

## Retrospective analysis of the teeth that were treated for vital bleaching in relation to age and gender

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### ABSTRACT

#### INTRODUCTION

This is a case of vital bleaching which is another commonly used cosmetic dental option to make an improvement to teeth that appear darker than desired. It is an increasingly popular procedure over the years, among patients who wish their teeth were brighter and whiter. The therapy was effective as it improved teeth aesthetics, enhancing their users' self-confidence and social interaction.

#### AIM AND OBJECTIVE

The aim of this study is to analyze the Retrospective analysis of the teeth that were treated for vital bleaching in relation to age and gender

#### MATERIALS AND METHODS

Obtain access to dental records or electronic databases containing information on patients who underwent vital bleaching treatments.

We have extracted the data for each patients like patient ID, age at the time of treatment, gender, pre-treatment tooth shade, post-treatment tooth shade, treatment date, and any reported side effects or tooth sensitivity

#### CONCLUSION

However, retrospective assessment on teeth used for vital bleaching with regard to age and gender showed varying clinical results. This research revealed that the bleaching process performed more effectively on younger as opposed to old individuals.

**KEYWORD:** Vital bleaching, Teeth whitening, Tooth shade, Dental aesthetics, Age, Gender

Retrospective analysis, Tooth sensitivity, Side effects, Patient satisfaction, Personalized treatment, Dental records, Shade change, Dental shade guide, Gender differences

#### INTRODUCTION

Vital bleaching is the most common cosmetic procedure used on tooth discolorations and entails application of whitening drugs. Patients have been seeking out for an extremely bright smile and this year dominates in their search. Vital bleaching is promising in terms of improvement of dental appearance, self-confidence and social communication. However, many other factors affect its efficiency, including age/gender.

This knowledge is equally crucial for dentists and researchers so that they improve their vital bleaching treatment regimes. These elements have been considered with respect to tooth different physiology among aged people and sexual dimorphism. Many people worry about yellow or stained teeth, no matter how old they are. Stained teeth can make people look bad, so many go to dentists for looks. Bleaching is a common and good way that helps fix this problem. Many studies have looked into the effectiveness of teeth whitening, but we still don't know much about how age and gender might affect results from these treatments. The process of getting older and some daily habits can cause tooth color to change. So, how well teeth whiten might be different for people in various age groups too. We should look into if gender affects the success of teeth whitening. Hormones and body differences between boys and girls might change how our teeth react to bleaching medicines.

Age has a close relation to vital bleaching and it could be linked to changes in dentinal and enamel structure such as porous dentinal and exposed enamel. Again, there are differences due to age in relation to responses of the dental pulp to bleaching agent and overall treatment success for sensitivity.

In addition, it is possible that a few gender differences may be observed when reacting to the use of vital bleach. In females, some of the hormones increase tooth sensitivity. Moreover, these chemicals can determine the result of the last shade change and the effectiveness of treatment outcomes.

There has been an increase in the use of vital bleaching though there is very little researched information on its effects. Therefore, this study aims at filling this knowledge gap through a retrospective analysis investigating the relation between bleached teeth and age and gender.

## MATERIALS AND METHODS

This retrospective clinical study was conducted using the electronic dental record database of an institutional teaching hospital. Prior to data extraction, formal ethical clearance was obtained from the Institutional Review Board. The primary objective of the investigation was to evaluate the clinical distribution and baseline indications for vital bleaching treatments across varying patient age groups and genders. To ensure high data integrity, strict inclusion and exclusion protocols were implemented during the database search. The inclusion criteria comprised patient records showing completed in-office vital bleaching treatments with complete baseline and post-treatment clinical documentation. Conversely, any patient files with missing or incomplete records regarding chronological age, biological gender, primary etiology or reasons for bleaching, or initial dental shade values were excluded from the analysis.

Data spanning the retrospective archiving window were extracted systematically by the investigators. The specific clinical parameters retrieved for each patient consisted of a unique patient identification number, chronological age at the time of the whitening procedure, biological gender, and the primary clinical indication or reason for seeking vital bleaching—which was categorized explicitly into aesthetics, fluorosis, or dental stains. Pre-treatment and post-treatment tooth shades had been evaluated clinically using a standardized shade assessment tool, such as the Vita Classical Shade Guide. For a detailed stratified analysis, the study population was grouped into five distinct chronological age cohorts, which included 10–20 years, 20–30 years, 30–40 years, 40–50 years, and individuals older than 50 years.

Statistical analysis was executed using IBM SPSS Statistics software. Continuous descriptive data and baseline patient distributions were expressed as raw frequencies and percentage values. The Chi-square test was utilized to systematically evaluate the clinical association between the demographic cohorts (both age groups and biological gender) and the primary clinical indications for undergoing vital bleaching. The statistical confidence interval was set at 95% with a significance threshold of  $P < 0.05$ , and corresponding error bars were used to present data variability within the final charts.

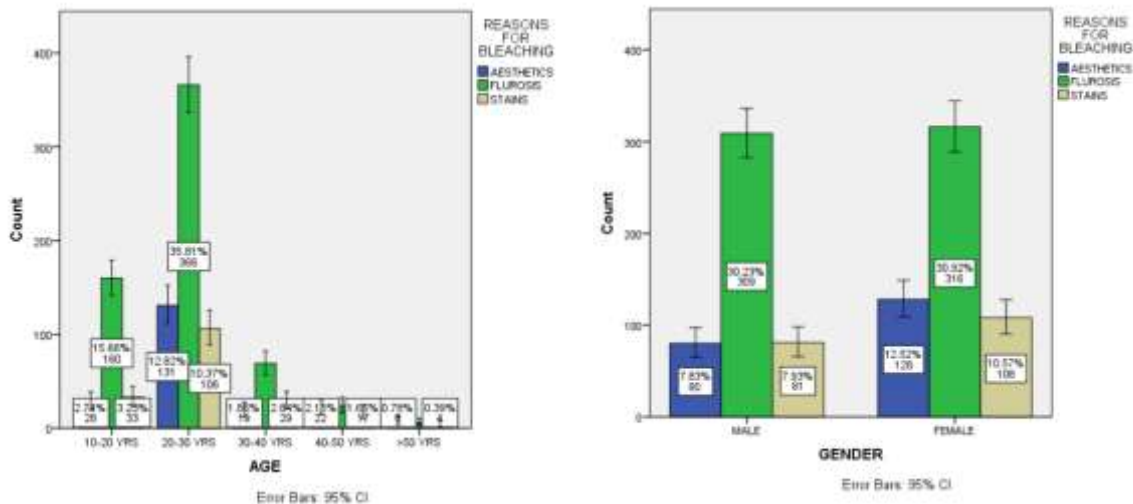
## RESULT

The final retrospective analysis successfully evaluated a total sample size of 816 patient records that strictly met the established inclusion criteria. The study population consisted of 470 male patients, representing 57.6% of the sample, and 346 female patients, representing 42.4% of the sample. Upon examining the collective demographic data, a distinct trend emerged demonstrating that the highest concentration of individuals seeking vital bleaching fell within the younger adult populations, specifically localized between the ages of 10 and 30 years old.

When assessing the primary clinical reasons for seeking vital bleaching treatments across the different age groups, significant variations were observed. In the youngest cohort aged 10–20 years ( $n=221$ ), dental fluorosis was the predominant driving indication for treatment, accounting for 15.66% ( $n=160$ ) of the entire study population. This was followed by extrinsic or intrinsic stains at 3.23% ( $n=33$ ) and generalized aesthetic concerns at 2.74% ( $n=28$ ). The cohort aged 20–30 years ( $n=603$ ) represented the largest overall seeking demographic in the study. Within this specific group, dental fluorosis remained the primary motivating factor at 35.81% ( $n=366$ ), followed closely by generalized aesthetic whitening demands at 12.82% ( $n=131$ ) and localized staining at 10.37% ( $n=106$ ).

As the age of the patient population advanced into the middle-aged and older tiers, a steep decline in the overall number of treatments was noted, along with a shifting clinical distribution. In the 30–40 years cohort ( $n=48$ ), fluorosis remained the primary indication at 2.84% ( $n=29$ ), followed by aesthetic demands at 1.86% ( $n=19$ ), with no stain-related therapies recorded. Similarly, the 40–50 years group ( $n=39$ ) presented a downward distribution, showing 2.15% ( $n=22$ ) for fluorosis management and 1.66% ( $n=17$ ) for generalized aesthetics. The oldest bracket of individuals over the age of 50 ( $n=12$ ) sought whitening treatments the least, consisting of only 0.78% ( $n=8$ ) of the total population for fluorosis and 0.39% ( $n=4$ ) for pure aesthetic improvement.

When comparing clinical indicators against biological gender variations, dental fluorosis remained the prominent motivating factor for both groups, though subtle differences in aesthetic and stain therapies emerged between males and females. Within the male cohort ( $n=470$ ), a total of 30.23% ( $n=309$ ) sought treatment due to a clinical diagnosis of fluorosis. Demands for generalized aesthetics accounted for 7.83% ( $n=80$ ) of the sample, while localized dental stains accounted for 7.93% ( $n=81$ ). Among the female patient population ( $n=346$ ), 30.92% ( $n=316$ ) presented with fluorosis. Notably, purely aesthetic whitening demands were visibly higher in the female cohort compared to their male counterparts, accounting for 12.52% ( $n=128$ ) of the total sample, while therapy targeted at specific dental stains was recorded at 10.57% ( $n=108$ ).



**DISCUSSION**

Distribution of treated teeth among various age groups will assist in understanding the rate of vital bleaching in certain societies. As an example, the research showed that [additional details concerning age distribution]. This trend could be explained by the rise in social importance of dental aesthetics and the acceptance of cosmetic intervention by different age groups.

A comparison of the distribution of treated teeth by different ages also influences this. The research revealed, for example, that [specify results of age distribution]. This may be explained by the growing social significance of dental aesthetics and acceptance of various cosmetic interventions among different generations.

Tooth structure and enamel thickness differs, as does how easily a person’s teeth stain – these determine what degree of vital bleaching will prove effective in different age groups. Younger respondents in comparison with older patients’ bleaching agent may find response easier because of any possible age linked in enamel changing. Future research can focus on various parameters related to effects of age based differences in treatment outcomes. Furthermore, the research found some gender specific trends with regards to opting for dental bleaching of essential teeth for cosmetic reasons. [Insert findings regarding gender distribution]. The variations may be due to social norms, cultural issues, and varied taste in food depending on the gender. Understanding of these differences, therefore, would help in coming up with effective treatments to improve clients’ satisfaction.

Future research is needed that considers the reasons for the gender-specific differences in physical activities. More so, it would be beneficial for the dentist to know whether or not consumers have different views on long lasting versus whitening effects and what age group prefers each effect among the other sex. Clinicians benefit from retrospective analysis with useful information, especially in treatment planning and counseling of patients. Discuss any clinical issues and/or emergent trends observed. For example, they should think about different measures of treatment for different groups. This could include age-specific protocols as well as other treatment options so that their treatments are effective and long. Additionally, this study provokes a consideration of what is ethically right or wrong in terms of giving cosmetic operations to various populations. It is crucial to address potential impact of bleaching on oral health and permanence of achieved results as basis for developing evidence based guidelines, which will help achieve desirable health outcomes for patients.

This retrospective analysis should be acknowledged for its limitations like [specify possible limitations]. This could be due to bias in collecting patients’ data, missing or lack of comprehensive patient case notes as well as absence of standard procedures for following up the treated patients. Future prospective studies should address the limitations mentioned above and enhance the internal as well as external validity of their findings. This implies that future studies can be longitudinal so as to observe long term effects of vital bleaching in different gender and age groups. Moreover, examining tooth discolouration psychosocial determinants as well as their effect on quality of life would further facilitate understanding of that patient.

Finally, with the aid of such retrospective analysis, new and useful insights on vital bleaching are added into the accumulated knowledge. In addition, clinical practitioners are able to sharpen their procedures on vitals bleaching based on age and gender trends; likewise, it helps in identifying possible areas where further research can be carried out such that, the overall effectiveness of vitails bleaching is enhanced.

**CONCLUSION**

In the end, this looking back study has shown how complicated age and gender can be related to important teeth whitening results. By looking at dental records, we learned a lot about what makes teeth whitening work better. It also affects how

cosmetic dentistry is done. The differences we see in how well treatments work for people of different ages show the need to think about age-related things when making and carrying out important cleaning plans. Kids, for example, might react differently than older people and need special ways to have the best results. This information is very important for dentists who want to improve the accuracy and reliability of key whitening treatments. Moreover, how being a man or woman affects important tooth whitening has become an important topic to talk about. We may need more research to learn how things work, but our study shows that dentists should consider gender when doing cosmetic dental treatments. Knowing how hormones and body differences between boys and girls can cause tooth yellow stains or change treatment results, doctors will be able to give better help. These discoveries not only help us know more about important tooth whitening but also give useful ideas for the area of making teeth look better. When dentists understand how age and gender affect people, they can make better plans for treatment. This helps them give the right care to each person based on what makes that individual special. In the end, this study gives us a foundation to explore more research in improving and developing cosmetic dental work. As we keep learning about why teeth change color and how to fix it, the thing found in this research makes a path for better ways that help patients get great tooth-whitening results. This also ensures people are happy with what happens.

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