



Dental Student Perceptions of Children with Stainless Steel Crowns (SSCs) vs. Zirconia Crowns: Associations with Behavior and Socioeconomic Status (SES)



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OBJECTIVE

To investigate whether dental students hold negative perceptions of children with SSCs compared to esthetic zirconia crowns, regarding behavior and SES.

BACKGROUND

It is well known that parents can be apprehensive towards Stainless Steel Crowns (SSCs) as a treatment option due to esthetic concerns. Esthetics can be seen as one of the biggest concerns however, it has also been noted in one study that SSCs can be a reminder of dental caries.⁴ Other studies show that children generally have a more positive perception towards SSCs and are much more accepting.^{3,4}

Despite these concerns/negative perceptions, stainless steel crowns are used as the gold standard given their functionality, longevity and durability. This study will help explore a different aspect outside of esthetics alone regarding negative perceptions. Currently there is a lack of research analyzing in depth how children with SSCs are perceived in terms of behavior or socioeconomic status.

This study will allow for further exploration into an unknown area that can potentially be a reason why parents elect against SSCs. This study may serve as a foundation to explore outside of the dental community and investigate parents within different clinic/practice populations.

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MATERIALS AND METHODS

A voluntary online survey utilizing Qualtrics was distributed to students at the Texas A&M University (TAMU) College of Dentistry. The survey included demographics and questions regarding perception of behavior and SES using Ai rendered intraoral clinical photos (only oral cavity displayed to limit bias) of children with SSCs/Zirconia crowns. Free response questions were included for both photos allowing participant to type out their initial impression response. Behavior perception settings included; 1) Dental Appointment 2) School 3)Home. (Likert scale was used) SES included; 1) High SES 2) Middle SES 3) Low SES

Inclusion criteria included Dental students (D1-D4) at TAMU College of Dentistry (Estimated 100 per class).

Data was collected from 167 TAMU dental students.

RESULTS

A thematic analysis was used to analyze survey participant's initial impression free responses. The dominant themes for a child with SSCs included; High Caries Risk & Poor Oral Health History, Negative Behavioral Assumptions, Low SES Associations, and Reactive / Late Treatment Pattern. The dominant themes for a child with Zirconia crowns included; Good Oral Hygiene & Preventive Care, Positive Behavior & Cooperation, Higher SES, and Esthetic-Driven Parenting.

McNemar-Bowker statistical tests were used to examine if there was a difference in perception between SSCs and Zirconia crowns regarding behavior and SES. There was a statistically significant difference for perception of behavior at a dental appointment ($p < .05$), at home ($p < .05$), and at school ($p < .05$). There was a statistically significant difference for perception of SES. ($p < .05$)

DISCUSSION/CONCLUSION

This study demonstrates that dental students perceive pediatric patients differently based on restorative material. Qualitative analysis revealed that SSCs were associated with negative descriptors (e.g., poor oral hygiene, difficult behavior, lower SES), whereas zirconia crowns were associated with positive descriptors (e.g., cooperative behavior, good oral hygiene, higher SES). Quantitative analysis supported these patterns, with zirconia cases consistently shifting toward more positive behavioral and higher SES perception. These findings suggest the presence of appearance-based bias, where visible restorative materials influence assumptions about patient behavior and socioeconomic background.

This study provides insight into how such perceptions may extend beyond providers. If dental professionals associate zirconia crowns with higher SES and better behavior, parents may hold similar perceptions. These perceptions can potentially influence their preference for esthetic materials. While parental perception was not directly assessed, these findings establish a foundation for future research exploring how treatment appearance impacts parental decision-making, beyond surface level esthetic-color concerns.

Limitations of this study include that perceptions were assessed among dental students, which may differ from those of practicing dentists. Additionally, individual factors such as age, gender, level of training, and geographic region may influence perception and were not fully explored in this study. The sample was limited to a single institution (Texas A&M College of Dentistry), which may limit generalizability.

CONCLUSIONS

- SSCs are associated with more negative behavioral and socioeconomic assumptions, while zirconia crowns are associated with more positive perceptions.
- Future research should investigate parental perceptions of restorative materials to better understand how these factors may influence treatment decisions.

