

COMPARISON OF ATTITUDES OF GENERAL DENTIST VS PAEDIATRIC DENTISTS TOWARDS PAIN MANAGEMENT IN CHILDREN AND ADOLESCENTS IN PAKISTAN

Madeeha Bangash, Laila Mustafa*, Aamna Mansur, Sahd Rashid*, Muhammad Irshad, Syed Muhammad Junaid

Rehman College of Dentistry, Peshawar Pakistan, Shifa College of Dentistry, Islamabad Pakistan

ABSTRACT

Objective: To access whether there was a difference of attitude between general dentists and specialist Paediatric dentists regarding management of pain.

Study Design: Questionnaire based survey.

Place and Duration of Study: This survey was performed among general and Paediatric dentists working in various setups in Pakistan, from Jun 2019 to Nov 2019.

Methodology: This survey was performed among actively partaking general dentists and specialist Paediatric dentists (n=345) working in various hospital setups in Pakistan over a period of 6 months. They were asked to fill questionnaire about pain management with various clinical scenarios, the type of pharmaceutical agent used and the timing of pre-operative analgesics, as well as the use of topical anesthesia and use of local anesthetic. The questionnaire also contained socio-demographic profiles of the dentists participating in the survey. Those who were retired and above 70 years of age were excluded from the study.

Results: Out of 345 participants only 287 responded with a relatively higher response rate among specialist Paediatric dentists as compared to general dentists. Forty were dropouts. However, the response rates between gender did not show any significant difference. The mean age of general dentists was 39.49 (SD: 11.68) whereas, mean age for specialist Paediatric dentists was 41.19 (SD: 10.8). About 161 (59.4%) of the general dentists and 16 (100%) specialist Paediatric dentists recommended pre/post op analgesics ($p=0.000$). Ibuprofen was the most commonly recommended pre-op analgesic in Pakistan ($p=0.005$) recommended by about 108 (39.85%) general dentists and 11 (68.75%) Paediatric dentists. About 58 (21.4%) general dentists recommended pre-op analgesics more than an hour before treatment ($p=0.008$) and 5 (31.25%) specialist Paediatric dentists recommended it about an hour before treatment.

Conclusion: Specialist Paediatric dentists were found using all kinds of pain reducing strategies, topical and local anesthesia more frequently while treating primary teeth as compared to general dentists.

Keywords: General dentists, Local anesthesia, Pain management, Pre-operative analgesics, Post-operative analgesics, Specialist Paediatric dentists.

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INTRODUCTION

Pain is one of the utmost factors contributing towards dental fear and anxiety (DFA) which ultimately leads to various behavior management problems (BMP) or even delaying the dental treatment in Paediatric dental care¹. The high prevalence of dental caries, presence of new carious lesion and experience of tooth ache in children is associated with higher degree of dental fear and anxiety possibly because of the various negative experiences, procedural pain, discomfort and lack of perceived control during dental treatment².

Though DFA and behavior management problems are two entirely different concepts but are closely related and each affects almost 9% of children³. Both DFA and BMP accounts for one of the major reasons for referral of children from general dentists to specialist Paediatric dentists⁴. Dental pain is the major barrier for dental treatment of children and therefore, the key to success is to find various ways of pain management during and after procedure⁵.

Some studies have surveyed beliefs of dentists treating children about pain control in school aged children and showed that 2/3rd of dentists provide local anesthesia for extractions and filling procedures and also provide additional dose on

Correspondence: Dr Madeeha Bangash, Assistant Professor & HOD of Paediatric Dentistry, RCD Peshawar Pakistan

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child demand while 1/3rd of them do not provide any post-operative medication after a tooth extraction and they simply deny child perception of pain with a belief that child pain reports are not valid⁶. Wondimu, Dahllöf⁷ reported that out of 700 Swedish general dental practitioners almost half of them believed that the child has an uncertainty in differentiating between pain and discomfort and most of them thought that young children tend to exaggerate the responses. Similarly, a cross sectional questionnaire study was performed on dentists in Denmark by Rasmussen *et al*⁸. Both studies reported that dentists tend to underuse local anesthesia during dental treatment as well as post-operative analgesics. Some degree of stress was reported among dentists while giving local anesthesia to pre-school children during treatment. Another study which was conducted among dentists working in Public dental service among eight countries in Norway by Rønneberg *et al*⁹ about dentist self-perceived stress while treating children showed that the dentists underuse local anesthesia and conscious sedation in children younger than 10 years and that the dentists find it difficult to administer local analgesia to younger children with an increase in their stress and difficulty with decreasing age of a child patient. A comparison of care pattern of Paediatric dentists with general dentists showed that the Paediatric dentists showed a more extensive treatment approach specially while treating younger children with a better pain control management¹⁰.

The objective of study was to compare the difference between attitudes of general dentist vs Paediatric dentists towards pain management in children and adolescents.

METHODOLOGY

This questionnaire based survey was conducted at general and Paediatric dentists working in various setups in Pakistan, from Jun to Nov 2019. The sample size was calculated using WHO calculator. The study included total of 345 active practitioners via convenience sampling technique, which included about 327 general dentists

(GD) and 18 specialist Paediatric dentists (SPD). Ethical approval was obtained from Ethics Review Board of Rehman College of dentistry (ref no. 19-11-031).

An informed consent was obtained from all the participants prior to the study. A questionnaire was distributed among all the participants working in different parts of the country, electronically. The questionnaire used was the modified version of the one used by Henrik and Thomas on Swedish dentists¹¹. Out of 345 participants only 287 responded GD (n=271) and SPD (n=16) while 40 were dropouts who did not respond.

The questionnaire included socio-demographic characteristics of the dentists including age, gender, years in practice, type of employment, hours treating child patients per week, dentists having children of their own. It included four scenarios about the use of topical anesthesia, use of local anesthesia, use of pre- and post-op analgesics while treating different age groups for extraction and filling. Likert's Scale was used to assume the attitudes of dentists in all these scenarios in a linear range starting from strongly agree, often, sometimes, seldom and never. The questionnaire also included questions about the type of pharmaceutical agents prescribed as analgesic and also the timing of administration of pre-op analgesics if any.

Both GD and SPD working in tertiary care hospitals or private clinics or both in various cities of Pakistan were included in the study. Those with age 70 years or above and specialist

Table-I: Gender, frequency, mean age, standard deviation of general dentists and specialist paediatric dentists.

	General Dentists, n (%)	Specialist Paediatric Dentists, n (%)
Gender		
Male	157 (57.2)	7 (43.75)
Female	114 (42)	9 (56.25)
Age		
Mean ± SD	39.49 ± 11.68	41.19 ± 10.825
Total (287)	271	16

dentists of other specialties other than Paediatric dentistry were excluded from the study.

The questionnaire was distributed among all the practitioners through email with informed consent and information regarding the survey followed by three reminders.

SPSS version 22 was used to data compilation and statistics. Likert's scale responses were

using McNemars's Test. The Logistic regression analysis used the variables age, gender, hours of treating children per week, Specialist Paediatric dentists and dentists having children of their own for predictive analysis among variables. The difference between the observed and expected

Table-II: Percentage of Pakistani general dentists using various aids for reducing pain in four clinical scenarios.

Scenario	General Dentists		p-value	Chi Square
	Always, Often	Sometimes, Seldom, Never		
	n (%)	n (%)		
Scenario I: Filling of 85				
Local Anesthesia?	5 (1.84)	266 (98.15)	0.000	0.000
Pre-Op Analgesics?	2 (0.73)	269 (99.26)	0.000	0.000
Post-Op Analgesia?	4 (1.47)	267 (98.5)	0.626	0.625
Scenario II: Filling of 46 Local				
Aanesthesia?	1 (0.36)	270 (99.6)	0.000	0.000
Pre-Op Analgesics?	25 (9.22)	246 (90.7)	0.664	0.663
Post-Op Analgesia?	1 (0.36)	270 (99.6)	0.000	0.000
Scenario III: Extraction of 14?				
Local Anesthesia?	139 (51.2)	132 (48.7)	0.000	0.000
Pre-Op Analgesics?	141 (52)	129 (47.6)	0.009	0.009
Post-Op Analgesia?	141 (52)	129 (47.6)	0.024	0.024
Scenario IV: Extraction of 51?				
Local Anesthesia?	271 (100)	0	0.000	0.000
Pre-Op Analgesics?	7 (2.58)	269 (99.2)	0.517	0.515
Post-Op Analgesia?	0	271 (100)	0.000	0.000

Table-III: Percentage of Pakistani specialist paediatric dentists using various aids for reducing pain in four clinical scenarios.

Scenario	Specialist Paediatric Dentists		p-value	Chi-Square
	Always, Often	Sometimes, Seldom, Never		
	n (%)	n (%)		
Scenario I: Filling of 85				
Local Anesthesia?	15 (93.7)	1 (6.25)	0.000	0.000
Pre-Op Analgesics?	6 (37.5)	10 (62.5)	0.010	0.000
Post-Op Analgesia?	0	16 (100)	0.045	0.625
Scenario II: Filling of 46				
Local Anesthesia?	13 (81.25)	3 (18.75)	0.000	0.000
Pre-Op Analgesics?	2 (12.5)	14 (87.5)	0.712	0.663
Post-Op Analgesia?	10 (62.5)	6 (37.5)	0.000	0.000
Scenario III: Extraction of 14				
Local Anesthesia?	16 (100)	0	0.000	0.000
Pre-Op Analgesics?	3 (18.75)	13 (81.25)	0.005	0.009
Post-Op Analgesia?	13 (81.25)	3 (18.75)	0.013	0.024
Scenario IV: Extraction of 51				
Local Anesthesia?	16 (100)	0	0.000	0.000
Pre-Op Analgesics?	0	16 (100)	0.008	0.515
Post-Op Analgesia?	5 (31.25)	11 (68.75)	0.020	0.000

dichotomized into two parts always often and sometimes seldom never. The marginal homogeneity of these dichotomous traits was analyzed

frequencies was analyzed using chi square. The significance level of p-value was set at p<0.05 for probability testing.

RESULTS

Out of 345 participants only 287 responded with a relatively higher response rate among specialist Paediatric dentists as compared to general dentists while 40 were dropout. However, the response rates between gender did not show any significant difference. The mean age of gene-

ral dentists was 39.49 (SD:11.68) whereas, mean age for specialist Paediatric dentists was 41.19 (SD:10.8) (table-I).
 tomized as High intention (Always, Often) and Low intention (Sometimes, Seldom, Never). Whereas, Table-III shows the responses of specialist Paediatric dentists for using various aids in same clinical scenarios.

Table-IV shows that about 161 (59.4%) of the general dentists and 16 (100%) specialist Paedia-

Table-IV: McNemar’s test; percentage of pakistani general dentists and specialist paediatric dentists using various aids always, often (Likert’s Scale) for reducing pain in primary and permanent teeth in four clinical scenarios.

Scenario	General Dentists Always, often n (%)	Specialist Paediatric dentists Always, often n (%)	p-value
Scenario I: Filling of 85			
Local Anesthesia?	5 (1.84)	15 (93.75)	0.000
Pre-Op Analgesics?	2 (0.73)	6 (37.5)	0.000
Post-Op Analgesia?	4 (1.47)	0	0.625
Scenario II: Filling of 46			
Local Anesthesia?	1 (0.36)	13 (81.25)	0.000
Pre-Op Analgesics?	25 (9.22)	2 (12.5)	0.663
Post-Op Analgesia?	1 (0.36)	10 (62.5)	0.000
Scenario III: Extraction of 14			
Local Anesthesia?	139 (51.2)	13 (81.25)	0.000
Pre-Op Analgesics?	141 (52)	2 (12.5)	0.009
Post-Op Analgesia?	141 (52)	10 (62.5)	0.024
Scenario IV: Extraction of 51			
Local Anesthesia?	271 (100)	16 (100)	0.000
Pre-Op Analgesics?	7 (2.58)	0	0.515
Post-Op Analgesia?	0	5 (31.25)	0.000

Table-V: Number of pakistani general ad specialist paediatric dentists recommending pre/post op analgesics, type of analgesics, and timing of its administration.

	General Dentists n (%)	Specilaist Paediatric Dentists, n (%)	p-value
Recommended Pre/Post-Op Analgesics			
Yes	161 (59.4)	16(100)	0.000
No	110 (40.6)	0	
Pharmaceutical Agent Recommended			
Don’t recommend	110 (40.6)	0	0.005
Ibuprofen	108 (39.85)	11 (68.75)	
Paracetamol	53 (19.5)	5 (31.25)	
Timing of Administration			
Don’t recommend	186 (68.63)	11 (68.75)	0.008
An hour before treatment	27 (9.96)	5 (31.25)	
More than an hour before treatment	58 (21.4)	0	

ral dentists was 39.49 (SD:11.68) whereas, mean age for specialist Paediatric dentists was 41.19 (SD:10.8) (table-I).

Table-II shows the dichotomized responses of Pakistani General dentists for using various aids for management of pain on Likert scale in various clinical scenarios. The results were dichotomized as High intention (Always, Often) and Low intention (Sometimes, Seldom, Never).

Table-III shows the responses of specialist Paediatric dentists for using various aids in same clinical scenarios. Table-IV shows that about 161 (59.4%) of the general dentists and 16 (100%) specialist Paedia-

ment ($p=0.008$) and 5 (31.25%) specialist Paediatric dentists recommended it about an hour before treatment.

DISCUSSION

Pain is the major reason that often ends up in creating various behavior management problems and leads to dental fear and anxiety (DFA). This in turn ends up in delaying the dental treatment or even abandons the treatment in the middle by the dentists¹. DFA accounts for one of the major reasons for referring children to specialist Paediatric dentists. This study highlights the difference of attitudes between general dentists and specialist Paediatric dentists towards pain management.

Our study reveals that general dentists used pre-op analgesics more frequently than specialist Paediatric dentists. The pre-op use of analgesics among dentists still labels a knowledge gap⁵. The idea of pre-op uses of analgesics for a positive effect post operatively was contradicted by a study in 2010¹². This study instead stated that to achieve good post-op pain control in In-patients such as those undergoing dental, orthopedic and abdominal surgeries, one must focus all the measures for every phase of perioperative period. Another study suggested that further research is required as the use of pre-op analgesics does not scientifically improve the post-op pain with immediate effect nor does it reduce the need for the use of post-op analgesics¹³. It also suggested that for some reason NSAID showed better results than paracetamol when used as a pre-op analgesic. The used of pre-op analgesic by dentists without any strong scientific evidence, is considered perfunctory and is still open to discussion as though a single dose might not cause any harm but there are side effects reported and this use of pre-op analgesics by dentists for Paediatric patients is more associated with the concerns of the dentist himself¹⁴.

Ibuprofen was prescribed more frequently more than an hour before starting the procedure by general dentists as compared to paracetamol. The pharmacokinetics of ibuprofen and parace-

tamol differ. The maximum plasma concentration is achieved within 0.5-1 hour for paracetamol and about 2 hours for ibuprofen, while the half-life for both is 2 hours^{15,16}. The timing of administration of pre-op analgesics should therefore be carefully monitored depending on these values to reach the maximum efficacy depending on whether the desired effect is required peri-operatively or post-operatively. However, the placebo effect should not be underrated in these cases. As both paracetamol and ibuprofen are widely used in children as an analgesic and antipyretic but still the use of active substance to be used as placebo is controversial¹⁴. Besides there is no scientific evidence available as such to support the use of these drugs as effective pre-op analgesics.

The specialist Paediatric dentists are found using all types of pain reducing strategies as well as topical anesthesia more frequently than general dentists. Since, specialist Paediatric dentists are often involved in treating those children who have multiple behavior management problems and anxiety issues being referred by other dentists, as well as the enhanced form of knowledge that comes with specialty training, the specialist dental practitioners are found using local anesthetic more frequently while performing filling for children under 9 years of age¹⁷. A Dutch study also support these findings¹⁰.

The use of topical anesthetic prior to administration of local anesthesia was mostly common among specialist Paediatric dentists. As pain management is not only associated with prevention of pain but also the reduction of pain by various pharmacological agents supplemented by various BMT's and good psychological care according to various age groups. A good communication with the child to ensure pain free administration of local anesthesia supplemented by various pain reduction protocols is the key to success.

The use of local anesthetic while treating primary and permanent teeth was equally often by specialist Paediatric dentists in contrast to general dentists who only used local anesthesia

for permanent teeth usually. These findings are supported by a study performed on various groups of dentists in USA and Finland¹⁸. This underuse of local anesthetic for younger children is taxing as younger children show more difficulties in understanding of pain and this then ends up in various behavior management problems and dental fear and anxiety issues. One possible cause for this underuse could be the dentists own stress and fear in introducing injections in children because of their reactions and wining and timid behaviors. This uncertainty in general dentists regarding treatment of children calls for more Paediatric dentistry specialty courses and more trained Paediatric dentists specially in Pakistan. This study stress on strengthening the undergraduate curriculum as well as citation of various protocols and strategies to help the dentists in understanding child psychology and provide them with guidelines that could be easily followed by them during their practice as supported by other studies⁷.

This study highlights the difference between various protocols followed by general and specialist Paediatric dentists while treating children and adolescence as well as the underuse of local anesthetics by general dentists while treating primary teeth. This also highlights gap between the effectiveness of pre- and post-op use of analgesics in dentistry which needs to be bridged and diverts the focus for treating Paediatric dentistry as a separate specialty in our country and strengthening of our curriculum to allow for better communication of pain¹⁹.

CONCLUSION

General dentists were found using all types of pain reducing strategies, topical anesthesia and local anesthesia less frequently as compared to specialist Paediatric dentists while treating children with primary teeth.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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