suggests that a greater proportion of females fall into the "satisfied" category compared to males, which may imply a more moderate level of satisfaction among females. Meanwhile, the percentage of respondents who were "not satisfied" with their dental appearance was quite similar between the sexes, with 7.9% of males and 8.3% of females falling into this category.

The Pearson Chi-Square test results, with a value of 4.773 and an asymptotic significance (2-sided) of 0.092, suggest that there is no statistically significant difference in the self-perception of dental appearance between males and females at the 0.05 significance level. This is further supported by the likelihood ratio of 4.688 with a significance of 0.096, indicating a similar trend. The linear-by-linear association also shows a non-significant result with a value of 2.517 and a significance of 0.113. From these results, it can be inferred

that while there are differences in the levels of satisfaction between males and females, these differences are not statistically significant. This implies that both genders generally perceive their dental appearance similarly, with a slight tendency for males to report being very satisfied more often than females. However, the similar proportions of dissatisfaction suggest that issues related to dental aesthetics affect both sexes equally. The higher proportion of females in the "satisfied" category could suggest that females might have a more critical view of their dental appearance, settling for satisfaction rather than very high satisfaction. This could be influenced by societal standards and pressures regarding appearance that might be more pronounced for females.

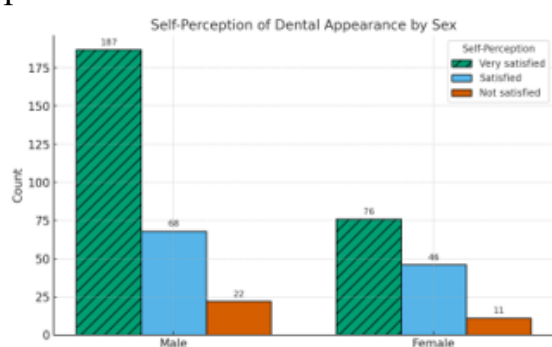


Figure 16. Self-perception and sex Crosstabulation

Table 5. Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.773 ^a	2	.092
Likelihood Ratio	4.688	2	.096
Linear-by-Linear Association	2.517	1	.113
N of Valid Cases	410		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.70.

The cross-tabulation analyses of self-perception of dental appearance against marital status, sex, education level, socioeconomic status, and age reveal diverse insights into how various demographic factors influence self-perception among Libyan adults. Starting with marital status, the findings indicate that both single and divorced individuals exhibit similar levels of satisfaction with their dental appearance. Specifically, 62.1% of single participants and 66.9% of divorced participants reported being very satisfied. Satisfaction levels were also comparable, with 31.9% of singles and 22.3% of divorced respondents reporting being satisfied. Interestingly, divorced individuals had a slightly higher proportion of dissatisfaction (10.9%) compared to singles (6.0%). The Chi-Square test revealed a significant association between marital status and self-perception, suggesting that marital status does influence how individuals perceive their dental appearance.

In terms of sex, the analysis showed that males tend to be more satisfied with their dental appearance compared to females. A higher percentage of males (67.5%) reported being very satisfied compared to females (57.1%). Conversely, more females (34.6%) were satisfied

compared to males (24.5%). The level of dissatisfaction was nearly identical between the sexes, with 7.9% of males and 8.3% of females reporting not being satisfied. The Chi-Square test, however, did not show a statistically significant difference, implying that while there are observable differences in satisfaction levels, these are not substantial enough to indicate a significant gender effect.

Examining education level, the data revealed that satisfaction levels varied across educational attainment. Participants with a Master's degree had the highest percentage of being very satisfied (71.2%), followed by those with primary education (68.8%). Those with secondary education were the least very satisfied (57.6%). Satisfied responses ranged from 22.7% among Master's degree holders to 34.1% among secondary education participants. Notably, the level of dissatisfaction was highest among those with a doctorate (12.5%) and lowest among those with primary education (3.1%). The Chi-Square test indicated no significant association between education level and self-perception, suggesting educational attainment does not have a significant impact on how individuals perceive their dental appearance.

Socioeconomic status also played a role in self-perception of dental appearance. The data showed that individuals in the lower middle class were the most satisfied, with 66.3% reporting being very satisfied, while the upper class reported the least very satisfied at 62.8%. The percentage of those satisfied was relatively consistent across different SES groups, ranging from 24.7% in the upper middle class to 30.2% in the upper class. The dissatisfaction rates were fairly low across all SES groups, with the lower class having the highest rate at 11.7%. The Chi-Square test revealed no significant differences, indicating that SES does not significantly affect dental self-perception.

Lastly, the analysis of age groups showed that satisfaction with dental appearance varied with age. Participants aged 26-35 years had the highest level of very satisfied responses (69.1%), while those aged 36-45 years had the lowest (60.0%). Satisfaction levels were highest among the 36-45 years group (32.2%) and lowest in the 26-35 years group (26.8%). The youngest age group (18-25 years) had a relatively higher rate of dissatisfaction (9.7%) compared to other age groups. Despite these variations, the Chi-Square test indicated no significant

association between age and self-perception, suggesting that age does not significantly influence how individuals perceive their dental appearance.

The findings across marital status, sex, education level, socioeconomic status, and age provide a detailed view of self-perception of dental appearance among Libyan adults. While some demographic factors show observable differences in satisfaction levels, only marital status showed a statistically significant association with self-perception. These insights can help dental health professionals understand the nuances of self-perception across different demographic groups and tailor their approaches to address the specific needs and concerns of these groups.

4- CONCLUSION

The study reveals significant insights into the awareness and self-perception of orthodontic treatment among Libyan adults. Despite a high level of awareness about orthodontic treatments, the actual uptake of such treatments remains low, indicating the presence of barriers such as cost, availability, perceived necessity, and potential discomfort. These findings highlight the need for targeted educational initiatives and policy

interventions to improve access to and uptake of orthodontic care.

The self-perception of dental appearance among the participants was predominantly positive, with the majority expressing satisfaction with their dental aesthetics. However, a notable minority reported dissatisfaction, emphasizing the importance of dental aesthetics in personal well-being and self-esteem. The findings also suggest discrepancies between self-perception and professional evaluation, underscoring the subjective nature of dental aesthetics.

Future interventions should focus on addressing the identified barriers to orthodontic treatment, enhancing public awareness, and promoting the importance of dental aesthetics as part of overall health. Additionally, further research should explore the underlying factors influencing self-perception and treatment uptake, and develop strategies to support individuals in achieving their desired dental health outcomes.

5- ACKNOWLEDGEMENT

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