

## ORIGINAL RESEARCH

# Are we adequately managing the oral health needs of children: a survey of the experience of general dentists and self-assessed confidence in pediatric dentistry

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**Abstract**

Childhood caries is a public health problem with a significant burden on the community. The specialist dental workforce cannot adequately manage all treatment needs in children. Therefore, the general dental community remains critical in delivering care to children. The purpose of this study was to investigate the self-rated confidence of general practitioners in treating children. A cross-sectional survey was designed that involved general dentists in various primary care centers in Jordan. Participants were asked to complete a questionnaire about their experience and self-perceived level of confidence in performing various procedures in children using the Likert scale. Descriptive statistics, *t*-tests and one-way analysis of variance (ANOVA) were used for data analysis. A total of 150 general dentists completed the questionnaire. The overall confidence score was high (3/4). Most respondents (86.7%) reported high confidence in providing prophylaxis and preventive treatment. The lowest level of confidence was reported for dental trauma and interceptive orthodontics. No statistically significant gender disparity was found except for the management of dental trauma in which males were significantly more confident than females. Regarding years of experience, confidence levels in dental trauma management were significantly higher among dentists with 5–10 years of experience compared to the recently graduated and the longest qualified dentists ( $p = 0.008$ ). Similarly, for interceptive orthodontics, participants with 5–10 years of practice were significantly more confident compared to dentists in the other groups ( $p = 0.021$ ). One-third of participants (30.1%) were not willing to treat children and considered them disruptive to their practice. Overall, This study revealed low levels of confidence in dental trauma management and interceptive orthodontics in children. Modification of dental curricula to increase clinical exposure should positively reflect on future levels of confidence. Strategies should be implemented to encourage general dentists to treat children to ensure equitable access for all.

**Keywords**

Children; General dentists; Pediatric dentistry; Self-assessed confidence

## 1. Introduction

According to the World Health Organization (WHO), dental caries is the most common non-communicable disease worldwide [1]. Despite being preventable, childhood caries still constitutes a public health problem that generates a significant burden on the community. A recent review estimated the global prevalence of early childhood caries and reported that almost half of all preschool children are affected by this disease [2].

The oral health of children is a fundamental aspect of their general health and overall well-being. If left untreated, early childhood caries can result in undesirable consequences such as pain, abscesses or sepsis, that may require emergency visits, premature extractions, or hospitalization with increased treat-

ment costs and complexity [3]. Furthermore, acute toothache may impact on a child's quality-of-life, thus disrupting their eating, sleeping, school attendance and other daily activities [3–5]. In addition, evidence suggests that once early childhood caries is established, there is a greater risk of new carious lesions in both the primary and permanent dentitions [6, 7].

In view of the clear consequences of childhood caries, it is imperative that all children gain access to routine dental care to ensure that they have good health and a positive quality-of-life. However, in fact, many of the affected children remain untreated due to inappropriate, unaffordable or unavailable oral health services [1].

The unmet treatment needs for children could be partly attributed to a shortage in pediatric dental specialists [8]. Despite a recent increase in the number of pediatric dentists, the

number of children affected by caries still exceeds the capacity of specialist care [9]. For example, in Jordan, children account for 40% of the population; this is the equivalent of 4,000,000 individuals [10]. The number of pediatric dentists registered in the National Society of Jordan is approximately 200 across the country; this equates to one specialist for every 20,000 pediatric patients. This estimated ratio demonstrates that the specialist workforce cannot adequately manage the needs of all pediatric patients. This issue of inequitable access and subsequent oral health inequalities has been reported elsewhere across the world [9, 11, 12]. As general dentists are generally more available and accessible to the public, the general dental community remains critical in the management of oral health care in children. Therefore, it is crucial that general dentists are prepared and confident enough to manage the routine dental needs of children.

There is a clear paucity of studies reporting the levels of confidence of general practitioners with regards to providing dental care for children. Furthermore, to the best of our knowledge, no previous study has been conducted in Jordan. Therefore, in the present study, we designed a survey to investigate the experience of general practitioners with children and their self-perceived level of confidence in performing various pediatric dental procedures.

## 2. Materials and methods

This was a cross-sectional study that sought to investigate the experience of general dentists with regards to treating children and to report their self-rated level of confidence in pediatric dentistry.

The questionnaire was developed by the authors to gather information related to the experience of dental practitioners and their confidence in the key clinical procedures associated with pediatric dentistry (preventive treatment, intracoronal restorations, extracoronal restorations, pulp therapy, extraction, interceptive orthodontics and dental trauma). Some questions were also adopted from previous similar surveys that have been reported previously [13–15]. The questionnaire was composed of four sections. Section I focused on the demographic and professional characteristics of the participants. Section II explored the frequency that the practitioners performed different dental procedures in children. Section III sought to capture self-reported clinical experience in seven core areas of pediatric dentistry. In the latter section, dentists were asked to rate their level of confidence using a four-point Likert-type scale of 1 to 4 (in which 1 represented “Not confident at all” and 4 represented “Very Confident”). The final section of the questionnaire aimed to investigate the reasons for not seeing/treating children along with reasons for referrals. The questionnaire was initially piloted with five dentists to ensure its clarity and understandability. None of the five dentists reported confusion or ambiguity with regards to the questions.

Sample size calculations were performed with the G\*power version 3.1 program for Macintosh (Heinrich Heine, Universität Dusseldorf, Dusseldorf, Germany) using data extracted from previous relevant publications [13–15] (effect size = 0.47, alpha error = 0.05, power = 0.8). The minimum required sample size was estimated to be 112 subjects.

The questionnaires were physically distributed by a group of dental students to the target population which included all dentists working in primary care services. Consenting participants were consecutively enrolled in this survey. To ensure anonymity, candidates were not requested to write their names or any identifier on the survey. Data was subsequently analyzed with SPSS statistical software, version 27 (SPSS Inc., Chicago, USA). Statistical analysis included descriptive statistics, *t*-tests and one-way analysis of variance (ANOVA). Statistical significance was set at  $p < 0.05$ .

## 3. Results

### 3.1 Demographic and professional characteristics of the study population

In total, 200 questionnaires were distributed to general dentists in the north, middle and south of Jordan. However, a total of 150 participants completed the questionnaire, thus yielding a response rate of 75%. The sample was composed of 81 males (54%) and 69 females (46%). Participant age ranged from 23 to 64 years. Table 1 shows the demographic characteristics of the study sample.

Sixty-four participants (44.6%) had less than five years of experience, 33 (22%) had five to ten years of work experience, and 53 (35.3%) had more than ten years of experience. Eighty-three dentists (54.7%) graduated from local dental schools in Jordan, whereas the remaining 67 (44.7%) completed their undergraduate training outside of Jordan (Table 1).

**TABLE 1. Demographic and professional characteristics of the study sample.**

	Frequency (percentage)
Gender	
Males	81 (54.0%)
Females	69 (46.0%)
Total	150 (100%)
Age (yr)	
20–29	82 (54.7%)
30–39	30 (20.0%)
40–49	21 (14.0%)
50–60	17 (11.3%)
Undergraduate school	
Jordanian	83 (55.3%)
Non-Jordanian	67 (44.7%)
Years of practice	
<5	64 (42.6%)
5–10	33 (22.0%)
>10	53 (35.3%)

### 3.2 Frequency and age of pediatric patients

Only 45 participants (30%) indicated that they always treat children in their practice. Females had a greater willingness to treat children than males; the proportion of females who reported treating children frequently at their practice (93.3%) was higher than the proportion of males (82.1%). With regards to the age of the pediatric patients, the most preferred age group for treatment was the 6–8 years group in 74% of participants, whereas younger children (<5 years-of-age) were the least frequently treated by general dentists (40.1%).

### 3.3 Level of confidence in various pediatric procedures

Most respondents (86.7%) reported confidence in providing prophylaxis and preventive treatment to children. The majority of dentists (90%) indicated a high level of confidence in performing intracoronal restorations compared to 60.3% for extracoronal restorations such as stainless-steel crowns. Significant proportions (80.6% and 87.3%) of respondents were confident in carrying out pulp therapy and extractions, respectively, in children. On the other hand, more than half of the sample population (53.3%) rated themselves as “slightly unconfident” and “not confident at all” in the management of dental trauma. Similarly, a low level of confidence was reported in interceptive orthodontics and space management with more than half of all participants (55.4%) perceiving themselves as “slightly unconfident” and “not confident at all”. Table 2 shows the self-rated level of confidence of the participants in terms of different pediatric dental procedures.

Next, we calculated the mean confidence score for each clinical procedure (Table 3). The procedures were then ranked in descending order according to the reported confidence score, as follows: prophylaxis and preventive treatment, intracoronal restorations, pulp therapy, extracoronal restorations, extraction, interceptive orthodontics/space management, and trauma management. Furthermore, 53.3% and 55.3% of respondents reported that they would benefit from additional courses or training in dental trauma and interceptive orthodontics, respectively.

### 3.4 The influence of gender and experience on confidence

When analyzed by gender, we detected no significant difference in the confidence score except for trauma management for which males were significantly more confident than females ( $p = 0.001$ ) (Table 4).

With regards to experience and years of practice, a significant difference was detected in the confidence score for trauma management. Dentists with 5 to 10 years of practice were significantly more confident in managing dental trauma when compared to those who had graduated more recently and those that had been qualified the longest ( $p = 0.008$ ) (Tables 5,6). Similarly, with regards to interceptive orthodontics and space management, participants with 5 to 10 years of practice were significantly more confident when compared to dentists in the other groups ( $p = 0.021$ ) (Tables 5,6).

The school at which undergraduate training was performed

**TABLE 2. The self-rated level of confidence of general dentists with regards to pediatric dental procedures.**

Type of treatment	N (%)
Preventive treatment	
Very unconfident	12 (8.0%)
Slightly unconfident	8 (5.3%)
Confident	46 (30.7%)
Very confident	84 (56.0%)
Intracoronal restorations	
Very unconfident	8 (5.3%)
Slightly unconfident	7 (4.7%)
Confident	59 (39.3%)
Very confident	76 (50.7%)
Extracoronal restoration	
Very unconfident	23 (15.3%)
Slightly unconfident	32 (21.3%)
Confident	57 (38.0%)
Very confident	38 (25.3%)
Pulp therapy	
Very unconfident	13 (8.7%)
Slightly unconfident	16 (10.7%)
Confident	56 (37.3%)
Very confident	65 (43.3%)
Extraction	
Very unconfident	8 (5.3%)
Slightly unconfident	11 (7.3%)
Confident	38 (25.3%)
Very confident	93 (62.0%)
Interceptive/space management	
Very unconfident	46 (30.7%)
Slightly unconfident	37 (24.7%)
Confident	43 (28.7%)
Very confident	24 (16.0%)
Trauma management	
Very unconfident	31 (20.7%)
Slightly unconfident	49 (32.7%)
Confident	46 (30.7%)
Very confident	24 (16.0%)

(Jordanian vs. non-Jordanian) did not have any significant effect on confidence levels.

### 3.5 Barriers to seeing/treating children

One-third of the sample population (30.1%) were not willing to see children. When asked about the barriers to seeing or treating children, the most indicated reason (32.7%) was the perception that children were disruptive to their practice. Furthermore, 12% of participants indicated that their practice was

**TABLE 3. Confidence score\* for various procedures.**

Procedure	Mean ± Standard deviation
Prophylaxis and preventive treatment	3.46 ± 0.804
Intracoronar restorations	3.43 ± 0.732
Pulp therapy	3.25 ± 0.854
Extracoronar restorations (e.g., stainless steel crowns)	2.88 ± 0.908
Extraction	3.60 ± 0.703
Interceptive orthodontics/space management	2.62 ± 0.978
Trauma management	2.54 ± 0.948
Overall score	3.11 ± 0.567

\*Minimum 1; maximum 4.

**TABLE 4. Comparison between males and females in terms of confidence score when performing various procedures in children.**

Procedure	Gender	Mean ± standard deviation	t-statistics	p-value
Prophylaxis and preventive treatment	M	3.37 ± 0.867	-1.352	0.179
	F	3.57 ± 0.707		
Intracoronar restorations	M	3.40 ± 0.773	-0.519	0.605
	F	3.47 ± 0.680		
Pulp therapy	M	3.17 ± 0.925	-1.060	0.292
	F	3.35 ± 0.751		
Extracoronar restorations	M	2.78 ± 0.906	-1.409	0.162
	F	3.02 ± 0.901		
Extraction	M	3.54 ± 0.737	-0.999	0.320
	F	3.67 ± 0.658		
Interceptive orthodontics/space management	M	2.62 ± 1.007	-0.037	0.942
	F	2.63 ± 0.951		
Trauma management	M	2.79 ± 0.970	3.288	0.001*
	F	2.22 ± 0.823		
Overall confidence score	M	3.10 ± 0.605	-0.358	0.721
	F	3.13 ± 0.529		

\*Statistically significant difference at  $p < 0.05$ .

M: Males; F: Females.

not adequately prepared to see children, and 8.7% felt that they were inadequately trained to deal with pediatric patients. The option that “pediatric dentistry is not financially rewarding” was selected by 4.7% of participants. Other reasons were also indicated, including time-consuming treatment and a lack of interest in pediatric dentistry (Table 7).

### 3.6 Reasons for referring children

When respondents were asked about the type of children they would refer for specialist care, the most frequently indicated answer was the presence of a relevant medical history or special needs (80.3%); this was followed by uncooperative behavior by the child (76%) and pre-cooperative (too young)

**TABLE 5. Confidence score among general practitioners according to their years of practice.**

Procedure	Years of practice	Mean $\pm$ standard deviation	<i>F</i>	<i>p</i> -value
Prophylaxis and preventive treatment				
	<5 yrs	3.56 $\pm$ 0.649	0.951	0.390
	5–10 yrs	3.46 $\pm$ 0.833		
	10+ yrs	3.33 $\pm$ 0.944		
Intracoronary restorations				
	<5 yrs	3.52 $\pm$ 0.583	1.019	0.364
	5–10 yrs	3.46 $\pm$ 0.721		
	10+ yrs	3.30 $\pm$ 0.883		
Pulp therapy				
	<5 yrs	3.31 $\pm$ 0.719	0.222	0.801
	5–10 yrs	3.21 $\pm$ 0.884		
	10+ yrs	3.20 $\pm$ 0.992		
Extracoronary restorations				
	<5 yrs	2.96 $\pm$ 0.874	0.970	0.382
	5–10 yrs	3.00 $\pm$ 0.780		
	10+ yrs	2.73 $\pm$ 1.012		
Extraction				
	<5 yrs	3.65 $\pm$ 0.601	0.340	0.713
	5–10 yrs	3.63 $\pm$ 0.495		
	10+ yrs	3.53 $\pm$ 0.905		
Interceptive orthodontics/space management				
	<5 yrs	2.35 $\pm$ 0.911	4.018	0.021*
	5–10 yrs	3.00 $\pm$ 0.933		
	10+ yrs	2.73 $\pm$ 1.012		
Trauma management				
	<5 yrs	2.23 $\pm$ 0.881	5.052	0.008*
	5–10 yrs	2.83 $\pm$ 0.816		
	10+ yrs	2.75 $\pm$ 1.006		
Overall confidence score				
	<5 yrs	3.08 $\pm$ 0.442	0.613	0.543
	5–10 yrs	3.23 $\pm$ 0.349		
	10+ yrs	3.08 $\pm$ 0.773		

\*Statistically significant difference at  $p < 0.05$ . yrs: Years.

children in 46.0% of responses. High levels of caries and extensive treatment requirements were indicated by 22.7% of subjects. Other reasons were also revealed, including children with dental anomalies, dental trauma, and necrotic permanent teeth with immature roots (Table 7).

#### 4. Discussion

This is the first study in Jordan to assess the practice of general dentists with regards to pediatric dentistry and evaluate their self-assessed level of confidence in performing various procedures in children. This study attempted to recruit a

representative sample from both genders with varying levels of experience from different cities in Jordan.

As expected, general dentists reported confidence in delivering simple preventive treatment to children. This finding concurs with previous studies [16–18]. In addition to its simplicity, preventive treatment is often practiced adequately during dental training; this practice should reflect positively on the level of confidence. We identified good levels of confidence in general dentists with regards to carrying out intracoronary restorations, pulp therapy and extractions. This can be explained by the fact that routine operative and surgical procedures are also among the most practiced clinical require-

TABLE 6. *Post hoc* tests—multiple comparisons.

Dependent Variable	(I) Year Practice	(J) Year Practice	Tukey HSD				95% Confidence Interval	
			Mean Difference (I–J)	Std. Error	Sig.	Lower Bound	Upper Bound	
Interceptive orthodontics/space management								
	<5 yrs	5–10 yrs	–0.646*	0.238	0.021*	–1.21	–0.08	
		10+ yrs	–0.371	0.204	0.169	–0.86	0.11	
	5–10 yrs	<5 yrs	0.646*	0.238	0.021*	0.08	1.21	
		10+ yrs	0.275	0.246	0.505	–0.31	0.86	
	10+ yrs	<5 yrs	0.371	0.204	0.169	–0.11	0.86	
		5–10 yrs	–0.275	0.246	0.505	–0.86	0.31	
Trauma management								
	<5 yrs	5–10 yrs	–0.604*	0.229	0.026*	–1.15	–0.06	
		10+ yrs	–0.521*	0.196	0.024*	–0.99	–0.06	
	5–10 yrs	<5 yrs	0.604*	0.229	0.026*	0.06	1.15	
		10+ yrs	0.083	0.236	0.934	–0.48	0.64	
	10+ yrs	<5 yrs	0.521*	0.196	0.024*	0.06	0.99	
		5–10 yrs	–0.083	0.236	0.934	–0.64	0.48	

\*The mean difference is significant at  $p \leq 0.05$ . yrs: Years. HSD: honestly significant difference.

TABLE 7. Barriers to the treatment of children and reasons for referrals.

Barriers to treatment	N (%)
Reasons for not seeing/treating children	
Children are disruptive to my practice	49 (32.7%)
My practice is not adequately prepared	18 (12.0%)
I feel I am not adequately trained	13 (8.7%)
It is not financially rewarding	7 (4.7%)
Others	33 (22.0%)
Reasons for the referral of children to specialist care	
Medical history or special needs	90 (80.3%)
Uncooperative child	85 (76.0%)
Pre-cooperative (too young) child	69 (46.0%)
High caries levels and extensive needs	34 (22.7%)
Others	13 (8.7%)

ments during dental training.

On the other hand, dentists in this investigation were less confident in managing dental injuries. The lack of confidence in general dentists with regards to the management of dental trauma has been highlighted previously in the literature. In

Jordan, a retrospective analysis of 120 dental students in their fifth clinical year, assessed their self-reported confidence in a variety of aspects of pediatric dentistry. In this latter survey, students perceived themselves as most confident in performing clinical assessment, preventive treatment and operative procedures. In contrast, these students were least confident in their management of dental trauma [18]. Similarly, a previous study by Rodd *et al.* [13] sought to investigate the self-reported experience and confidence of dental students in pediatric dentistry within three UK dental schools (Liverpool, Manchester and Sheffield) that provide comparable training programs. Analysis showed that the perceived level of confidence of dental students in preventive and operative treatment was satisfactory; however, all students reported a lack of confidence in terms of the management of dental trauma. Furthermore, a study by Walley *et al.* [19] found that dentists were less confident in managing dento-alveolar trauma when compared to simple preventive therapy. This highlights the need for a greater emphasis on dental trauma in undergraduate curricula. However, since dental injuries are relatively rare and unpredictable, the management of dental trauma is not a mandatory clinical requirement for undergraduate students. Instead, students are often required to learn the principles of dental trauma management at the theoretical level with only limited clinical experience. In other words, satisfactory clinical exposure to dental injuries cannot be guaranteed. Alternatively, the integration of video demonstrations, case-based

discussions, and hands-on practice in simulation laboratories may help to enhance clinical confidence in the management of dento-alveolar trauma. The same principle applies to interceptive orthodontics, for which respondents reported significantly lower levels of confidence. The incorporation of problem-based learning and hands-on training should translate into higher levels of confidence.

When the confidence scores of males and females were compared, we found that females generally scored higher than males in terms of various pediatric procedures. These findings are in agreement with those reported previously by Gilmour *et al.* [17] who reported that females were more confident in pediatric dentistry; these authors attributed this to the suggestion that females are generally more comfortable in dealing with children. The only exception was the management of dental trauma for which males were found to be significantly more confident when compared to females. This higher confidence score among males in managing dento-alveolar injuries has been reported previously [18] and can be explained by the assumption that males might be more capable of handling emergencies and distressing situations such as dental trauma when compared to females.

We also found that the length of clinical experience also influenced confidence scores, particularly in relation to dental trauma and interceptive orthodontics. Confidence levels were statistically more significant in participants with 5 to 10 years of experience when compared to those who had graduated more recently and those who were qualified the longest. As expected, newly qualified dentists (with <5 years of experience) may not have witnessed an adequate number of cases involving dental injuries and may not have treated many cases involving interceptive orthodontics, thus exerting adverse effects on their level of confidence. For dentists with more than 10 years of experience, a low level of confidence may be attributed to a lack of practice in these procedures for a long period of time as they tend to perform more clinical supervision and probably leave active interventions to younger practitioners.

In this study, we demonstrated that the participants desired additional training in pediatric dentistry, particularly with regards to dental trauma and interceptive orthodontics. Therefore, modification of the current dental curriculum is highly warranted to ensure that graduates have the necessary skills for effective care. However, providing students with adequate and equitable opportunities in their clinical experience is a challenge. In a previous study, Hattar *et al.* [20] reported that increasing the clinical experience for dental trainees may not be feasible in view of the increased numbers of students, depleted resources and suboptimal staff/student ratio. With the marked increase in the number of students in dental schools, the current teaching standards will likely conform to an educational model that is mainly conceptual and does not require a significant number of practical tests. Alternatively, dental schools may implement strategies to improve the clinical exposure of students by providing them with observational opportunities and integrating community-based services and outreach programs in their training [21, 22]. Dental curricula should focus on teaching the basic skills in dentistry and encourage dentists to be lifelong learners who always seek to provide the highest quality of care. Continuing education classes provide dental

professionals with an excellent opportunity to update their professional knowledge, and improve their clinical skills through hands-on workshops and practical courses.

In the current survey, one-third of participants were not willing to treat children for a variety of reasons mainly due to the disruptive behaviors of children and the self-perception of practitioners with regards to being inadequately trained to deal with them. In a previous study, Garg *et al.* [23] reported that most general dentists do not treat children, especially preschoolers and attributed this mainly to inadequate education. In addition, Casamassimo *et al.* [9] reviewed the reported reasons for the reluctance of general practitioners to treat children, including insufficient clinical experience, a deficient dental curriculum, and the change in teaching methodology which nowadays emphasizes on critical thinking and problem-based learning more than the actual technical or manual aspects of care. It is important that dental students and general dentists are encouraged to see and treat children. This can be achieved by providing teaching relating to new trends and techniques in the prevention and management of caries that are easy and more acceptable to children, such as the "Hall technique", the application of silver diamine, and other non-operative or minimally invasive procedures [24]. The latter procedures are generally simple and advantageous in establishing a rapport with children and improving the experience of both pediatric patients and operators. It is worth mentioning that the management of children in the dental practice can be sometimes challenging and require a special set of considerations and behavioral guidance. Failure to provide a positive dental experience to younger patients can result in a negative dental attitude and potential lifelong dental anxiety [9]. Therefore, in children with limited cooperation, general dentists are advised to refer patients to specialist care.

The current study has several limitations that should be acknowledged. Despite recruiting participants from various cities (in the north, middle and south of Jordan) and from different employing sectors, this study used an open form of consecutive sampling; consequently, the sample collected in this study may not be fully representative of the entire workforce. Furthermore, surveys of this type and the Likert scale are susceptible to response bias where, despite anonymity, respondents may be tempted to provide the desirable responses. In addition, it is worth mentioning that the current survey assessed the self-rated confidence of dentists; this is a subjective form of assessment and may not necessarily reflect the same level of competence. Moreover, the present study was not specifically designed to assess the curricula for pediatric dentistry in dental schools which is worth addressing in future research. Nevertheless, this type of survey does reflect the curricula, at least in part, and will help to plan children's services for the future.

We recommend that this survey is re-conducted on new graduates, whose clinical training has been heavily influenced by the COVID-19 pandemic. This pandemic resulted in significant restrictions and a reduction in practical sessions and student exposure; consequently, it would be prudent to assess the levels of confidence among recently qualified dentists.

In future research, it would be also insightful to assess the willingness and readiness of general dentists to see and treat patients with special needs as the general dental community is

also required to take care of these subjects as they age beyond pediatric care.

## 5. Conclusions

The overall confidence score was generally high in the study population. Our analyses revealed that general dentists had low levels of confidence in terms of the management of dental trauma and interceptive orthodontics. The modification of current dental curricula to increase the clinical exposure of students should positively reflect on their future performance and level of confidence.

General dentists should be encouraged to see and treat children at primary care centers to ensure equitable access and care for all pediatric patients. The organization of additional training or educational courses for career development should also improve the overall confidence and quality of care for children.

## AVAILABILITY OF DATA AND MATERIALS

The data presented in this study are available on reasonable request from the corresponding author.

## AUTHOR CONTRIBUTIONS

RAF—idea conceptualization, overall supervision; TBH—design, project supervision, and manuscript write-up and preparation; MB—supervision and manuscript review; AT—data curation, analyzes and interpretation.

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval was obtained from the Institutional Research Board (IRB) ethical committee at the Jordan University of Science and Technology (Reference: 542-2021). Informed consent was obtained from participants to participate in the study and to publish the results of the survey upon completion.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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