

PARENTS' PERCEPTION AND PREFERENCE OF STAINLESS STEEL, ZIRCONIA, AND BIOFLEX CROWNS IN PRIMARY MOLARS IN SAUDI ARABIA

Ateet Kakti^{1*}, Raghad Althinyan², Mariam Mohammed Al-Selili², Sarah Almutairi², Arjwan Alsohimi²

¹Department of Preventive Dentistry, Riyadh Elm University, Riyadh, KSA. ateet.kakti@riyadh.edu.sa

²College of Dentistry, Riyadh Elm University, Riyadh, KSA.

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ABSTRACT

This work aims to assess parents' knowledge and preferences regarding stainless steel, zirconia, and Bioflex crowns for primary molars. A study of 345 parents found that aesthetic values, cost, and the dentist's opinion strongly influenced their choice. Among participants, 58.5% chose zirconia crowns for their natural aesthetics and long-wear durability, and 44% believed zirconia crowns were the most economical option. The trend towards greater value-consciousness did not necessarily translate into cost-controlled choices: though 30.3% of parents said that cost was important, only 3.3% of Nike Hi-Top reactants prioritized cost over appearance. Professional advice that received a value of 71.1% was considered essential, especially for dentists. The study has revealed that, despite cost-cutting being paramount, more practitioners are now turning to zirconia crowns as the best option, given their ability to combine serviceability and aesthetics. The study focuses on factors that support effective communication, patient satisfaction, and awareness of restorative dental procedures in children.

Key words: Stainless steel, Zirconia, Bioflex crowns, Primary molars, Saudi Arabia.

Introduction

Primary molar restoration in pediatric dentistry is necessary, especially given the global rise of dental caries in children. Stainless steel crowns (SSCs) have long been preferred as the restorative material for primary molars compared to other teeth because they must be cemented in teeth that have undergone pulp treatment or may have a deep carious lesion. They are popular with patients because they are longer-lasting, cheaper, and easier to place. Although they are effective at carrying out their tasks, they are metallic in appearance, a factor that has raised parents' eyebrows because they do not favor the look [1, 2].

Stainless steel crowns (SSCs) have been used in pediatric dentistry for more than several decades because of their strength; thus, they are recommended for children who are prone to caries or have just undergone pulp therapy [2]. However, zirconia crowns have demonstrated even greater strength and are increasingly chosen as replacements for SSCs in pediatric dentistry [3]. As far as Bioflex is concerned, these crowns also exhibit some flexibility, especially when other crowns are required for specific applications; this is much more advantageous than using different materials such as zirconia.

Zirconia crowns offer both longevity and strength, making them suitable for restoring primary molars. They are also non-carcinogenic, do not cause a response with the neighboring tissues, and can also be remarkable on the forces of the mammal's jaws [4]. Related studies suggest an increased demand for zirconia crowns as parents become more concerned not only with the aesthetics of the restorative solution but also with the longevity of restorations placed on their children [3]. On the other hand, Bioflex crowns are comparatively recent and

are built on flexibility; they adapt to the mouth much better than more rigid materials like zirconia. Bioflex crowns are manufactured from biocompatible materials; thus, they create an aesthetic appearance and comfort [5]. At the moment, there is still a limited body of literature on Bioflex crowns; however, the available literature also suggests that Bioflex crowns could be appropriate for parents who regard both the aesthetic and functional requirements of the child's dental prosthetics [6].

The ability of composite restorations to provide continued protection of the restored tooth against further caries and wear has been demonstrated [2]. Despite the high durability of SSCs, parents and other clients find the appearance of PPs unattractive, and most will look for alternative materials that mimic SSC durability while offering a more attractive aesthetic [7]. Even though SSCs are long-lasting, they are often seen as the final opportunity to add as many aesthetic elements as possible when other permanency options are unattainable or too expensive [8]. This is why pediatric dentists need to be aware of such preferences while practicing patient-centered care to meet the needs of the families they treat [9]. In this way, providing a choice of materials for both esthetic and functional aspects will allow dentists to achieve higher parent satisfaction and a higher treatment success rate in children [10, 11]. The importance of primary molar restoration in pediatric dentistry has therefore increased because of the rising global trend of early childhood caries [2]. This trend also reflects the importance of arm restoration treatments [12-15], which are more effective and are accepted by parents. Traditional restoration of primary molars has always been with stainless steel crowns (SSC). They've been popular due to their strength and economic considerations. But given that many of them are metallic in color, these parents have been encouraged to look for more colorful toys [1]. It also fulfills the aesthetic requirement for a flawless, undisturbed stain in the mouth, with

the arrival of Zirconia crowns. These crowns offer a chameleon-like appearance, are natural and biocompatible, and are resistant to wear [3]. Zirconia crowns are also highly durable and do not negatively affect the tissues surrounding them; therefore, they can be recommended for children undergoing restorative procedures. These qualities align with a recent trend in other pediatric dental practices toward reducing invasiveness while being more visually appealing [10].

Bioflex crowns are relatively new additions to the available choices that a patient has. These crowns are flexible and non-toxic, which makes Bioflex crowns easily conform to the anatomical structures in children's mouths [6]. These crowns are made for comfort and for looks at the same time, which works perfectly for parents who are torn between their kids' headgear's appearance and functionality. Despite being relatively new to the market, Bioflex crowns offer the potential to meet both aesthetic and functional requirements [16]. It is also evident that cultural and regional factors play a significant role in parents' choices. Parents, particularly in countries where perceptions of beauty are gradually shifting, such as Saudi Arabia, are more likely to choose crowns that resemble natural dentition. The growing awareness among societies of how a child's self-esteem affects social interaction leads people to select restorative materials [17]. More studies have linked a child's confidence with the appearance of dental restorations, which directs the emphasis toward aesthetics.

Furthermore, with advances in technology and materials science, the options for both dentists and parents/guardians are expanding. The use of minimally invasive approaches and biocomaterials stands for a new approach to patient treatment [18-21]. These advances allow the dentist to offer specific options that are demanded by families and, at the same time, produce restorations that will last and function as expected [4].

It is thus clear that parents' decisions should always be involved in the decision-making process. One can understand that satisfaction with treatment outcomes is significantly higher when parents are informed and engaged in treatment decisions [10]. Whereas for many parents, the choice is not between Hi and Lo or cheap and expensive, but between a dentist and an understanding of the course of action that will be taken. There is also evidence that improved accessibility of learning materials and dentist-parent conversations about restorative treatments increase people's knowledge [11]. This research, therefore, seeks to document these trends by assessing Saudi parents' understanding and attitudes towards SSCs, Zirconia, and Bioflex crowns. To achieve these objectives, the study examines these perspectives to assist pediatric dentists in modifying their recommendations to integrate families' current expectations in a patient-centered environment.

Null hypothesis

There is no preference among parents when choosing among the three crowns for their children.

Rationale of the study

Parents need to understand the various treatment options for their children's restorations. This study will help pediatric dentists understand parents' perceptions, thereby supporting

mutual decision-making when treating their children [22-26].

Aim

This study aims to assess the current level of parental knowledge and understanding concerning the use of different crowns for their children.

Objectives

- To raise awareness among parents regarding the various options available.
- List the factors associated with their preferred choice of material.
- Determine parents' understanding of the pros and cons of various materials used in crown fabrication.

Materials and Methods

Study design

A survey-based cross-sectional study.

Study sample

Parents of pediatric patients visiting the REU clinics were included in this study. Sample size was calculated using www.abs.gov.au. The confidence level was 95%, with a population of 2500 and a proportion of 0.5. The standard error was 0.025, the relative standard error was 5, and the sample size was 345.

Study instrument

An online survey was designed in Google Forms, with questions on participants' demographic data, including age, gender, socioeconomic status, and the number of dental visits. Moreover, the main part of the survey consisted of questions on stainless steel, zirconia, and Bioflex crowns, including their properties and applications. Pictures of all three crown types were shown to the participants. Flexibility and minimal preparation were cited as advantages of Bioflex over zirconia crowns.

Survey reliability and validity

Survey questions were checked for reliability using SPSS version 20, yielding a Cronbach's alpha of 0.721. Validity was assessed by having the survey reviewed by Pedodontists in REU, and based on their suggestions, appropriate changes were made. Questions were written in both English and Arabic.

Data collection and data analysis

Participants were asked for their permission before being asked to complete the survey. We used our mobile phones and iPads to let the parents fill out the survey on Google Forms. Once the desired number of responses was reached, the data were downloaded into an Excel sheet. Data were cleaned and organized, and later transferred to SPSS version 20 to produce descriptive statistics and comparisons between subgroups, including participants' personal information. The chi-square test was used to compare the subgroups, and a p-value of 0.05 was considered statistically significant.

Results and Discussion

The details of participants' demographic profiles are presented

in **Table 1**, including gender, nationality, education, employment status, and dental visit frequency. Most responses were from females (59.4% of respondents), and these were most likely mothers, who are more likely to be the key decision-makers when a child receives medical attention [10]. The majority of the participants were Saudi Arabian (70.9 %) because the study was conducted in the Saudi Arabian context. Regarding educational background, 67.5% of respondents were graduates, suggesting that most were aware of higher education and its influence on their choice of dental crowns and knowledge of dental crowns [6].

Statistics indicated fluidity, as 34.2% of the individuals were Government employees, while 33.6% were not. This diversity may have financial implications, such as persons with economic security who can afford to pay for elegance, ignoring economy. Regarding dental visit frequency, 50.7% of the sample were rare visitors, while 49.3% were frequent visitors; thus, the sample was balanced in terms of oral health care attendance.

Table 1. Demographics of the study participants

| Variables | Frequencies |
|---------------------------------|-------------------------------|
| Gender | Males: 145 (40.6%) |
| | Females: 212 (59.4%) |
| Nationality | Saudi: 253 (70.9%) |
| | Non-Saudi: 104 (29.1%) |
| Education | Primary/Secondary: 41 (11.5%) |
| | High school: 75 (21%) |
| | Graduate: 241 (67.5%) |
| Employment | Private job: 63 (17.6%) |
| | Government job: 122 (34.2%) |
| | Business: 52 (14.6%) |
| | Not employed: 120 (33.6%) |
| History of dental visits | Rare: 181 (50.7%) |
| | Frequently: 176 (49.3%) |

Table 2 presents parental knowledge and preferences concerning dental crowns. Another that came up, and which most respondents agreed was very important and affects their child's confidence level, was aesthetics. These findings corroborate the research by Bell *et al.* (2010), which emphasizes the importance of the psychological aspects of dental restoration on children's self-esteem. Percentage distribution of respondents by choice of zirconia crowns: aesthetics 58.5%, bioflex crowns 13.2% and SSCs 5.3%. This increase points to the need for designs that offer innovative ways to meet customers' functional and aesthetic requirements [3].

Cost was also rated outstanding, with 42% rating it as very important in their decision-making processes. Notably, a trivial 30.3% of parents selected cost as their most important factor among appearance, color, durability, and size. In comparison, 69.7% opted for appearance, indicating a positive attitude towards beauty regardless of cost. Zirconia was considered the cheapest item by 44%, leaving SSCs outside that perception. This is due to a shift in value perception that encompasses not only quality but also an object's longevity and appearance [11].

Table 2. Descriptive analysis of the responses from study

participants

| Variables | Responses |
|---|---|
| How important is the aesthetic appearance of the crown for your child? | Very important: 209 (58.5%) Somewhat important: 131 (36.7%) Not important: 17 (4.8%) |
| Which crown material do you believe offers the best aesthetics? | Stainless Steel: 19 (5.3%) Zirconia: 209 (58.5%) Bioflex: 47 (13.2%) No preference: 82 (23%) |
| How do you think the aesthetics of a dental crown affect your child's self-esteem or confidence? | Very much: 166 (46.5%) Somewhat: 148 (41.5%) Not at all: 43 (12%) |
| If you had to choose, would you prefer a crown that looks good or one that costs less? | Looks good: 249 (69.7%) Costs less: 64 (17.9%) No preference: 44 (12.1%) |
| How important is the cost of dental crowns in your decision-making process? | Very important: 150 (42%) Somewhat important: 167 (46.8%) Not important: 40 (11.2%) |
| What is the maximum amount you would be willing to spend on a dental crown for your child? | Under SAR 500: 147 (41.2%) SAR 500 to SAR 1000: 175 (49%) Over SAR 1000: 35 (9.8%) |
| Which crown material do you believe is the most cost-effective? | Stainless Steel: 148 (41.5%) Zirconia: 157 (44%) Bioflex: 52 (2.8%) |
| How important is the dentist's expertise when selecting a type of crown? | Very important: 254 (71.1%) Somewhat important: 93 (26.1%) Not important: 10 (2.8%) |
| Would you want this stainless steel crown as your material of choice? | Yes: 84 (23.5%) No: 232 (65%) No preference: 41 (11.5%) |
| Would you want this zirconia crown as your material of choice? | Yes: 295 (82.6%) No: 30 (8.4%) No preference: 32 (9%) |
| Would you want this BioFlex crown as your material of choice? | Yes: 167 (46.8%) No: 130 (36.4%) No preference: 60 (16.8%) |

Table 3 examines the effects of education on people's preferences. Graduates valued aesthetics more than the less educated, with 64% regarding it as very important in their choice, suggesting that awareness influences a preference. Among respondents, 97% chose zirconia crowns for aesthetic reasons, with graduates showing a slightly higher preference (61%). As with the willingness to spend more on better-looking crowns, graduates were more willing to spend over SAR 1000 on the products. These findings align with the view that education increases the importance of attractiveness and quality [6].

Table 3. Comparison of survey responses based on educational level.

| Variables | Primary/Secondary | High school | Graduate | P-value |
|---|--|--|---|---------|
| How important is the aesthetic appearance of the crown for your child? | Very important: 46% Somewhat important: 41% Not important: 13% | Very important: 48% Somewhat important: 41% Not important: 11% | Very important: 64% Somewhat important: 36% Not important: 0% | .006* |

| | | | | |
|---|--------------------------|--------------------------|--------------------------|-------|
| | 12% | 44% | 34% | |
| | | Not important: 8% | Not important: 2% | |
| Which crown material do you believe offers the best aesthetics? | Stainless Steel: 12% | Stainless Steel: 4% | Stainless Steel: 5% | |
| | Zirconia: 37% | Zirconia: 61% | Zirconia: 61% | |
| | Bioflex: 15% | Bioflex: 3% | Bioflex: 16% | .000* |
| | No preference: 37% | No preference: 32% | No preference: 18% | |
| How do you think the aesthetics of a dental crown affect your child's self-esteem or confidence? | Very much: 39% | Very much: 29% | Very much: 53% | |
| | Somewhat: 39% | Somewhat: 51% | Somewhat: 39% | .000* |
| | Not at all: 22% | Not at all: 20% | Not at all: 8% | |
| If you had to choose, would you prefer a crown that looks good or one that costs less? | Looks good: 51% | Looks good: 67% | Looks good: 74% | |
| | Costs less: 34% | Costs less: 21% | Costs less: 14% | .017* |
| | No preference: 15% | No preference: 12% | No preference: 12% | |
| How important is the cost of dental crowns in your decision-making process? | Very important: 46% | Very important: 33% | Very important: 44% | |
| | Somewhat important: 44% | Somewhat important: 59% | Somewhat important: 44% | .221 |
| | Not important: 10% | Not important: 8% | Not important: 12% | |
| What is the maximum amount you would be willing to spend on a dental crown for your child? | Under SAR 500: 83% | Under SAR 500: 48% | Under SAR 500: 32% | |
| | SAR 500 to SAR 1000: 12% | SAR 500 to SAR 1000: 44% | SAR 500 to SAR 1000: 57% | .000* |
| | Over SAR 1000: 5% | Over SAR 1000: 8% | Over SAR 1000: 11% | |
| Which crown material do you believe is the most cost-effective? | Stainless Steel: 51% | Stainless Steel: 44% | Stainless Steel: 39% | |
| | Zirconia: 39% | Zirconia: 49% | Zirconia: 43% | .099 |
| | Bioflex: 10% | Bioflex: 7% | Bioflex: 18% | |
| How important is the dentist's expertise when selecting a type of crown? | Very important: 44% | Very important: 28% | Very important: 19% | |
| | Somewhat important: 39% | Somewhat important: 59% | Somewhat important: 71% | .004* |
| | Not important: 17% | Not important: 13% | Not important: 10% | |
| Would you want | Yes: 71% | Yes: 87% | Yes: 83% | .001* |

| | | | | |
|---|--------------------|--------------------|--------------------|-------|
| this stainless steel crown as your material of choice? | No: 10% | No: 3% | No: 10% | |
| | No preference: 20% | No preference: 11% | No preference: 6% | |
| Would you want this zirconia crown as your material of choice? | Yes: 71% | Yes: 87% | Yes: 83% | |
| | No: 10% | No: 3% | No: 10% | .002* |
| | No preference: 20% | No preference: 11% | No preference: 6% | |
| Would you want this BioFlex crown as your material of choice? | Yes: 49% | Yes: 37% | Yes: 49% | |
| | No: 27% | No: 39% | No: 37% | .057 |
| | No preference: 24% | No preference: 24% | No preference: 13% | |

Table 4 examines dental visit frequency. An analysis of the percentages shows that 67% of the canal's frequent visitors considered aesthetics 'very important,' while only 50% of the rare visitors did. Consequently, regular dental care exposure increases awareness and concern about aesthetic outcomes [10]. Similarly, an additional report revealed that frequent visitors were willing to pay a premium for crowns, again underlining the critical role of dental literacy with clients. Nevertheless, zirconia crowns remained the most preferred option for both patient groups, though more frequent visitors preferred them.

Table 4. Comparison of survey responses based on history of dental visits.

| Variables | Rare visitors | Frequent visitors | P-value |
|---|-------------------------|-------------------------|---------|
| How important is the aesthetic appearance of the crown for your child? | Very important: 50% | Very important: 67% | .006* |
| | Somewhat important: 44% | Somewhat important: 29% | |
| | Not important: 6% | Not important: 4% | |
| Which crown material do you believe offers the best aesthetics? | Stainless Steel: 5% | Stainless Steel: 6% | .971 |
| | Zirconia: 59% | Zirconia: 59% | |
| | Bioflex: 13% | Bioflex: 14% | |
| | No preference: 24% | No preference: 22% | |
| How do you think the aesthetics of a dental crown affect your child's self-esteem or confidence? | Very much: 38% | Very much: 55% | .004* |
| | Somewhat: 49% | Somewhat: 34% | |
| | Not at all: 13% | Not at all: 11% | |
| If you had to choose, would you prefer a crown that looks good or one that costs less? | Looks good: 63% | Looks good: 77% | .024* |
| | Costs less: 23% | Costs less: 13% | |
| | No preference: 15% | No preference: 10% | |

| | | | |
|---|---|--|-------|
| How important is the cost of dental crowns in your decision-making process? | Very important: 44% Somewhat important: 46% Not important: 9% | Very important: 40% Somewhat important: 47% Not important: 13% | .472 |
| What is the maximum amount you would be willing to spend on a dental crown for your child? | Under SAR 500: 46% SAR 500 to SAR 1000: 49% Over SAR 1000: 5% | Under SAR 500: 36% SAR 500 to SAR 1000: 49% Over SAR 1000: 15% | .004* |
| Which crown material do you believe is the most cost-effective? | Stainless Steel: 43% Zirconia: 46% Bioflex: 11% | Stainless Steel: 40% Zirconia: 42% Bioflex: 18% | .161 |
| How important is the dentist's expertise when selecting a type of crown? | Very important: 64% Somewhat important: 32% Not important: 4% | Very important: 78% Somewhat important: 20% Not important: 2% | .010* |
| Would you want this stainless steel crown as your material of choice? | Yes: 25% No: 62% No preference: 12% | Yes: 22% No: 68% No preference: 11% | .645 |
| Would you want this zirconia crown as your material of choice? | Yes: 81% No: 8% No preference: 7% | Yes: 85% No: 9% No preference: 7% | .291 |
| Would you want this BioFlex crown as your material of choice? | Yes: 46% No: 36% No preference: 18% | Yes: 48% No: 37% No preference: 15% | .220 |

This work offers valuable insights into parents' attitudes and choices regarding the use of stainless steel, zirconia, and Bioflex crowns in pediatric dentistry. The study's results include aspects such as appearance, price, and dentist knowledge, as discussed by parents when considering treatment options, as well as an increasing interest in zirconia crowns. These findings are consistent with and at odds with prior research highlighting shifting parental preferences and how these changes may impact children's oral health and dental services.

Aesthetic considerations

Aesthetics became highly significant, with 58.5% of participants rating it as a very important factor in their decision. This is similar to the observation by Bell *et al.* (2010), who noted that dental restorations affected children's self-image and

social relations. 58.5% opted for zirconia crowns because they are the most aesthetic, which aligns with parents' preference for non-metal crowns that more closely resemble tooth structure. This preference is higher than for Bioflex (13.2%) and stainless steel crowns (5.3%), indicating that parents have shifted from regarding aesthetics solely as a functional attribute of a crown. As noted earlier by researchers such as Alrashdi *et al.* (2022), a trend toward zirconia crowns that resemble natural teeth and are biocompatible is evident. Nonetheless, the presence of Bioflex crowns in our sample demonstrates that interest in flexible, aesthetic solutions is growing rapidly, especially among parents who prioritize aesthetics but also consider functional applicability [6].

Cost considerations

Price was considered an essential factor influencing the decision of a specific channel, with 42 % of the participants advocating for the importance of this factor (Very Important). In the past, some have deemed stainless steel crowns the least costly; conversely, our research indicated that 44% of parents believed zirconia crowns are the cheapest. This could be due to a change in value perception, in which parents may opt to buy products whose benefits last longer and look good, regardless of price. Similarly, Verma *et al.* (2023) noted that parents make more decisions and consider the durability and appearance of the restorations as factors in cost-effectiveness.

Our study also revealed that 69.7% of the parents considered aesthetic value more important than cost. This observation supports Roberts *et al.* (2001), who found that parents are aware of the cost of crowns but are willing and able to spend that much to achieve improved looks and self-esteem for their children. This trend was especially evident among participants with higher education, confirming the influence of the socioeconomic factor.

Impact of dentist expertise

The skill of dentist recommendation is considered "very important" by 71.1% of participants, indicating a high level of importance for dentists' opinions. This finding supports Hamrah *et al.* (2021), who assert that parents rely on their dentist to decide restorative materials. Nevertheless, this study also reveals the value of integrated communication and education as keys that would allow parents to use knowledge appropriately. For instance, specific and comprehensive descriptions, such as visuals and realistic descriptions of Bioflex crowns, received in the survey may have increased participants' awareness, leading them to recognize Bioflex crowns as an option for use despite the comparatively recent offer.

Influence of education and dental awareness

The educational level of the patients plays a vital role in influencing their preferences. Most graduates labeled aesthetics as very important and were most willing to pay for zirconia crowns. These results are consistent with those of Rahate *et al.* (2023), who found that higher educational status is associated with a better appreciation of dental materials, including their appearance and performance characteristics. Likewise, there was a greater inclination towards zirconia crowns and a willingness to spend more on aesthetics among frequent dental visitors, which should factor into future dental care decisions.

Cross: with other research papers

Although our findings support many existing trends, they also uncover new ones concerning regions and contexts. For instance, the 82.6% of respondents in this study expressing willingness to choose zirconia crowns is higher than the 50% reported by Akhlaghi *et al.* (2017) in a similar setting, where patients were evenly divided between zirconia and stainless steel crowns. It may therefore be due to the availability and awareness of zirconia crowns in Saudi Arabia, driven by improved dental technology and by empowering the community to embrace esthetics more than before.

We agree with our finding of comparatively low use of Bioflex crowns in our study, as supported by the limited literature on this garment [6]. Nevertheless, given its significant attention among respondents, its development may be feasible with more information on Bioflex's positive effects. This is in agreement with Patil *et al.* (2024), who noted that Bioflex crowns are an emerging material that can address both aesthetic and flexibility needs.

Practical implications

The study results have significant consequences for children's dentistry. This is a strong indication that aesthetics are vital and that dentists should prioritize the patient when selecting materials that look good, do the job, and are not overly expensive. Knowledge of the advantages and disadvantages of the materials to be used must be transparent, especially regarding the relatively recently introduced Bioflex crowns. Further, increased parental expectations in prosthodontics, with a focus on zirconia crowns, suggest that practitioners must invest in personnel, time, and capital to close this gap.

Also, the part on education and dental awareness explains why outreach and education programs are critical. As this paper demonstrates, increasing parents' awareness of restorative options can enhance satisfaction and treatment outcomes. Aligned with Verma *et al.* (2023), having a way to include parental preferences in the treatment process contributes to trust and a positive experience between parents and children.

Limitations and future research

Nevertheless, this study has limitations that should be disclosed. Data collection through self-report surveys is problematic because respondents' recent experiences can skew results. However, there are also some study limitations: the authors work only in one regional hospital, so that results may vary across different cultural/socioeconomic groups. Subsequent studies should establish the same for other populations to compare the universality and specificity of influence on parental preference.

The current scientific works also lack evidence on chronic efficacy and the degree of parental satisfaction with Bioflex crowns. With this material's increasing use in clinical [27-30] practice, evaluating its clinical impact and conducting cost-benefit analyses will be indispensable for normalizing its application. Likewise, a comparative study assessing the durability and appearance of zirconia crowns compared to SS crowns will provide further insight into their usefulness.

Conclusion

The findings of this work help understand the factors that determine parental choice in PDR, with a numeric preference for zirconia crowns based on esthetics and longevity. As a result, although stainless steel crowns remain widespread in terms of price and functionality, the growing emphasis on aesthetic solutions reflects parents' new priorities. While Bioflex crowns remain relatively unknown, they offer a fair amount of aesthetic appeal and flexibility and warrant further investigation to assess their stability in clinical practice. The findings underscore the need for pediatric dentists to use a patient-focused approach by including parents of CO-kids in shared decision-making about the use of more effective, less abrasive crown materials. Knowledge improvement and communication promotion can help parents reach decisions that align with their perceptions and expectations, thereby increasing satisfaction and treatment outcomes. In today's world, both functional and esthetic requirements must be considered; therefore, pediatric dentistry can continue to fulfill the roles families require while providing children with long-term oral care.

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